

FLORA OF INDIA

Series 3

FLORA OF SINDHUDURG

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Ph. D.



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FOREWORD

The Sindhudurg district bifurcated from the erstwhile Ratnagiri District, Maharashtra on administrative grounds and established in May, 1981, is floristically rich and varied. Being the southern-most district of Maharashtra the flora is akin to the flora of North Kanara and the distribution of many semi evergreen / evergreen species reveals the northernmost limit of those plants in the Phonda-Ambolighat belt. The district has been explored earlier by Dr. Lush, Dr. Stocks, Dr. Ritchie, Dalzell, Woodrow and Nairne to mention a few but the localities of collection were variously mentioned as "Concan (Konkan), S. M. Country, Warree Country" without any precise locality. Many interesting species such as *Agrostistachys indica* Dalz., *Anomum microstephanum* Baker, *Atalantia wightii* Tanaka, *Carissa inermis* Vahl, *Drypetes venusta* (Wight) Pax & Hoffm., *Epithema carnosum* Benth. var. *hispida* Clarke, *Floscopa scandens* Lour., *Gymnostachyum glabrum* (Dalz.) T. Anders., *Hygrophilla pinnatifida* (Dalz.) Sreemadhavan, *Justicia wynadensis* (Nees) T. Anders., *Theridaphnum dalzellii* Schott etc. recorded by Cooke in the "Flora of the Presidency of Bombay (1901-1908)" without specific localities are mostly collected from this district only. Due to biotic disturbance the vegetation is getting fast depleted and many species such as *Habenaria suaveolens* Dalz., *Impatiens tomentosa* Heyne ex Wight & Arn., *Lepidagathis mitis* Dalz., *Polyzygus tuberosus* Dalz., *Salacia brunoniana* Wight & Arn. etc. earlier recorded by Dalzell (1850-1851), Ritchie (1831-1860), Woodrow (1897-1901) could not be recollected inspite of repeated surveys and careful search for them. A few species as *Danthonidium gammiel* (Bhide) Hubb., *Dimeria woodrowii* Stapf, *Lepidagathis lutea* Dalz., *Schizachyrium paranspyeanum* (Bhide) Raiz. & Jain, that are infrequent or scarce elsewhere in Maharashtra could however be collected from this district.

As Sindhudurg district forms the transition from the typical moist deciduous forests of Maharashtra to the semievergreen and evergreen components of Karnataka, the area was taken for intensive floristic survey. The area is also rich in medicinal plants. In all 1123 species have been collected from this district representing 137 families and 640 genera. The dicots are represented by 115 families, 506 genera and 844 species. *Gnetum* is the only gymnosperm recorded from this district. Species endemic to peninsular India and Western Ghats include *Danthonidium gammiel* (Bhide) Hubb., *Dimeria woodrowii* Stapf, *Erinocarpus blamouli* Grah., *Eriocaulon odoratum* Dalz., *Nilgiritanthus warreensis* (Dalz.) Bremek., *Wiesneria triandra* Michell etc.

Ceropegia jainii, *C. sahyadrica* and *Glyphochloa ratnagirica* described from this district are new to science.

This work shall be useful to all students of Botany and fill up the lacunae in our knowledge of the flora.

BOTANICAL SURVEY OF INDIA
CALCUTTA
1st January, 1988.

M. P. NAYAR
DIRECTOR

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My thanks are due to Shri P. D. Modak, Photographer Botanical Survey of India, Pune and to Shri Nagpure, Artist, Maharashtra Association for Cultivation of Science, Pune for photographs and line drawings connected with the Flora.

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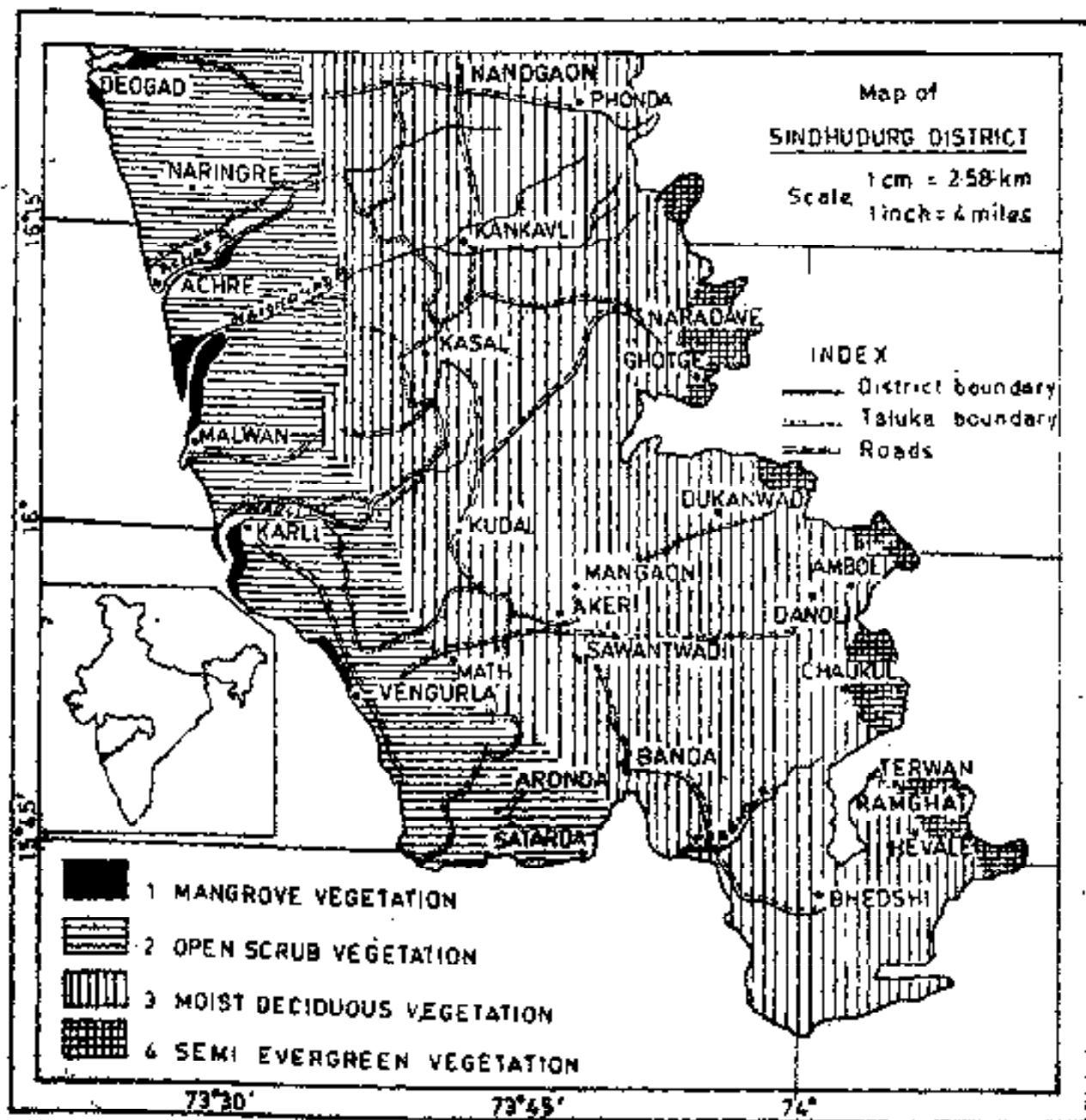
B. G. KULKARNI

February, 1988



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A close up of **Careya arborea** Roxb. — a common component of deciduous forests.



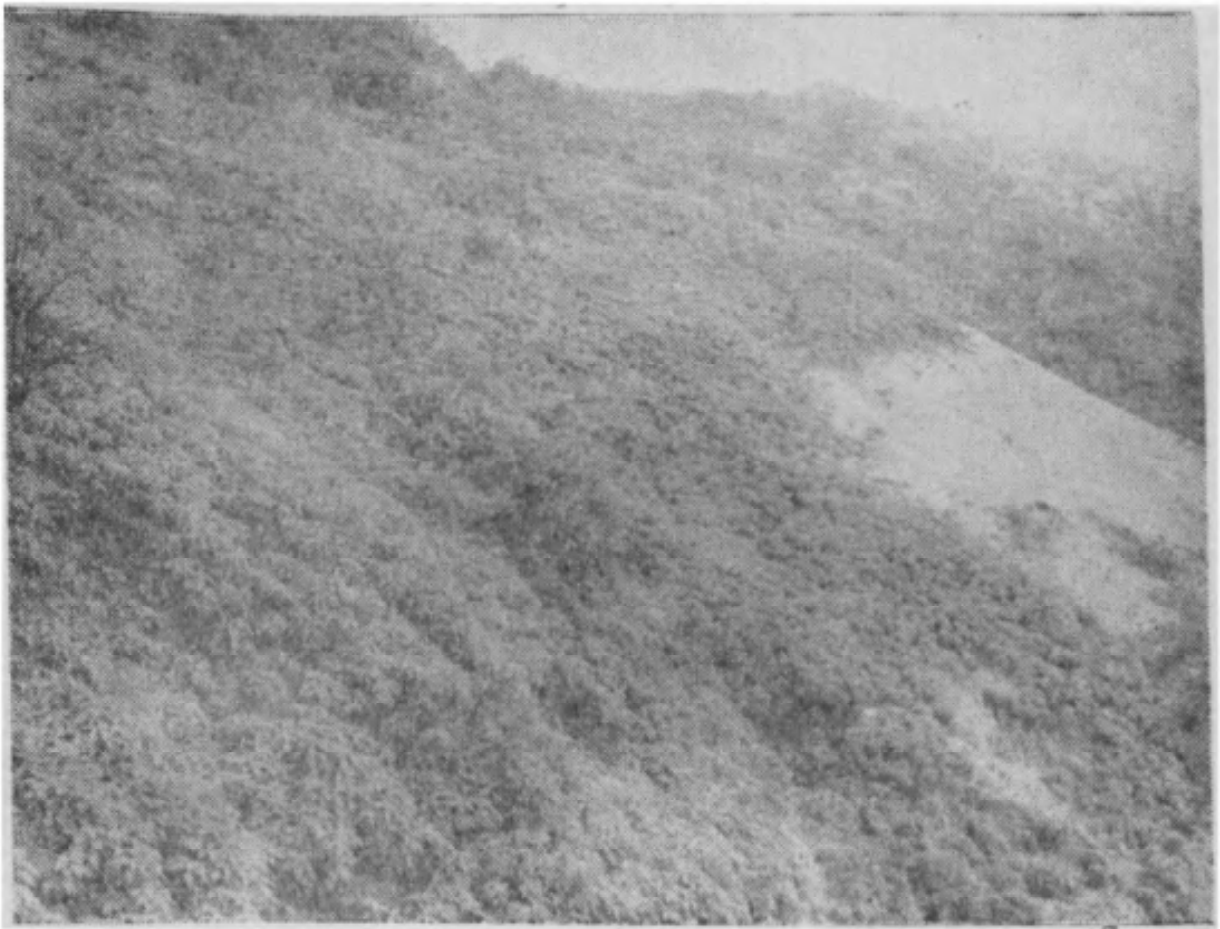
View of a sacred grove near Malwan with regenerating deciduous forest in the foreground.



A close up of flowering twig of *Elaeocarpus serratus* L.
a component of evergreen forests.



A view of deciduous forest with Teak — *Terminalia* community and cultivated fields (in the foreground) in plains near Phonda.



Uniform shrubby growth of *Carvia callosa* (Nees) Bremek along ghats.



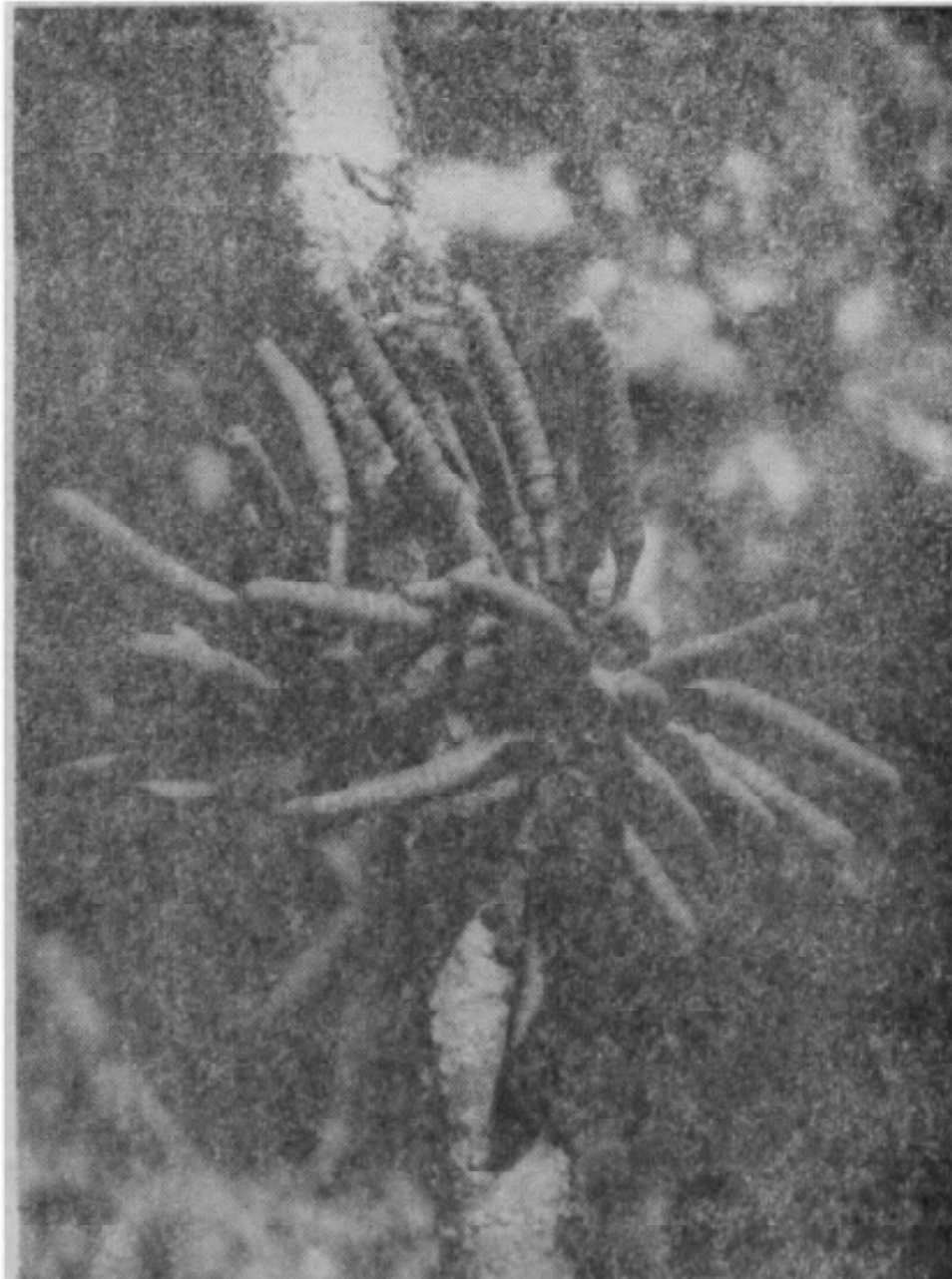
Mangrove vegetation near Deogad — showing *Rhizophora mucronata* Poir. (with stilt roots), *Sonneratia caseolaris* (L.) Engl., *Avicennia marina* (Forsk.) Vierh. etc. — forming a thicket.



Entada pursaetha DC. a prominent liana with thick, wavy stems, occasionally found in moist deciduous forests.



A close up of *Impatiens acaulis* Arn. — commonly seen on damp rocks near falls in ghats.



A close up of male cones of *Gnetum ula* Brongn
in moist deciduous forests.



A view of marine alga covering rocks at Malwan coast

INTRODUCTION

Introductory note : Though scattered collections from this district have been made, there is no detailed floristic survey of Sindhudurg district; hence the present work is taken up.

This district is newly formed after splitting of the erstwhile Ratnagiri district on 1st May, 1981 on administrative grounds. It comprises of 7 talukas, of which Sawantwadi taluka has a large forest area (27,650 sq. hectares). Earlier the forests were well protected in the erstwhile Sawantwadi State. Otherwise, even today some forest lands are privately owned in other areas of the district (' Malki ').

There is considerable variation in the topography, geology and climate of the district. Nearly 85% of the area is hilly. As compared to Ratnagiri district, this district has more rainfall but poor soils.

At the suggestion of the Director, Botanical Survey of India, exploration work of 6 talukas in the old Ratnagiri district from Deogad-Phonda to bordering Belgaum district (Karnataka) and Union Territory Goa was taken up.

Historical note : The Sindhudurg district has an ancient past right from the period of Pandavas to the present time. This area was under the control of either Muslim (15th and 16th century) or Hindus (17th century) from time to time. The ocean-fort ' Sindhudurg ' was constructed by Shivaji in 17th century to guard the coastal areas against Portuguese at Goa and Siddis at Janjira in Ratnagiri district. The district is named after this fort. There are other forts of some importance during Maratha and Muslim regimes e. g. Manohargad, Mansantoshgad in Sawantwadi taluka, Vijaydurg and Devgad a taluka place, Bahiravgad in Kankavli taluka, and Rangana fort in Kudal taluka. Subsequently Sawant dynasty ruled over this region, the headquarters being at Sawantwadi till 1948.

Reasons for undertaking the present work and its importance : The present work was undertaken as a part of general plan of the Botanical Survey of India to revise the flora of Maharashtra. Moreover many of the forests are botanically under-explored and very little was known of its botanical wealth and the region shares much in common with Flora of adjoining Goa and North Kanara district (Karnataka). Nowhere in Maharashtra is reported a flora akin to this district.

This being southern most district of Maharashtra, many species which are commonly found in evergreen forests of North Kanara and further south

upto Kerala have been collected from the Sindhudurg district. Some of the evergreen species also appear to have reached their northern most limit of distribution in Phonda-Ambolighat range in this area. Many rare and interesting species recorded by Cooke in the 'Flora of the Presidency of Bombay' (1901-1908) are from this district. This really forms the northernmost extension of evergreen species along the Western ghats. The number of evergreen species becomes progressively less as one moves further northwards, due to different climatic pattern, lesser rainfall and increased dryness.

The flora and vegetation along the Western ghats, are not uniform. The ghats have many niches where mixture of dry, humid, moist, arid, semi-arid plants grow together in different places at different altitudes. They thus provide an ideal situation for speciation. They also provide situation for different ecotypes which appear to have come into existence at successive period and not all at once.

Past and present work : (a) **Earlier work :** Part of this district was explored in the last century by Dr. Lush, Dr. Stocks, Law, Dr. Ritchie, Dalzell, Woodrow, Nairne and the specimens were taken to Kew herbarium. The collectors of these specimens did not mention precise localities of their collection but were caused by vague general terms as 'Konkan' (conocan), 'S. Konkan', 'S. M. Country', 'Warree or Wari country' with the result much confusion existed on the exact locality of collection. Dr. Lush, Dr. Ritchie, Dr. Stocks and Law did not publish any account of their collections. Graham making full use of these collections prepared and published his 'Catalogue of Plants of Bombay and its vicinities' (1839). This was followed by Dalzell and Gibsons' 'Bombay Flora' (1861). Earlier to this Dalzell separately published his floristic work in the form of articles in 'Hooker's Journal of Botany and Kew Garden Miscellany' from 1850 to 1852. Nairne published 'Flowering Plants of Western India' (1894). Woodrow too published a series of papers in Journal of Bombay natural History Society on "Flora of Western India" (1897-1901). Dalgado, who was a Medical Officer in Sawantwadi State, published 'Flora de Goa e Sawantwadi' (1896) wherein he included besides Sawantwadi State, Vengurla and Malwan also. There are 731 wild species and 279 cultivated species in the areas, with vernacular names and brief notes, but lacking specific localities.

The publication of 'Flora of British India' (1872-1897) by Hooker, f. acted as a fillip for the publication of local floras. Dr. Cooke published 'Flora of the Presidency of Bombay' (1901-1908) which included Sind, Gujarat and North Kanara district (Karnataka) giving comprehensive account of vegetation with descriptions of genera and species. It is based on collections of earlier botanists and their works. Later Talbot published 'Forest Flora of Bombay Presidency and Sind' (1909-1911). In these later publications also the precise localities were lacking as they were based on collections by Dr. Lush, Dr. Ritchie, Dr. Stocks, Law, Nairne, Woodrow etc.

After Cooke's work this area was not botanically surveyed although some collections were made in the first decade of this century by Gammie, Bhide Chibber etc. From 1957-1961, the northern region i. e. Ratnagiri district was explored on a few occasions by S. K. Jain, D. S. Ahuja, M. Y. Ansari and R. S. Rao, all from Botanical Survey of India, Western Circle, Pune. Recently V. D. Vartak enlisted 1512 species mostly from published literature covering part of Sindhudurg (Maharashtra), part of North Kanara (Karnataka) and the Union Territory of Goa and titled it as "Enumeration of Plants of Gomantaka" (1966).

Present work : The present systematic work was undertaken in September, 1964 in the form of a project on 'Medicinal Plants of Vengurla-Sawantwadi-Phonda-Amboli-ghat area, Ratnagiri district, Maharashtra State'. The author has collected in the region from June-July, 1965 to April, 1966. In October, 1969 additional more areas were added to the project from Deogad-Phonda upto Goa and part of Belgaum district (Karnataka), the collections were made from October-November, 1969 to August, 1971.

(A) Material and methods : The area for study, is shown in the map. It was approached partly by bus and partly by foot, the latter covering the entire ghat sections. Those areas are higher slopes of Phonda, Bhairi pathar, Naradave in Kankavli taluka, Shivapurpaz, Songad, Ghotge ghat and Hanuman ghat from Patgaon side in Kolhapur district, and hilly areas like Bhadgaon-Pangrad-Ghotge in Kudal taluka, Ramghat in Sawantwadi taluka was covered from Amboli in Sindhudurg district and Wagotre in Chhadgad taluka, in Kolhapur district. In this way sacred groves (Dev Raies), Reserved forests and interior ghat forests were thoroughly covered. Of the total area of the region which is approximately 37,300 hectares, nearly 80% has been covered.

A representative collection of plants in different seasons and in different areas was made covering a wide range of habitats. While exploring an attempt was made to have the collection of 3 major periods i.e. pre-monsoon, mid-monsoon and postmonsoon, every effort has been made to collect besides wild plants, exotic beautiful plants as well. The habitats chosen were aquatic, semi-aquatic, grass lands, forest undergrowth, hill slopes and tops of the Sahyadris. Field data covering habitat, flower colour, odour, fruiting details, associations, frequency and other details not evident in the herbarium specimens were entered into field books. Flowers as well as small, delicate, whole plants were pickled for further critical study in the herbarium.

During the present study 4800 field numbers consisting approximately 18,200 specimens including a few cryptogams were made and deposited in the regional herbarium of Botanical Survey of India, Poona (BSI). The type specimens of new species have been deposited in other Indian and

foreign herbaria e.g. Central National Herbarium, Calcutta (CAL), Royal Botanic Gardens, Kew (K), Rijksherbarium, Leiden (L), Missouri Botanic Gardens, St. Louis, U. S. A. (M) etc.

The plants after proper drying, poisoning and mounting, following standard herbarium methods, have been studied in the regional herbarium of Botanical Survey of India, Pune. Besides, Hooker's Flora of British India, other regional floras or publications by Cooke (1958, Repr. ed.), Santapau (Flora of Khandala ed. 3, 1967), Saldanha and Nicolson (Flora of Hassan district, 1976) etc. were consulted. In addition many recent monographic and revision works published in different Indian and foreign journals and periodicals were also consulted. Specimens from Ratnagiri district which had been deposited in Blatter herbarium in Bombay (BLAT) were also consulted. For further critical study, whenever necessary, materials from Central National Herbarium, Calcutta (CAL) and the herbarium of Botanical Survey of India, Southern Circle, Coimbatore (MH) were procured and studied. For new taxa, herbaria at Kew (K) and Leiden (L) were referred to for comparison with types.

The dichotomous keys are so prepared as to allow an easy identification of the plants from the area. A brief description for each species is given and all the species have been arranged in alphabetical order in each family. Illustrations for text figures have been drawn from original specimens. Important of them have been photographed and produced here without touching.

(B) Plan of the Flora : The systematic enumeration follows essentially that of Bentham and Hooker's classification with concept of phylogenetic relationships. While giving citations, every attempt has been made to give valid name first, followed by the basionym and citations given in the regional floras and Flora of British India.

The standard abbreviations for publications and authors' names have been adopted.

The naturalized exotics have been included in the flora, while plants usually cultivated for ornamental purposes or for edible purposes have been enumerated at the end of families.

TOPOGRAPHY AND GENERAL FEATURES

(Geology, soil and Climate)

The district lies between 15°28' to 17°30' E and 73°22.5' to 74°14' N. The average east-west distance is about 64 km. and north-south length about 84 km. It is bounded by the Ratnagiri district on the north, the Arabian sea on the west, the Union Territory of Goa on the south, Kolhapur district on east and part of Belgaum district (Karnataka) on the south-east. Most of the eastern and south-eastern part of the district is covered by high hills of

the Sahyadris. This mountainous face is deeply scarred by ravines and shows step-like appearance and the higher altitude here is 1000-1100 m above mean sea level. The middle part has many flat topped hills rising to the heights of 250-300 m above mean sea level but closer to the coast the spurs hardly exceed 100-150 m. This hilly area is termed as 'Valati' and the plains near the coast is termed as 'Khalati'. The coast line is irregular due to alternative rocky plateaus and shallow bays and hence has limited utility.

The ghats at Amboli and Phonda are well known and besides in these mountains many historical Maratha fortresses are located. The region is drained by four main rivers besides a number of small rivulets and streams all originating from the Sahyadri ranges e. g. Shuk river near Vijaydurg, Gad river near Malwan, Karli river near Kudal and Terekhol river near Banda. (Map shows taluka boundary, roads, rivers etc.).

Geology and soil : The landscape of the district is basically influenced by the Deccan lavas, which cover most of the area except southern and south-eastern parts which are underlain by metamorphic types. The typical lava landscape developed under humid tropical conditions, persists almost everywhere.

The geological formations found in the area include those of the precambrian, mesozoic, tertiary and quaternary ages.

A. Precambrian : (i) **Archaean Dharwar :** From the Phondaghat to Goa border the major part of the rock is ferruginous phillite. Pink banded ferruginous quartzite, micaceous quartzite, mica schist and chlorite schist, amphibolite with calcareous bands and chlorite, phyllite with slaty intercalations are also found. These rocks are intruded by gabbro, pyroxenites, serpentites, granites, pegmatites and quartzite-veins. (ii) **Kaladgi group :** In Phonda and Malwan areas a large thickness of quartzite with minor conglomerates, slates and limestones are exposed below the trap. There are westerly extensions of the Kaladgi group found in Karnataka and southern parts of Kolhapur district.

B. Mesozoic and tertiary rocks : The major part of the district is covered by basaltic flows commonly known as Deccan traps. These are considered to have been formed from upper cretaceous to lower eocene period. Basal section is of dense and dark basalt and top section is altered reddish which is easily weathered. Such flows extend over very large areas and give rise to plateaus and step-like appearance.

C. Laterite : This type is derived due to leaching of traps and precambrian rocks. They occur over large areas on the high plateaus of the Sahyadris and at different levels upto sea. The laterite profile shows the ferruginous variety at top, alumina rich pockets are either at the top or within the laterite

and a lithomargic clay below. Large areas are also covered with secondary laterites which are considered to be of quaternary age. The economic minerals occurring in the district are Asbestos at Akeri, Bauxite at Sateli and Satarda in Sawantwadi taluka, Chromite near Kankavli and Mica near Kadaval in Kudal taluka.

Soils : Lateritic soils are of common occurrence and their colour varies from bright to brownish-red due to hydrated iron oxides. They are acidic. The general texture of the soil is loamy and depth varies from 0.35-1 m. Porous nature of the soil has less moisture holding capacity. The following types of soils have been observed in the district.

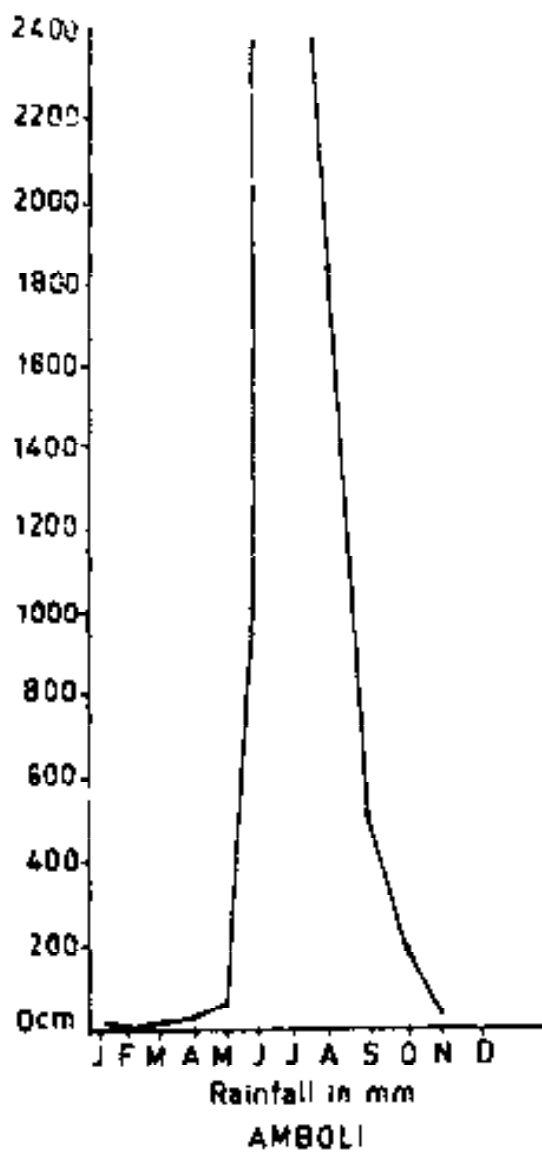
(a) **Rice soils :** These have different names depending upon their location. At higher levels the term 'mal' is used and at comparatively lower elevation it is called 'kuryat'. Near streams or on stream beds and river beds the term 'panthal' or 'vayangan' is used. All these soils on supplying lime, phosphatic and potash fertilizers give high yield. (b) **Warkas soils :** These are situated on the eroded slopes of the hills and have yellowish-red colour and poor fertility. The depth is very shallow with coarse texture. 'Nagli' (*Eleusine coracana*) is the only cultivated crop as it responds well to supplies of nitrogen and phosphate. These are also useful for the cultivation of Cashew-nut and Alphanso mango. (c) **Salt lands :** These are termed as 'Khar or Kharvat' soils and due to inundation of the sea have become salty. In coastal talukas Deogad, Malwan and Vengurla the entire western strip is salty. Since these salt lands have not become alkaline they can be reclaimed for cultivation. In order to render the 'Khar lands' fit for cultivation, the State Government enacted the 'Bombay Kharlands Act' in 1948 and passed the Bombay Kharland rule (1949). (d) **Garden soils :** These are yellow-red or brown coloured, generally located at the foot of hill ranges. They are of mixed origin, they are light, well drained, fertile and easily workable. Arecanut and Coconut gardens flourish in these soils.

CLIMATE

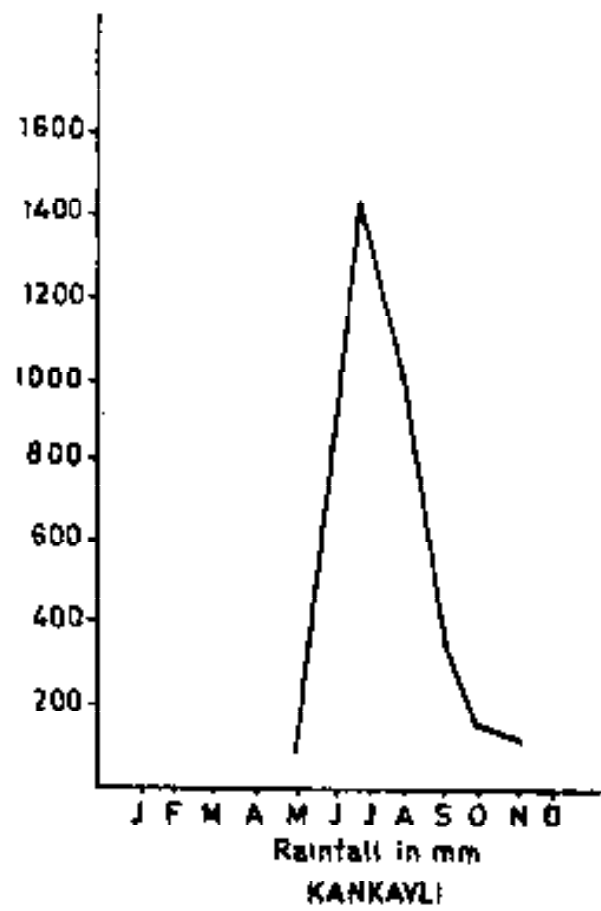
The climate of the district is moist, hot but healthy. Between March to May, is the peak summer season. The rainy period lasts from June to October and mild winter from November to February. Intermittent rains occur in October and November. The monsoon ushers maximum rainfall which ranges from 250-300 cm per annum along the coastal tract gradually increasing to 500 cm or more in the interior towards the Sahyadri ranges. Amboli receives an annual rainfall of 745 cm as against coastal stations like Deogad, Malwan and Vengurla which have a mean of 295 cm, 215 cm and 217 cm respectively. The heaviest rainfall, nearly 1/3 of the total falls in July (Graphs 1-6).

(A) **Temperature :** According to available meteorological data of the stations like Deogad and Vengurla being coastal areas the variation of temperature during the day and through season is not large. During the summer

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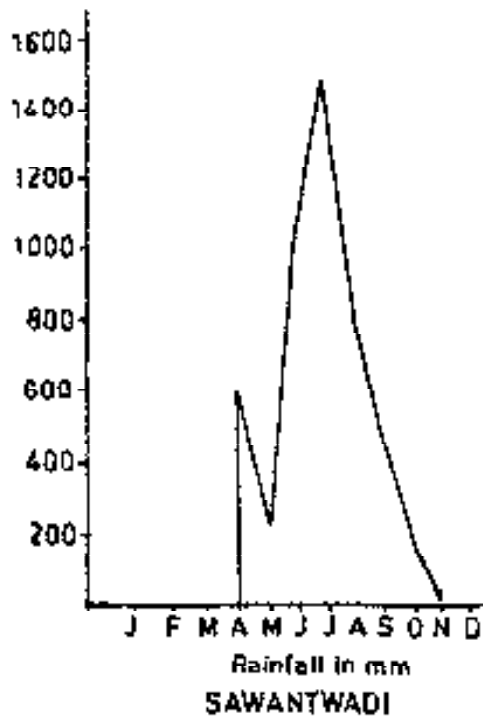
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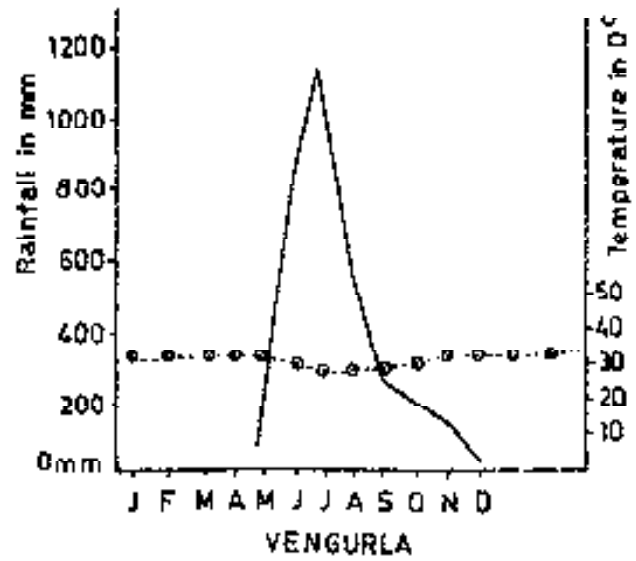
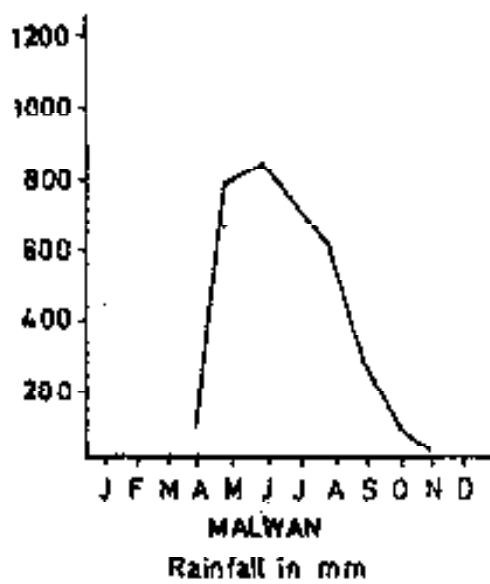
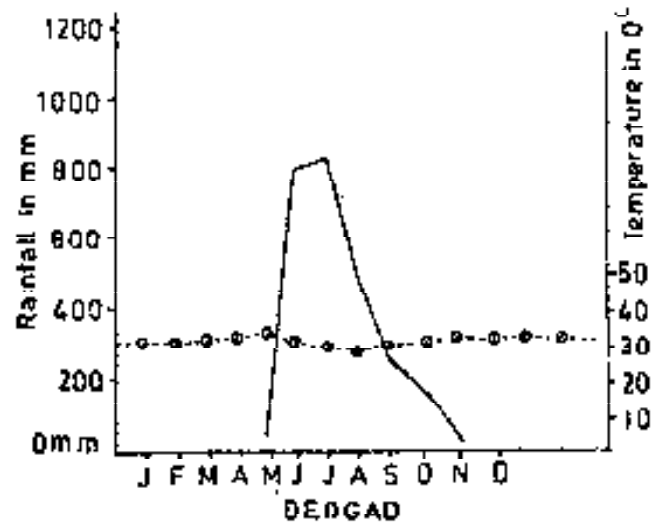
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(viii)

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6

temperature rises slowly from March. May is the hottest month (32°C). In rainy season temperature drops by 3-4 degrees and day temperature is lower than it is in cold season. The climate near the coast is pleasant as sea breeze blows throughout the day hours. (The ombrothermic graphs 4-6 of the stations at Deogad and Vengurla).

(B) Humidity : Being coastal district, the climate is on the whole humid and even during summer and winter seasons humidity seldom falls below 60%. The skies are heavily clouded only during the monsoon, otherwise are clear or lightly clouded during the remaining part of the year.

FOREST BIO-DATA

This district is poor in wild life as there are few good forests which are situated on the precipitous slopes of Sahyadrian range, at Amboli and Ramghat. Large games such as Tiger, Deer (Sambar) and Bear are scarce and their hiding places are more or less inaccessible. Panthers are also uncommon. Here, Jackals and foxes inhabit rocky hills. Monkeys are represented by Langur, and Bonnet. Wild boar is found in the Sahyadrian range and in scrub jungle along the coast. Of the birds Cranes, Quails, Bustards, Doves, Junglefowl and Jungle Myna, White Scavenger Vultures are seen in the district. Of the reptiles Ratsnake, Cobra, Russel's Viper, Pit Viper, Phooras and the Python are seen in the deciduous forests though scarce.

There are very few reserved forests in the district due to which the wild fauna is poorly represented. Different kinds of animals became less and less in number due to hunting. Biotic interference due to illicit felling of trees, cattle grazing and shifting cultivation have destroyed vegetable wealth, rendering great damage to fauna in turn.

GENERAL VEGETATION TYPES

The vegetation can be broadly classified into 4 main groups as follows (A) Littoral or Mangrove type, (B) Open scrub type, (C) Moist deciduous type and (D) Semi evergreen type. Plant communities are not sharply defined and they merge imperceptibly one into another in which it is difficult to pin point any dominant species. In general vegetation is not showing well marked characteristic canopies. *Tectona grandis*, *Terminalia bellirica*, *T. crenulata* and *Lagerstroemia microcarpa* form a community representing climatic climax in the area.

(A) Littoral or mangrove type is divided into (a) Coastal Saline Sand. The soil is sandy so the vegetation is poor and is restricted to coastal areas like creeks at Deogad; Achre, Deobag and Kalawli in Malvan; Kochre in Kudal. Small trees or shrubs like *Thespesia populnea*, *Premna corymbosa*, *Colubrina asiatica*, *Cerbera manghas*, *Barringtonia racemosa*, *Clerodendrum inerme*, while herbs *Launea procumbens*, *Pedaliium murex*, *Vernonia cinerea* with grasses like *Parotis indica*, *Spinifex littoreus*, *Zoysia matrella* are noticed; the climbers seen are *Canavalia virosa*, *Ipomoea pes-caprae*, *Derris trifoliata*, *Leptadenia reticulata* etc.

(b) **Halophytes or mangrove vegetation** : This type mainly consists of coastal salt water plants in the areas like Nadan-vir, Vada-tar and Tar-mumbri in Deogad; Achre, Kolamb and Kalawli in Malwan; Kochere-Kudal and harbour side of Vengurla. Small trees and shrubs observed and collected are *Bruguiera gymnorhiza*, *B. cylindrica*, *Ceriops tagal*, *Avicennia marina*, *A. officinalis*, *Candelia candel*, *Rhizophora mucronata*, *Sonneratia apetala* and *S. caseolaris*. Behind this the mangrove vegetation consists of *Acanthus ilicifolius*, *Excoecaria agallocha*, *Aegicerax corniculatum*, *Lumnitzera racemosa*, *Vitex trifolia*, *Caesalopinia crista*, *Derris trifoliata*, *Clerodendrum inerme* and *Wedelia biflora*. Here the salinity is less due to influx of fresh water.

(B) **Open Scrub type** : A major portion of Sindhudurg district belongs to this and moist deciduous type with scrub jungles from 50-200 m and moist deciduous confined to 200-500 m altitudes.

Undulating rocky plateaus with scant vegetation are met with in different places as follows :— 1) Kankavli taluka - Bhironde, Digwal, Nandgaon; 2) Kudal taluka - Bhadgaon, Dukanwad, Kadaval, Kerude; 3) Malwan taluka - Dhamapur, Kunkavle, Nandos, Ramgad; 4) Sawantwadi taluka - Akeri Banda, Mangaon, Nemle; 5) Vengurla taluka - Math forest and Redi. These are slowly being destroyed due to manganese ore mining (at Redi - Vengurla), 'Kumri' cultivation, over-grazing and other boitic factors. *Anacardium occidentale* is cultivated on an extensive scale. This vegetation is composed of dry deciduous elements such as *Carissa congesta*, *Holarrhena antidysenterica*, *Woodfordia fruticosa*, *Microcos paniculata*, *Grewia abutilifolia*, *Buchanania lanzan*, *Flacourtia indica*, *Ixora brachiata*, *Acacia chundra*, etc. The herbaceous plants met with are *Ixora coccinea*, *Ochna obtusata*, *Crotalaria lutescens*, *Polygala elongata*, *Flemingia strobilifera*, *Sida rhomboidea*, *Naregamia alata*, *Elephantopus scaber* etc. The climbers seen and collected were *Abrus precatorius*, *Dioscorea bulbifera*, *Wattakaka volubilis*, *Derris scandens*, *Ampelocissus latifolia*, *Aspidopteris cordata*, *Bridella stipularis*, *Hemidesmus indicus*, *Ichnocarpus frutescens* etc.

(C) **Moist deciduous type** : These forests are met with in Mangaon, Phonda, Danoli, Bhedshi and along the ghats Phonda, Amboli, Naradave, Ghotge, Ramghat. The important components of the deciduous forests belong to species of *Terminalia*, *Xylia*, *Dalbergia*, *Dillenia*, *Careya*, *Hymenodictyon*, *Xeromphis*, *Lannea* etc. mixed with *Dendrocalamus* and *Bambusa*. The dominant families represented by density of population are Rubiaceae (*Ixora*, *Mitragyna*, *Haldina* and *Morinda*), Bignoniaceae (*Heterophragma*, *Oroxylum* and *Stereospermum*), Euphorbiaceae (*Glochidion*, *Macaranga*, *Antidesma*, *Bridella*, *Mallotus*, *Sapium*), Anacardiaceae (*Spondias*, *Buchanania*, *Lannea*, *Holigarna*), Sapindaceae (*Schleichera*, *Sapindus*, *Allophylus*, *Leptanthes*), Leguminosae (*Pterocarpus*, *Dalbergia*, *Acacia*, *Xylia*). The tall arboreal members include, *Lagerstroemia microcarpa*, *Albizia chinensis*, *Tetrameles nodiflora*, *Schleichera oleosa*, *Hydnocarpus pentandra*, *Lophopetalum*

wightianum, *Terminalia crenulata*, *Bombax ceiba*, *Xylia xylocarpa* etc. The moderately tall trees comprising the second storey of species is represented by *Grewia tillifolia* var. *leptopetala*, *Canthium dicoccum*, *Xantolis tomentosa*, *Garuga pinnata*, *Careya arborea*, *Macaranga peltata*, *Strychnos nux-vomica* etc. The shrub layer is composed of *Callicarpa tomentosa*, *Ziziphus xylopara*, *Leea indica*, *Clerodendrum viscosum*, *Chassalia ophioxylodes*, *Murraya paniculata* etc. The ground flora in the undergrowth, forest clearings and exposed situations comprise members of Fabaceae (*Alysicarpus*, *Crotalaria*, *Indigofera*, *Desmodium*, *Geissaspis*), Acanthaceae (*Justicia*, *Rungia* *Lepidagathis*), Rubiaceae (*Oldenlandia*, *Borreria*, *Hedyotis*), Scrophulariaceae (*Scoparia*, *Lindernia*, *Torenia*, *Rhamphicarpa*), Euphorbiaceae (*Phyllanthus*, *Euphorbia*), Asteraceae (*Blumea*, *Elephantopus*, *Senecio*, *Adenostemma*) and Lamiaceae (*Ocimum*, *Leucas*, *Pogostemon*, *Orthosiphon*). In addition climbers or climbing shrubs seen were *Wagatea spicata*, *Calycopteris floribunda*, *Anamirta cocculus*, *Mucuna monosperma*, *Jasminum malabaricum*, *Entada pursaetha*, *Tetrastigma cananense*, *Trichosanthes bracteata* etc.

(D) **Semi-evergreen vegetation** : This type is only seen in patches along the upper elevations of the ghats mostly above 500 m on the Western side. In this type moist deciduous forests gradually change into semi-evergreen formation and is seen in isolated patches in the sheltered ravines and valleys. There is no teak. The annual rainfall in this area is 500 cm or more per year and the dry season lasts 6-7 months. Such forests are seen at Ambolighat, Amboli-Malai jungle, Ramghat on way to Amboli and side adjacent to Wagotre in Kolhapur district, Naradave ghat in Kankavli taluka. Arboreal growth is luxuriant and lianas covering tree tops, epiphytes etc. are seen.

The top canopy is composed of *Sterulia guttata*, *Prunus ceylanica*, *Knema attenuata*, *Cryptocarya wightiana*, *Bellischmeidia dalzellii*, *Litsea stocksii*, *Holigarna grahamii*, *Dysoxylum binectariferum* etc. Next in order are seen trees such as *Glochidion hohenackeri*, *Pterosporum napaulense*, *Dioscarpus longan*, *Acronychia pedunculata*, *Nothopodytes foetida*, *Ixora nigricans*, *Kydia calycina*, *Olea dioica*, *Memecylon umbellatum*, *Euonymus indicus* etc. Along the outskirts *Wendlandia thyrsoides*, *Blachia denudata*, *Celtis cinnamomea*, *Ligustrum perrottetii*, *Ervatamia heyneana* and *Meyna laxiflora* are frequent. The shrubby layer comprises of *Psychotria truncata*, *Melogyne pannosa*, *Dichapetalum gelonioides*, *Maesa indica*, *Maytenus rothiana*, *Leea indica*, *Paramignya monophylla* etc. associated with other scandent shrubs *Luvunga sarmentosa*, *Ancistrocladus heyneanus*, *Connarus wightii*, *Salacia macrosperma*, *Grewia umbellifera*, *Uvaria narum* etc. are seen.

Some herbaceous flora seen as undergrowth and as epiphytes are *Leptadagathis fasciculata*, *Ecbolium viride*, *Nelsonia canescens*, *Dicliptera zeylanica*, *Triumfetta rhomboidea*, *Phaulopsis dorsiflora*. and epiphytes noted were *Epithema carnosum*, *Remusatia vivipara*, *Aerides crispum*, *Dendrobium lawianum*, *Bulbophyllum fimbriatum* etc.

The parasites made their appearance were like, *Dendrophthoe trigona*, *Macrosolen capitellatus*, *Helixanthera wallichiana* etc. on hosts like *Syzygium cumini*, *Terminalia crenulata*, *Ficus* spp. etc.

(5) **Hydrophytes** : These form a very minor percentage of the total flora of the region and is independent of macro-climate. There is no variety and the flora seems to be of the same type as elsewhere in ponds and lakes. No attempt has been made to study algae. The submerged aquatics include *Blyxa auberti*, *B. echinosperma*, *B. octandra*. The free floating species is *Ipomoea aquatica* whereas majority of plants belong to submerged, attached, floating aquatics such as *Monochoria vaginalis*, *Nymphaea pubescens*, *N. nouchali* and species *Eriocaulon*, *Polygonum*, *Cryptocoryne*, *Limnophila*, *Floscopa scandens* found growing in close association of *Cyperus* spp., *Schoenoplectus* sp., *Sacciolepis* spp. and a fern *Ceratopteris thalictroides* etc.

In the muddy soil along the margin of ponds and in water logged paddy fields *Aeschynomene indica*, *Eriocaulon diana*, *E. odoratum*, *Xyris pauciflora*, *Hydrolea zeylanica*, *Hygrophila auriculata*, grasses like *Pseudoraphis spinescens*, *Ischaemum travancorensis*, *I. mangaluricum*, *Utricularia* spp. and *Acrastichum aureum* a littoral fern grows along back waters near Deogad. In fast moving streams attached to the rocks are *Polypleurum stylosum*, *Griffithella hookeri*, *Hygrophila pinnatifida*, *Eriocaulon dalzellii*, *Homonoia riparia*, *Tamarix eriocoides*, *Rotula aquatica* and *Cyperus* spp. are seen.

(6) **Grass lands** : Patches of grass lands occur in the plains e.g. near Bhedshi, on Banda-Doda narg road, Adari near Malwan, Naringre, Dahibav near Deogad, Osargaon and Nandgaon in Kankavli taluka, and along ghats Phonda ghat top, Ambolighat top etc.

In swampy regions *Jasnelia griffithiana*, *Saccharum spontaneum*, *Paspalum geminatum*, *Sacciolepis interrupta* dominate. Along rocky slopes *Glyphochloa forficulata*, *G. ratnagrica*, *Manisuris clarkei*, *Themeda triandra*, *Cyrtococcum oxyphyllum*, *Heteropogon contortus*, *Chrysopogon orientalis* etc. occur.

The different constituents in plains among tall grasses are *Aristida adscensionis*, *A. setacea*, *Arundinella leptochloa*, *Dichanthium caricosum*, *Eulalia trispicata*, *Themeda tremula*, *Ischaemum indicum*, *I. dalzellii* etc. are seen.

The other grasses are *Arthoraxon lanceifolius*, *Arundinella metzlii*, *Dichanthium annulatum*, *Dimeria hohenackeri*, *D. stapfiana*, *Glyphochloa goensis*, *Alloteropsis climicina*, *Eragrostis unioloides*, *E. gangetica* dominate. (Map shows the main vegetation types in the district.)

FLORISTIC ANALYSIS

The analysis reveals that 137 families are represented by 640 genera, comprising 1123 species. Of these, the dicots are re-

presented by 115 families with 606 genera and 844 species, while the monocots by 22 families, 134 genera and 279 species. Besides, flowering plants, pteridophytes and one gymnosperm viz. *Gnetum ula* Brongn. were also collected. The analysis further reveals the following : 44 families are represented by 1 genus and 1 species each; 6 families have 1 genus and 2 species each; in 7 families, though represented by only 1 genus each the species vary from 3-14; 61 families have 2 to 9 genera and 2 to 17 species. The dominant 10 families are given below according to the number of species in decreasing order.

S.No	Family name	No. of genera	No of species
1.	POACEAE	56	114
2.	FABACEAE	32	87
3.	ACANTHACEAE	28	52
4.	EUPHORBIACEAE	27	51
5.	RUBIACEAE	26	45
6.	CYPERACEAE	11	44
7.	ASTERACEAE	26	39
8.	ORCHIDACEAE	17	34
9.	CONVOLVULACEAE	11	29
10.	LAMIACEAE	12	25

Poaceae is the most dominant family. No single family is characteristic of the region. In plains the vegetation is scrubby with dry elements predominating but in general the flora is essentially moist deciduous in nature. The dry deciduous species are gradually displaced by species of *Dysorhylum*, *Holigarna*, *Litsea*, *Persea*, *Sterculia* etc. and at higher slopes a few evergreen species flourish intermixed with semi-evergreen species. In the deciduous forests Teak-Terminalia is the dominant association met with.

An attempt has been made in the table 'A' to compare floristic composition of the district with that of other adjoining areas along the Sahyadris such as Thane, Khandala, Goa, North Kanara. For this first ten families have been selected based on number of species and compared with corresponding position occupied by such families in those regions and floras.

TABLE A

S. No.	Family	Sindhudurg Flora	Goa Flora	North Kanara Flora	Khandala Flora	Thane Flora
1	2	3	4	5	6	7
1.	POACEAE	I	II	II	I	I
2.	LEGUMINOSAE	II	I	I	II	II
3.	ACANTHACEAE	III	VI	IV	IV	VI
4.	EUPHORBIACEAE	IV	III	III	VI	V
5.	RUBIACEAE	V	V	VI	IX	VII
6.	CYPERACEAE	VI	IV	V	V	IV
7.	ASTERACEAE	VII	VII	VII	III	III
8.	ORCHIDACEAE	VIII	XI	VIII	VII	VI/I
9.	CONVOLVULACEAE	IX	VIII	X	X	VII
10.	LAMIACEAE	X	X	-	XII	X

The Flora of Sindhudurg is more or less akin to the contiguous floras of Goa and North Kanara district in the order of dominant families but differ from that of Thane or Khandala. Analysis of such studies presents gradual change from deciduous type to evergreen type along the Western ghat belt.

PLANTS OF MEDICINAL, ECONOMIC AND HORTICULTURAL IMPORTANCE

The district is well known for the two renowned varieties of 'Amba or Mango' (*Mangifera indica*) namely 'Alphonso' and 'Payari' which are even exported. The other commercial cash crop is 'Kaju or Cashew-nut' (*Anacardium occidentale*) which is cultivated on large scale in plains, on plateaus and slopes of hills. 'Naral or Coconut' (*Cocos nucifera*) and 'Supari or Arecanut' (*Areca catechu*) cultivation is quite common in plains and coastal areas and almost every village in the coastal areas has these groves. Now-a-days 'Ananas or Pine apple' (*Ananas sativus*) is cultivated from ghats to plains.

Besides above, the cultivated fruit plants include 'Sitaphal or Custard apple' (*Annona squamosa*), 'Ramphal or Bullock's heart' (*Annona reticulata*), 'Peru or Guava' (*Psidium guajava*), 'Papnas or Pummelo' (*Citrus maxima*), 'Kel or Banana' (*Musa sapientum*) and other varieties. Other common trees are, 'Ratamba or Kokam' (*Garcinia indica*), 'Avla or Amla' (*Phyllanthus emblica*), 'Kadhi patta or Curry leaf' (*Murraya koenigii*) etc. known for their economic value.

As for timber, variety of woods are in demand. With proper management of deciduous or semi-evergreen forests, most of the species can be brought in to the approved range of species required for wood based industries. Besides well known timber species of *Terminalia*, *Tectona*, *Lannea*, *Dalbergia*, *Xylia*, *Lagerstroemia* etc. trees like *Pterocarpus marsupium*, *Pongamia pinnata*, *Bridelia retusa*, *Dillenia pentagyna*, *Holigarna arnottiana*, *Syzygium cumini*, *Mitragyna parvifolia* also deserve special attention. Though Teak (*Tectona grandis*) does not occur wild, it can be successfully introduced and cultivated as seen from the old teak plantations at Amboli and Phonda ghats. Several useful exotics like *Eucalyptus*, *Casuarina* etc. are also cultivated on a commercial basis.

For extraction of fibres, oils, gums etc. several species are known to yield suitable material. Species like *Blumea eriantha*, *Guizotia abyssinica*, *Mimusops elengi*, *Jasminum* spp., *Mammea suriga*, etc. are quite important as oil yielding plants. *Corchorus capsularis*, *Calamus pseudo-tenuis*, *Caryota urens* are some of the fibre yielding plants. *Sterculia urens* is a source of gum 'Karaya'.

Some of the highly palatable fodder grasses include *Centotheca lappacea*, *Isachne globosa*, *Paspalidium geminatum*, *Digitaria adscendens*, *Themeda tremula*, *T. triandra*, *Setaria glauca*, *Alloteropsis cimicina*, *Apluda mutica*, *Colx lachryma-jobi* etc. In addition, many legumes are found growing wild in the grasslands, the common ones being *Desmodium triflorum*, *Geissaspis cristata*, *G. tenella*, *Gonigyna hirta*, *Sesbania sesban*, *Smithia sensitiva*, species of *Alysicarpus*, *Indigofera*, *Tephrosia*, *Vigna*, *Zornia*, *Cassia* etc. which are

well known for their forage value, but in nature these do not occur in proper proportion.

The area is quite rich in medicinal plants. There is good possibility of introduction and cultivation of several useful species required by pharmaceutical firms. To mention some species like *Salacia chinensis*, *Rubia cordifolia*, *Holarthra antidysenterica*, *Rauwolfia serpentina*, *Gymnema sylvestre*, *Tylophora indica*, *Hemidesmus indicus*, *Strychnos nux-vomica*, *Adhatoda zeylanica*, *Hygrophila auriculata*, *Curculigo orchitoides*, *Costus speciosus*, *Gloriosa superba* and *Turraea villosa* are well known for their medicinal value, grow under natural conditions in forests of this district.

INTERESTING PLANTS OF BOTANICAL VALUE

The flora of the district abounds in interesting species of botanical value both from the taxonomic as well as academic point of view. The peninsular India has a characteristic true Indian flora reflected in its components. There are about 2,100 endemic flowering plants in peninsular India (Nayar, 1977). Some of the endemic species are also represented in the district are *Bhidea burnsiiana*, *Carvia callosa*, *Danthonidium gammiei*, *Dicoelospermum ritchiei*, *Erinocarpus nimmonii*, *Glyphochloa mysorensis*, *G. goaensis*, *G. santapanii*, *Griffithella hookeriana*, *Helicanthes elastica*, *Indopoa paupercula*, *Nilgiranthus cillatus*, *N. heyneanus*, *N. lupulinus*, *N. warreensis*, *Pogonachne racemosa*, *Pseudodichanthium serrafalcoides*, *Smithsonia viridiflora*, *Wagetea spicata* etc. Two species have been found to be new to science like *Glyphochloa ratnagrica* and *Ceropegia jainii* and some rare plants have been collected after over 50 years, viz. *Derris canarensis*, *Dimeria woodrowii*, *Cryptocoryne cognatoides*, *Schizachyrium paranipyeum* etc. Such rare plants like *Bhidea burnsiiana*, *Bacopa floribunda*, *Danthonidium gammiei*, *Heliotropium cornutum*, *Glyphochloa mysorensis* show newer areas of distribution. Members of Podostemaceae *Dalzielia zeylanica*, *Polypleurum stylosum*, parasites like *Aeginetia indica*, *Helicanthes elastica*, *Helixanthera wallichiana*, *Viscum monicum* are quite interesting. Insectivorous plants like *Drosera burmannii* and *D. indica*, species of *Utricularia* are of botanical interest.

Terrestrial and epiphytic species of Orchids like *Platanthera*, *Eulophia*, *Habenaria*, *Dendrobium*, *Cottonia* deserve special attention. The pteridophytes are equally rich with species of *Selaginella*, *Ophioglossum*, *Acrostichum aureum*, *Lygodium flexuosum*, *Schizoloma heterophylla*, *Lycopodium hamiltonii* and several others.

ENDANGERED PLANTS

Owing to the large scale clearing of the thick forest areas once endowed with high diversity of species for habitation, cultivation of crop plants and dam projects, many of the interesting and indigenous plants of the district

have either disappeared or are in danger of extinction unless protected. In the cleared areas a large number of aliens are getting established.

The rarity or extinction of any endemic species or expansive spread of an endemic species depends on the ecological and environmental conditions. There are many endemic species along the Western Ghats and some of these are represented in the district e. g. *Adenoon indicum*, *Indigofera dalzellii*, *Coelachne minuta*, *Pycnospora lutescens*, *Beilschmiedia dalzellii*, *Erinocarpus nimmonii*, *Arthraxon lanceolatus* var. *raizadae*, *A. jubatus*, *Ceropegia jainii*, *C. sahyadrica*, *Glyphochloa ratnagirica*, *Nesaea lanceolata*, *Aglais lawii*, *Calacanthus grandiflorus*, *Knema attenuata*, *Rauvolfia serpentina* etc.

Cooke in his 'Flora of the Presidency of Bombay' (1901-1908) has reported from this district about 100 species based on collections by Dalzell, Ritchie, Stocks and Woodrow. About 50-60 species of the above mentioned require recollection. They occur sometimes in other parts of Maharashtra and in the southern parts of Karnataka, Kerala and Tamilnadu States. A few of the rare species that have been recollected are *Eriocaulon odoratum*, *Dimeria woodrowii*, *Kaenmferia scaposa*, *Schizachyrium paranjpye-anum* and *Cryptocoryne cognatoides*. Rare species like *Coelachne minuta*, *Heliotropium cornutum*, *Bacopa floribunda*, *Ischaemum dalzellii*, *Chlorophytum breviscapum*, *Nesaea lanceolata* etc. are added newly to the flora of Maharashtra and new species like *Ceropegia jainii*, *C. sahyadrica* and *Glyphochloa ratnagirica* need to be protected.

GAME SANCTUARIES / NATIONAL PARKS

Amboli is an ideal location for bird sanctuary as different kinds of birds gather in an open place near Holiday Camp, in the Forest Department Park, also in places like Moose Plateau behind Inspection Bungalow, Mahadeogad etc. Due to dense forests, birds get food source there and shelter for protection and for nesting.

The birds which are scarce like Quails, Great Pied Hornbill, Eagles, Doves, Roseringed Parakeet, Blue winged Parakeet etc. The other birds that can be spotted are Redwhiskered Bulbul, Redvented Bulbul, Jungle Myna, Ground Thrush, Green Barbet, Yellow Tit, Green Bulbul. Birds in open plain are Indian Sand Grouse, Sand Plover, Whitebreasted King Fischer, Malabar Whistling Thrush, Rufous tailed Babbler, White backed Munia etc.

In the plains in deciduous forests near creeks peacock can be seen e. g. Achre, Dhamapur in Malwan taluka, Vagiri forest in Vengurla taluka, Nerur, Kochre in Kudal taluka etc.

CONCLUDING REMARKS

The forests in the district and the ghat zone especially have a high potential for good productivity. The forests belonging to the Sawantwadi State were well protected and there was some systematic planning for the preservation and cultivation of medicinal plants in Sawantwadi proper by a Portuguese medical officer Dr. Dalgado in the State. However, much of the forest lands were owned by some local people ('Malki'), due to which the over all condition was poor. In the ghat section and on the spurs of the Sahyadris shifting cultivation, illicit fellings, uncontrolled forest fires etc. were responsible for deterioration of the forest wealth. For the ores of iron and manganese, vast areas were cleared since 1950, e. g. Redi and Shiroda areas in Sawantwadi taluka and these further depleted the forest coverage.

There is ample scope for successful introduction of some selected timber species from Karnataka and Kerala States. On experimental basis, the cultivation of Rubber plant and Cocoa trees are planted in Sawantwadi area. The timber trees other than Teak are species of *Calophyllum*, *Dipterocarpus*, *Hopea*, *Ailanthus*, *Canarium*, *Tetrameles*, *Cinnamomum* etc. Similarly, several medicinal plants can be introduced and successfully cultivated. This district offers a suitable phytoclimatic zone for establishing medicinal plant farms.

Along the Western ghats, there is an equatorial type of forest characterised by conditions of high humidity and temperature favouring vigorous growth of trees that attain great height (40-80 m.). Different kinds of elements are seen in the vegetation and this is more pronounced in the States of Karnataka, Kerala and Tamilnadu. The Malayan element is characterised by the presence of families like Sterculiaceae, Tiliaceae, Anacardiaceae, Meliaceae, Myrtaceae, Melastomataceae, Gesneriaceae, Piperaceae, Orchidaceae, Vitaceae, Araceae, etc. Tropical Asiatic element is represented by Annonaceae—*Uvaria*; Pittosporaceae—*Pittosporum*; Guttiferae—*Garcinia*; Leguminosae—*Saraca*, *Xylocarpus*; Combretaceae—*Terminalia*; Lauraceae—*Bellshmiadia*, *Cinnamomum*, *Persea*, *Litsea*; Rubiaceae *Neolamarckia*, *Hedyotis*. Tropical African and Madagascan element is shown by presence of species of *Mammea*, *Geissaspis*, *Tamarindus*, *Acacia*, *Petalium*, *Pseudarthria*, *Blepharis* etc.

The similarity of Western Ghat flora is seen with the flora of Ceylon by plants like *Kydia calycina*, *Clematis gouriana*, *Naravelia zeylanica*, *Capparis zeylanica*, *Pterocarpus marsupium*, *Litsea deccanensis* and *Calamus Pseudotenius* etc. represented in the district.

ABBREVIATIONS

Bedd. Fl. Sylv.	Beddome, R. H. Flora Sylvatica for Southern India. 2 Vols., 1867-1874. Madras.
Bedd. Ic.	Beddome, R. H. Icones Plantarum Indiae Orientalis, or plates and description of new and rare plants from Southern India and Ceylon. Vol. 1, Pts. 1-15, 1868-1874. (cited as 1874). Madras.
Ann. Miss. Bot. Gard.	Annals of Missouri Botanical Garden, St. Louis, U. S. A.
Curr. Sci.	Current Science, Bangalore, Karnataka.
Indian For.	Indian Forester, Dehra Dun, U. P.
Indian J. For.	Indian Journal of Forestry, Dehra Dun, U. P.
J. Bombay nat. Hist. Soc.	Journal of Bombay natural History Society, Bombay, Maharashtra.
J. Econ. Taxon. Bot.	Journal of Economic and Taxonomic Botany, Jodhpur, Rajasthan.
J. Indian Bot. Soc.	Journal of Indian Botanical Society, Howrah, West Bengal.
Pflanzenfam.	Die natürlichen Pflanzen familien, etc. by Engler, A. & Prantl, K. A. E. Leipzig (Ed. 2, 1924).
Pflanzenr.	Das Pflanzenreich Regni Vegetabilis Conspectus, Leipzig. 1900. by Engler, A.
Proc. Indian Acad. Sci. (Plant Sci.)	Proceedings of Indian Academy of Sciences (Plant Science). Bangalore.
Proc. Indian Nat. Sci. Acad.	Proceedings of the Indian National Science Academy. Allahabad.
p. p.	Pro parte
Sant. Fl. Khandala	Rev. Fr. Dr. H. Santapau, Records of the Botanical Survey of India, 16 (1), ed. 3, 1967, Delhi.
Sci. Cult.	Science and Culture, Calcutta, W. Bengal.
Wight, Icon.	Wight, R. Icones Plantarum Indiae Orientalis; or figures of Indian Plants, 6 Vols. 1838-1853. Madras.
Wight, Illus.	Illustrations of Indian Botany. 2 Vols. 1840-1850. Madras.

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1. Ovules naked, without stigma	..	<i>Gnetaceae</i> (<i>Gymnosperms</i>)
1. Ovules enclosed in an ovary, with stigma	..	<i>Angiosperms</i>
2. Stem with central pith; embryos with 2-lateral cotyledons	..	<i>Dicotyledons</i>
3. Calyx and corolla usually both present; flowers mostly bisexual:		
4. Petals usually free; stamens numerous:		
5. Flowers trimerous or multiples of 3:		
6. Receptacle elongated	..	<i>Magnoliaceae</i>
6. Receptacle subglobose, short:		
7. Carpels numerous	..	<i>Annonaceae</i>
7. Carpels few	..	<i>Menispermaceae</i>
5. Flowers not trimerous:		
8. Flowers bisexual or polygamous:		
9. Stamens more than 10:		
10. Flowers hypogynous:		
11. Sepals free:		
12. Sepals persistent:		
13. Leaves opposite	..	<i>Clusiaceae</i>
13. Leaves alternate	..	<i>Dilleniaceae</i>
12. Sepals not persistent:		
14. Fruits of achenes	..	<i>Ranunculaceae</i>
14. Fruits not of achenes:		
15. Petals in several whorls:		<i>Nymphaeaceae</i>
15. Petals in one (rarely two) whorls:		
16. Fruits of single, bony, tuberculate stones	..	<i>Elaeagnaceae</i>
16. Fruits not as above:		
17. Ovary usually stalked	..	<i>Capparidaceae</i>
17. Ovary not stalked		
18. Fruits bristly	..	<i>Simarubaceae</i>
18. Fruits not bristly:		
19. Ovary 1-loculed	..	<i>Flacourtiaceae</i>
19. Ovary 2-many loculed	..	<i>Tiliaceae</i>

34. Style single :
35. Flowers spurred .. *Balsaminaceae*
35. Flowers not spurred :
36. Petals 3 .. *Polygalaceae*
36. Petals 4-5 .. *Sapindaceae*
34. Styles 2-5 :
37. Leaves simple :
38. Petals absent .. *Molluginaceae*
38. Petals present :
39. Stamens connate at base .. *Linaceae*
39. Stamens free .. *Elatinaceae*
37. Leaves compound .. *Oxalidaceae*
24. Sepals connate at base :
40. Leaves gland-dotted .. *Rutaceae*
40. Leaves not gland-dotted :
41. Carpels distinct :
42. Leaves bearing bulbils .. *Crassulaceae*
42. Leaves without bulbils :
43. Leaves simple .. *Sterculiaceae*
43. Leaves compound .. *Connaraceae*
41. Carpels not distinct :
44. Leaves opposite .. *Malpighiaceae*
44. Leaves alternate :
45. Corolla urceolate .. *Opiliaceae*
45. Corolla not urceolate :
46. Stamens more than 5 :
47. Filaments connate into a tube .. *Meliaceae*
47. Filaments free :
48. Styles 2-5 (when single lateral) .. *Anacardiaceae*
48. Style single, terminal .. *Burseraceae*
46. Stamens 5 or less :
49. Ovary 1-loculed :
50. Calyx accrescent in fruit .. *Anetstrociadaceae*
50. Calyx not accrescent in fruit .. *Loasaceae*

49. Ovary 3-5-loculed :

51. Ovules and seeds pendulous :

52. Petals 2-lobed .. *Dichapetalaceae*52. Petals entire .. *Aquifoliaceae*

51. Ovules and seeds erect :

53. Fertile stamens 3 :

54. Stamens alternate with petals .. *Celastraceae*54. Stamens opposite the petals .. *Oleaceae*

53. Fertile stamens 4-5 :

55. Seeds arillate or winged .. *Celastraceae*

55. Seeds not arillate nor winged :

56. Stamens adnate to petals .. *Oleaceae*

56. Stamens not as above :

57. Petals inserted on the throat of
calyx tube; style 2-4 fid .. *Rhamnaceae*57. Petals not inserted on the throat
of calyx tube; style not 2-4 fid :58. Climbers .. *Vitaceae*58. Erect shrubs .. *Leeaceae*

23. Flowers perigynous or epigynous :

59. Carpels 1 :

60. Flowers regular .. *Mimosaceae*

60. Flowers irregular :

61. Stamens free .. *Caesalpiniaceae*61. Stamens connate .. *Fabaceae*

59. Carpels more than 1 :

62. Stamens many; styles not terminal .. *Rutaceae*

62. Stamens 5-10; styles terminal :

63. Carpels separating into 2-mericarps .. *Aplacaeae*

63. Carpels connate throughout :

64. Fruits 1-few seeded .. *Combretaceae*

64. Fruits many seeded :

65. Calyx lobed :

66. Calyx lobes imbricate; anthers
opening by pores .. *Melastomataceae*

- 66. Calyx lobes valvate; anthers not opening by pores :
 - 67. Ovary free from calyx tube or if slightly adnate at base then sea-coast trees :
 - 68. Styles and stigmas-2 .. *Vahliaceae*
 - 68. Style and stigma-1. :
 - 69. Flowers in axillary or terminal panicles .. *Lythraceae*
 - 69. Flowers solitary,terminal .. *Sonneratiaceae*
 - 67. Ovary completely or half adnate to the calyx tube .. *Onagraceae*
 - 65. Calyx not lobed but truncate and toothed .. *Araliaceae*
- 8. Flowers unisexual :
 - 70. Flowers regular; stamens few-4 :
 - 71. Tendril bearing climbers or trailing herbs .. *Cucurbitaceae*
 - 71. Lofty trees .. *Tetramelaceae*
 - 70. Flowers irregular; stamens many .. *Begoniaceae*
- 4. Petals united; stamens less than 12 :
 - 72 Flowers epigynous :
 - 73. Leaves opposite, stipulate .. *Rubiaceae*
 - 73. Leaves alternate, or opposite, exstipulate :
 - 74. Ovary 1-celled .. *Asteraceae*
 - 74. Ovary 2-celled :
 - 75. Corolla regular .. *Sphenocleaceae*
 - 75. Corolla bilabiate .. *Lobeliaceae*
 - 72. Flowers hypogynous :
 - 76. Flowers regular :
 - 77. Floating herbs with flowers terminating apparent petioles .. *Menyanthaceae*
 - 77. Plants not as above :
 - 78. Leaves usually alternate :
 - 79. Ovary 1-celled :
 - 80. Styles-5 .. *Plumbaginaceae*
 - 80. Styles undivided :
 - 81. Leaves often gland-dotted; fruits berries .. *Myrsinaceae*
 - 81. Leaves not gland-dotted; fruits capsular .. *Primulaceae*

79. Ovary 2-many celled :
82. Stamens more than the number of corolla lobes :
83. Stamens inserted on the corolla :
84. Ovary superior; sap milky .. *Sapotaceae*
84. Ovary inferior; sap watery .. *Symplocaceae*
83. Stamens free from corolla .. *Ebenaceae*
82. Stamens as many as corolla lobes :
85. Climbing or spreading plants; corolla-lobes plicate .. *Convolvulaceae*
85. Plants not climbing; corolla lobes imbricate or contorted :
86. Fruits drupaceous .. *Boraginaceae*
86. Fruits not drupaceous :
87. Styles-2 .. *Hydrophyllaceae*
87. Style-1 .. *Solanaceae*
78. Leaves opposite :
88. Stamens-2 .. *Oleaceae*
88. Stamens as many as corolla lobes :
89. Carpels usually free :
90. Gynostegium present :
91. Filaments free; pollen masses granular .. *Periplocaceae*
91. Filaments connate into a tube; pollen masses massulate .. *Asclepiadaceae*
90. Gynostegium absent .. *Apocynaceae*
89. Carpels united :
92. Ovules on axile placenta :
93. Fruits berries, often crustaceous .. *Rubiaceae*
93. Fruits capsular .. *Loganiaceae*
92. Ovules on parietal placenta .. *Geraniaceae*
76. Flowers irregular:
94. Ovules usually many in a locule :
95. Plants insectivorous; flowers spurred .. *Lentibulariaceae*
95. Plants and flowers not as above :
96. Ovary 1-celled :
97. Leafless, parasitic herbs .. *Orobanchaceae*

- 97. Leafy, not parasitic herbs: .. *Gesneriaceae*
- 96. Ovary 2-celled :
 - 98. Fruits elastically dehiscent; ovules often on retinacula .. *Acanthaceae*
 - 98. Fruits and ovules not as above :
 - 99. Seeds minute or small, not winged; leaves simple or sometimes lobed :
 - 100. Flowers solitary in leaf-axils between 2-yellow or brown glands :
 - 101. Fruits with 2-anterior hooks .. *Martyniaceae*
 - 101. Fruits without hooks .. *Pedaliaceae*
 - 100. Flowers in simple or compound spikes, racemes or panicles, cymes or even solitary, but without glands .. *Scrophulariaceae*
 - 99. Seeds large with broad, membranous or hyaline wings; leaves compound .. *Bignoniaceae*
- 94. Ovule usually one in a locule :
 - 102. Fruits usually, drupaceous; style terminal .. *Verbenaceae*
 - 102. Fruits of 4-nutlets; style gynobasic .. *Lamiaceae*
- 3. Corolla rarely present and calyx often absent; flowers more often unisexual or bisexual :
 - 103. Flowers bisexual :
 - 104. Ovary superior :
 - 105. Perianth and bracts scarious .. *Amaranthaceae*
 - 105. Perianth and bracts not scarious :
 - 106. Stipules present .. *Polygonaceae*
 - 106. Stipules absent :
 - 107. Flowers in heads; bracts villous .. *Thymelaeaceae*
 - 107. Flowers and bracts not as above :
 - 108. Anthers opercular .. *Lauraceae*
 - 108. Anthers not opercular :
 - 109. Plants scaly .. *Elaeagnaceae*
 - 109. Plants not scaly :
 - 110. Terrestrial plants; perianth tubular .. *Nyctaginaceae*
 - 110. Aquatic plants; perianth lacking or not well developed .. *Podostemaceae*

104. Ovary inferior or semi-inferior :
111. Fruits many seeded .. *Aristolochiaceae*
111. Fruits 1-seeded :
112. Perianth corolline, single or sometimes double; parasites .. *Loranthaceae*
112. Perianth calycine or corolline, always single; not parasites .. *Santalaceae*
103. Flowers unisexual :
113. Ovary inferior .. *Loranthaceae*
113. Ovary superior :
114. Ovary 1-loculed :
115. Leaves palmately veined .. *Piperaceae*
115. Leaves pinnately veined :
116. Stamens united into a column .. *Myristicaceae*
116. Stamens free :
117. Filaments inflexed in bud :
118. Style undivided .. *Urticaceae*
118. Style 2-fid .. *Moraceae*
117. Filaments not inflexed in bud .. *Ulmaceae*
114. Ovary 2-3 loculed :
119. Plants with well developed flat leaves .. *Euphorbiaceae*
119. Plants with small, scaly leaves .. *Casuarinaceae*
2. Stem without central pith; embryos with one, terminal cotyledons .. *Monocotyledons*
120. Perianth 2-seriate :
121. Outer perianth calycine or both the series calycine :
122. Ovary inferior .. *Hydrocharitaceae*
122. Ovary superior :
123. Flowers in dense heads .. *Xyridaceae*
123. Flowers not in heads :
124. Trees or scandent shrubs .. *Araceae*
124. Herbs :
125. Fruits loculicidal capsules .. *Commelinaceae*
125. Fruits indehiscent achenes .. *Alismaceae*
121. Both the series of perianth corolline :
126. Ovary 1-loculed :

127. Flowers irregular; leaves not pinnatifid	..	<i>Orchidaceae</i>
127. Flowers regular; leaves planatifid	..	<i>Taccaceae</i>
126. Ovary 3-loculed;		
128. Ovary 3-winged	..	<i>Burmanniaceae</i>
128. Ovary not winged :		
129. Stigma capitate; fruits globose	..	<i>Agaraceae</i>
129. Stigma lobed (sometimes capitate); fruits globose or lobed :		
130. Ovary superior :		
131. Aquatic plants, scapigerous	..	<i>Pontederiaceae</i>
131. Terrestrial plants: when scapigerous then herbs :		
132. Flowers bisexual	..	<i>Liliaceae</i>
132. Flowers unisexual	..	<i>Smilacaceae</i>
130. Ovary inferior :		
133. Flowers irregular	..	<i>Zingiberaceae</i>
133. Flowers regular :		
134. Bulbiferous or rhizomatous herbs with basal leaves :		
135. Flowers usually white, occasionally pale pink	..	<i>Anacardiaceae</i>
135. Flowers yellow	..	<i>Myrsinaceae</i>
134. Tuberous climbers with cauline leaves	..	<i>Dioscoreaceae</i>
120. Perianth reduced or absent :		
136. Inflorescence of spadices :		
137. Spadices branched	..	<i>Pandanus</i>
137. Spadices unbranched :		
138. Spatha present	..	<i>Araceae</i>
138. Spatha absent	..	<i>Typhaceae</i>
136. Inflorescence not of spadices :		
139. Flowers in heads	..	<i>Ericaceae</i>
139. Flowers in spikes with imbricating glumes :		
140. Leaves 3-ranked	..	<i>Cyperaceae</i>
140. Leaves 2-ranked	..	<i>Poaceae</i>

RANUNCULACEAE

1. Climbing shrubs; petioles without basal auricles :	
2. Climbing by petioles; flowers apetalous	.. <i>Clematis</i>
2. Climbing by tendrils; flowers petalous	.. <i>Naravelia</i>
1. Herbs; petioles with basal auricles	.. <i>Thalictrum</i>

CLEMATIS L.

1. Leaves simple or trifoliate; flowers 2.5-3.0 cm across, purple	.. <i>C. smilacifolia</i>
1. Leaves compound, leaflets more than 3; flowers less than 2.5 cm across, white :	
2. Connectives produced beyond anther lobes	.. <i>C. hedyarifolia</i>
2. Connectives not produced beyond anther lobes	.. <i>C. gouriana</i>

Clematis gouriana Roxb. ex DC. Syst. Nat. 1 : 138. 1818; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 4. 1872; Cooke, Fl. Pres. Bombay 1 : 2. 1958 (Repr. ed.).

Extensive climbers, young parts pubescent. Leaves 10-15 cm long, leaflets oblong-ovate. Flowers fragrant; sepals 4, puberulous on both sides, filaments narrowly linear. Achenes broadly oblong to oblong-lanceolate.

Fls. & Frts. : October—January.

Illus. : Wight, Icon. tt. 933-934. 1845.

Distrib. : Common climber on bushes and small trees along slopes of the ghats; Kankavli-Phondaghat. Kudal-Ghotge. Sawantwadi-Ambolighat.

C. hedyarifolia DC. Syst. Nat. 1 : 148. 1818 et Prodr. 1 : 6. 1824 (Excl. Bot. Reg. t. 599); Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 4. 1872; Cooke, Fl. Pres. Bombay 1 : 3. 1958 (Repr. ed.); Rao in Bull. Bot. Surv. India 6 : 19. 1964 (1965); Sant *ibid* 6 : 59. 1964 (1965). *C. naravelloides* Kuntze, Verh. Prov. Brandenb. 26 : 119. 1885; Sant. in Bull. Bot. Surv. India 3 : 13. 1961. *Mar.* : 'Morvel'.

Woody climbers, young parts glabrous. Leaves 6-10 cm long, leaflets ovate-lanceolate. Flowers indorous, sepals densely pubescent outside, filaments ligulate. Achenes with tubercular margin.

Fls. & Frts. : September—January.

Illus. : Gupta in Bull. Nat. Bot. Gard. 54 : t. 12. 1961; Rao *l. c.* 19. t. 182.

Distrib. : Frequent, on ghat tops and in plains; Kankavli-Phonda-Humbrat Road. Kudal-Narur. Sawantwadi-Akeri, Amboli R. F., Ambolighat, Chaukul, Ramghat.

Notes : There was some confusion regarding correct identity due to wrong reference to Edward's t. 599 in Bot. Reg. 1822 and wrong interpretation to locality. These were well clarified by Rao (*l. c.*) and Santapau (*l. c.*).

C. smilacifolia Wall. in Asiat. Res. 13 : 402. 1820; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 3. 1872; Cooke, Fl. Pres. Bombay 1 : 2 1938 (Repr. ed.).

Woody climbers, young parts glabrous. Lower leaves 6-16 × 2.5-14.0 cm, ovate, upper leaves trifoliate, leaflets 2-6 × 1-3 cm, petioles 14 cm long, twining. Flowers in axillary panicles; sepals 4-5, velvety brown tomentose outside, purple inside, filaments linear. Achenes ovoid.

Fls. : October

Distrib. : This species is included here on the authority of Cooke (*l. c.*) who mentions 'Phundaghat' (Phondaghat in Kankavli taluka) based on collection by Datzell.

NARAVELIA Adanson

Naravella zeylanica (L.) DC. Syst. Nat. 1 : 167. 1818; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 7. 1872; Cooke, Fl. Pres. Bombay 1 : 4. 1938 (Repr. ed.). *Atragene zeyanika* L. Sp. Pl. 342. 1753.

Climbing shrubs, young parts, leaflets (especially beneath) and sepals pubescent. Leaves trifoliate, terminal leaflet modified into a tendril, side leaflets ovate, unequal at base. Flowers 1.2-1.7 cm across, yellowish-green, sepals caducous. Achenes 0.8-1.0 cm long, shortly stalked, basal 0.2 cm part glabrous.

Fls. & Frts. : September—March.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 17. fig. 6. 1909.

Distrib. : Occasional, along ghat in cleared forest areas; Sawantwadi-Ambolighat, Ramghat.

THALICTRUM L.

Thalictrum dalzellii Hook. Icon. Pl. 9 : t. 868. 1852; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 13. 1872; Cooke, Fl. Pres. Bombay 1 : 4. 1958 (Repr. ed.).

Rigid herbs, about 30 cm tall. Leaves trifoliate, leaflets 2.5-5.0 cm across, suborbicular or reniform, margins crenately and irregularly lobed, upper most usually 1-foliate and sessile. Flowers 0.6 cm across, white; in panicles; sepals 4, petals absent. Achenes narrowly oblong, furrowed, glabrous.

Fls. & Frts. : August.

Distrib. : This species is included on the authority of Cooke (*l. c.*) who cites 'Ghats near Vengurla', collection by Dalzell.

DILLENIACEAE

DILLENTIA L.

1. Flowers solitary, 8-12 cm across, pedicels 3-6 cm long	..	<i>D. indica</i>
2. Flowers in fascicles on tubercles on old stem, 2.0-2.5 cm across, pedicels 2 cm long	..	<i>D. pentagyna</i>

Dillenia indica L. Sp. Pl. 535. 1753; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 36. 1872; Cooke, Fl. Pres. Bombay 1 : 6. 1958 (Repr. ed.); Majumdar, Fasc. Fl. India 2 : 6. 1979. *Mar.* : 'Mota karmal'.

Deciduous trees, 8-10 m tall. Leaves 15-25 × 4-10 cm, lanceolate, persistent, upper surface and nerves on lower surface pubescent. Flowers white, fragrant; in the axils of leaves at the ends of branches; sepals orbicular, thick, petals oblong. Fruits 8-10 cm across.

Fls. & Frts. : March—May.

Hb. : Wight, Icon. t. 823. 1845; Majumdar, *l. c.* Pl.

Distrib. : Scarce, along river bank in plains; Kudal-Dukanwad. Sawantwadi (Cooke, *l. c.*).

D. pentagyna Roxb. Pl. Cor. 1 : 21. t. 20. 1795; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 38. 1872; Cooke, Fl. Pres. Bombay 1 : 6. 1958 (Repr. ed.); Majumdar, Fasc. Fl. India 2 : 7. 1979. *Mar.* : 'Karmal'.

Medium sized trees, 8-10 m tall. Leaves 25-50 × 15-20 cm, oblong-lanceolate, deciduous, glabrous on both sides. Flowers yellow; in axils of fallen leaves on old stem; sepals ovate, petals oblong-lanceolate, longer than sepals. Fruits edible, out of 5, 1 or 2 carpels get matured, enclosed by persistent sepals.

Fls. & Frts. : March—May.

Illus. : Roxb. *I. c.*; Bedd. *Fl. Sylv.* t. 104. 1871.

Distrib. : Frequent in deciduous forest; Kankavli-Natal Jungle. Kudal-Ghotge. Sawantwadi-Ramghat.

MAGNOLIACEAE

MICHELIA L.

Michelia champaca L. *Sp. Pl.* 536. 1753; Hook. f. & Thoms. in Hook f. *Fl. Brit. India* 1 : 42. 1872; Cooke, *Fl. Pres. Bombay* 1 : 82. 1938. (Repr.ed.).

Mar. : ' *Sonchapha*, *Pivlachapha* '.

Tall evergreen trees, often cultivated. Leaves 10-15 × 2-3 cm, lanceolate, leathery, margins undulate. Flowers 5 cm across, orange-yellow; axillary, solitary; fragrant. Fruiting spikes compact, carpels ovoid, thick. Seeds brownish-red, shining.

Fls. & Frts. : Throughout the year.

Distrib. : Usually cultivated for flowers, near temples; Kudal-Hanumanghat.

ANNONACEAE

1. Erect shrubs or trees :

2. Flowers solitary :

3. Flowers axillary, sessile; petals velvety .. *Melastoma*

3. Flowers leaf-opposed or 2-4 on short, extra axillary branchlets; petals pubescent .. *Annona*

2. Flowers in fascicles or cymes :

4. Flowers in glabrous fascicles, inodorous .. *Sageraea*

4. Flowers in tomentose cymes, fragrant .. *Polyalthia*

1. Climbing shrubs :

5. Flowers leaf opposed; petals yellow .. *Desmos*

5. Flowers axillary, terminal or sometimes leaf opposed; petals reddish .. *Uncaria*

ANNONA L.

Annona squamosa L. Sp. Pl. 537. 1753; Hook f. & Thoms. in Hook f. Fl. Brit. India 1 : 78. 1872; Cooke, Fl. Pres. Bombay 1 : 15. 1958 (Repr. ed.).
Mar. : 'Sitaphal'.

Small trees, 5-8 m tall. Leaves 4-6 × 3.0-4.5 cm, oblong. Flowers 3 cm across, green, sepals 3, triangular, small, petals 3, fleshy. Fruits 5-10 cm across, fleshy, areolate, purple-green when ripe.

Fls. & Frts. : May—June.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 25. fig. 17. 1909.

Distrib. : Widely cultivated for fruits; Sawantwadi-Ainode near Bhedshi.

DESMOS Lour.

i. Petals 2.2 cm broad	..	<i>D. chinensis</i>
l. Petals less than 0.5 cm broad	..	<i>D. lawii</i>

Desmos chinensis Lour. Fl. Cochinch. 352. 1790; Mukerjee in Bull. Bot. Surv. India 5 : 41. 1963. *Unona discolor* Vahl, Symb. Bot. 2 : 63. t. 36. 1791; Hook f. & Thoms. in Hook. f. Fl. Brit. India 1 : 59. 1872; Cooke, Fl. Pres. Bombay 1 : 12. 1958 (Repr. ed.).

Shrubs, scandent. Leaves 6-14 × 2.4-4.8 cm, oblong-lanceolate, base rounded. Flowers 4.5-6.5 cm long, pedicels pubescent. Ripe carpels 1.8-3.6 cm long, constricted between the seeds, joints 2-5.

Fls. & Frts. : August.

Illus. : Bedd. Icon. t. 51. 1874.

Distrib. : This species is included here on the authority of Cooke (*l.c.*) who cites 'Sivapur in Wari country', based on collection by Dalzell (Sawantwadi).

D. lawii (Hook. f. & Thoms.) Safford in Bull. Torrey Bot. Club 39 : 506. 1912; Mukherjee in Bull. Bot. Surv. India 5 : 41. 1963. *Unona lawii* Hook. f. & Thoms. Fl. Ind. 132. 1855 et in Hook. f. Fl. Brit. India 1 : 59. 1872; Cooke, Fl. Pres. Bombay 1 : 12. 1958 (Repr. ed.).

Climbing shrubs, young parts pubescent. Leaves 5-9 × 2.4-4.8 cm, oblong-lanceolate, pubescent beneath. Flowers 6 cm long, pedicels 1.8-3.0 cm long. Carpels many, joints 1-3.

Fls. & Frts. : April—August.

Illus. : Bedd. Icon. t. 73. 1874.

Distrib. : This species is reported here as Cooke (*l.c.*) gives 'Wari' locality based on collection by Ritchie (Sawantwadi).

MEIOGYNE Miq.

Meiogyne pannosa (Dalz.) Sinclair in Sarawak Mus. J. 5 : 604. 1951; Raizada in Indian For. 84 : 495. 1958. *Unona pannosa* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 207. 1851; Hook f. & Thoms. in Hook f. Fl. Brit. India 1 : 58. 1872; Cooke, Fl. Pres. Bombay 1 : 11. 1958 (Repr. ed.).

Small trees, 5-8 m tall, young parts pubescent. Leaves 5-8 × 3-4 cm, ovate-lanceolate, punctate. Flowers 3.5-5.0 cm across, sepals ovate, petals lanceolate, inner shorter. Carpels 2-3 cm long, ovoid, constricted between the seeds, hairy.

Fls. & Frts. : January—May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 19. fig. 12. 1909.

Distrib. : Scarce, in semi-evergreen forest on ghat top; Sawantwadi-Amboli-Malai jungle.

POLYALTHIA Bl.

Polyalthia fragrans (Dalz.) Bedd. Fl. Sylv. t. 74. 1871 et Icon. t. 54. 1874; Hook. f. & Thoms. in Hook f. Fl. Brit. India 1 : 83. 1872; Cooke, Fl. Pres. Bombay 1 : 13. 1958 (Repr. ed.). *Gutteria fragrans* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 206. 1851.

Trees, 10-15 m tall, young parts tomentose. Leaves 12-20 × 3.5-8.2 cm, elliptic, apex obtuse or acuminate. Flowers yellow; in axillary cymes on tubercles; sepals small, orbicular, petals 2.5-3.5 cm long, puberulous. Carpels 2.5-3.5 cm long, oblique, ovoid. Seeds orbicular-ovoid.

Fls. & Frts. : October—March.

Distrib. : This species is included here as it is reported by Cooke (*l.c.*) from Sivapur in Wari Country (Sihvapuri in Sawantwadi) based on collection by Woodrow.

SAGERAEA Dalz.

Sageraea laurifolia (Grah.) Blatter in J. Bombay nat. Hist. Soc. 34 : 294. 1930; Mukerjee in Bull. Bot. Surv. India 5 : 47. 1963. *Guatteria laurifolia* Grah. Cat. Pl. Bombay 4. 1839. *Bacarea dalzellii* Hook. f. & Thoms. in Hook f. Fl. Brit. India 1 : 92. 1872; Cooke, Fl. Pres. Bombay 1 : 18. 1958 (Repr. ed.).

Small trees, 5-8 m tall. Leaves 8-15 × 3-5 cm, oblong-lanceolate, coriaceous, dark green. Flowers white; 2-5 in fascicles; sepals orbicular, petals ovate, longer than sepals. Carpels 3 cm across, ovoid, smooth.

Fls. & Frts. : November—February.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 33. fig. 23. 1909.

Distrib. : Infrequent, on the outskirts of semi-evergreen forest along ghat slopes; Kankavli-Naradave-Girechi rai, Phonda-Mhatardeo rai. Sawantwadi-Ambolighat-Nanapani, Ramgha.

UVARIA L.

Uvaria narum (Dunal) Bl. Fl. Jav 5. 1828, *p.p.*; Hook f. & Thoms. in Hook. f. Fl. Brit. India 1 : 50. 1872; Cooke, Fl. Pres. Bombay 1 : 9. 1958 (Repr. ed.); Mukerjee in Bull. Bot. Surv. India 5 : 39. 1963. *Unona narum* Dunal, Annon. 99. 1817, *p. p.*

Large, woody climbers, growing to a height of 10-15 m. Leaves 8-15 × 2.8-4.5 cm, lanceolate, margins undulate. Flowerbuds brownish-tomentose. Flowers 2.5-4.0 cm across, reddish; solitary, leaf-opposed. Carpels 4-6 × 2.5 cm, scarlet-red, subtorulose, glabrous.

Fls. & Frts. : April—August.

Illus. : Wight, Illus. t. 6. 1840.

Distrib. : Uncommon in semi-evergreen forest along the slopes of the ghats and in sacred groves; Kankavli-Naradave, Phondaghat. Sawantwadi-Amboli-Malai jungle, Ambolighat-Nanapani, Ramghat.

MENISPERMACEAE

1. Woody climbers or stragglers :

2. Style scars terminal

..

Tinospora

2. Style scars lateral :
3. Leaves broadly ovate; ripe carpels dorsally gibbous, not ash-grey .. *Anamirta*
3. Leaves rounded or reniform; ripe carpels curved, laterally compressed, ash-grey .. *Diploclisia*
1. Herbaceous climbers :
4. Leaves peltate :
5. Inflorescence racemose, umbellate or cymose :
6. Male and female flowers in axillary, stalked umbels; bracts not leafy .. *Stephania*
6. Male flowers in cymes and female flowers in racemes in axils of leafy bracts .. *Cissampelos*
5. Inflorescence racemose only, axillary .. *Cyclea*
4. Leaves not peltate (basifixed), villous .. *Cocculus*

ANAMIRTA Coleb.

Anamirta cocculus (L.) Wight & Arn. Prodr. 446. 1834; Hook f. & Thoms. in Hook. f. Fl. Brit. India 1 : 98. 1972. *Menispermum cocculus* L. Sp. Pl. 340. 1753. *Anamirta paniculata* Coleb. in Trans. Linn. Soc. 13 : 66. 1822; Cooke, Fl. Pres. Bombay 1 : 20. 1958 (Repr. ed.). Mar. : 'Kakmari'.

Large climbers. Leaves 15-25 × 10-15 cm, dark green above, pale beneath, coriaceous; petioles thickened at base and apex. Flowers 0.6 cm across, pale greenish-yellow; in panicles up to 50 cm long, on old wood. Drupes 1.2 cm across, white turning black.

Fls. & Frts. : December—February.

Illus. : Talb. For. Pl. Bombay Pres. & Sind 1 : 38. fig. 24. 1909.

Distrib. : Infrequent, in open situations along the slopes of the ghats and in hilly areas in plains; Kankavli-Brahmanachirai at Phonda. Sawantwadi-Akeri-Mangaon forest.

CISSAMPFLOS L.

Cissampelos pareira L. var. *hirsuta* (DC.) Forman in Kew Bull. 22 : 356. 1968. *C. hirsuta* Ham. ex DC. Syst. Nat. 1 : 535. 1817. *C. pareira* L. Sp. Pl. 1031. 1753, *p.p.*; Hook f. & Thoms. in Hook f. Fl. Brit. India 1 : 103. 1872; Cooke, Fl. Pres. Bombay 1 : 24. 1958 (Repr. ed.).

Herbaceous twiners, softly tomentose. Leaves $3-5 \times 2.0-3.5$ cm, ovate to orbicular. Female inflorescence longer than male inflorescence. Flowers green. Drupes $0.2-0.3$ cm across, scarlet-red when ripe.

Fls. & Frts. : August-October.

Illus. : Gandhi in Saldanha & Nicolson, Fl. Hassan distt. 65. fig. 12 B. 1976.

Distrib. : Scarce, in deciduous forest in plains; Deogad-Naringre. Kankavli-Phonda-Bhairi pathar. Malwan-Dhamapur.

COCULUS DC.

Cocculus hirsutus (L.) Diels in Engl. Pflanzenr. 46 : 236. 1910. *Menispermum hirsutum* L. Sp. Pl. 341. 1753. *Cocculus villosus* DC. Syst. Nat. 1 : 525. 1818; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 101. 1872; Cooke, Fl. Pres. Bombay 1 : 22. 1958 (Repr. ed.).

Climbing plants, pubescent. Leaves $2-5 \times 1.5-3.5$ cm, ovate or oblong-ovate, apex obtuse. Female inflorescence in panicles; stamens in male flowers 6, free. Drupes $0.2-0.3$ cm across, ripe ones reddish.

Fls. & Frts. : February—March.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 41. fig. 26. 1909.

Distrib. : Scarce, in deciduous forest in plains; Kankavli-Mhatardeo-
rai-Phonda.

CYCLEA Arn. ex. Wight

Cyclea peltata (Lamk.) Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 104. 1872; Cooke, Fl. Pres. Bombay 1 : 25. 1958 (Repr. ed.); Sant. & Janardh. in Bull. Bot. Surv. India 10 : 368. 1968 (1969). *Menispermum peltatum* Lamk. Encycl. 4 : 96. 1797. *Cyclea burmanni* (DC.) Hook. f. & Thoms. in Hook. f. l. c.; Cooke, l. c.

Herbaceous twiners, young parts pubescent. Leaves $6-12 \times 4-8$ cm, oblong-elliptic, slightly broadly hastate at base. Male flowers regular, calyx connate at base, 4-6 lobed; female flowers irregular, sepals and petals one each. Drupes $0.3-0.4$ cm across, in bunches, white when ripe.

Fls. & Frts. : September-February.

Illus. : Diels in Engl. Pflanzenr. 46 : 310. t. 93. f. L to O. 1910.

Distrib. : Common, along slopes and tops of ghats and in plains; Kankavli-Natal jungle, Phondaghat. Kudal-Ghotge, Kadaval. Sawantwadi-Amboli-Hiranyakeshi, Ambolighat, Bheashi river side, Danoli, Gavata, Ramghat.

DIPLOCLISIA Miers

Diploclisia glaucescens (Bl.) Diels in Engl. Pflanzenr. 46 : 225. 1910. *Cocculus glaucescens* Bl. Bijdr. 25. 1825. *C. macrocarpus* Wight & Arn. Prodr. 13. 1834; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 101. 1872; Cooke, Fl. Pres. Bombay 1 : 22. 1958 (Repr. ed.). *Mar.* : 'Ramrakh'.

Extensive climbers, young parts glabrous. Leaves 4-10 x 4-12 cm, broadly ovate, coriaceous, glaucous beneath. Flowers 0.25-0.3 cm across, yellowish-green; in pendulous panicles on old stem. Drupes 2.0-2.5 cm long, obovoid, kidney shaped.

Fls. & Frts. : January—May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 40. fig. 25. 1909.

Distrib. : Frequent, on ghats in moist deciduous forest; Kankavli-Bhironde. Kudal-Ghotge. Sawantwadi-Ambolighat-Nanapani, Danoli, Ramghat.

STEPHANIA Lour.

Stephania japonica (Thunb.) Miers in Ann. Mag. Nat. Hist. Ser. 3, 18 : 14. 1866; Forman in Kew Bull. 11 : 49. 1956. *Mentispermum japonicum* Thunb. Fl. Jap. 193. 1784. *Stephania hernandifolia* (Willd.) Walp. Rep. 1 : 96. 1842; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 103. 1872; Cooke, Fl. Pres. Bombay 1 : 23. 1958 (Repr. ed.).

Slender climbers with tuberous roots. Leaves ovate, sometimes shallowly cordate at base, membranous. Flowers greenish-yellow, sessile; in umbellate heads; sepals and petals similar in both the sexes; anthers in male flowers connate into a column. Ripe drupes 0.3-0.5 cm across, red.

Fls. & Frts. : June-September.

Illus. : Wight, Icon. t. 939. 1845.

Distrib. : Scarce in ghat forest : Sawantwadi-Amboli R. P. and Hiranyakeshi, Ambolighat.

TINOSPORA Miers

1. Stems and leaves glabrous; drupes globose	..	<i>T. cordifolia</i>
1. Stems and leaves hairy, glabrous at length; drupes ellipsoid	..	<i>T. sinensis</i>

Tinospora cordifolia (Willd.) Miers ex Hook. f. & Thoms. Fl. Ind. 183. 1855 et in Hook. f. Fl. Brit. India 1 : 97. 1872; Cooke, Fl. Pres. Bombay 1 : 20, 1958 (Repr. ed.); Sant. & Janardh. in Bull. Bot. Surv. India 10 : 368. 1968 (1969). *Menispermum cordifolium* Willd. Sp. Pl. 4 : 826. 1805. *Mar.* : ' Gul-vel '.

Climbing shrubs, bark green, corky. Leaves 5.0-8.5 cm as long as broad, sometimes reniform; petioles 3-4 cm long. Flowers 0.5-0.8 cm across, deciduous, greenish-yellow; in axillary racemes in fascicles. Drupes 0.5-0.6 cm across, orange-red when ripe.

Fls. & Frts. : January—August.

Illus. : Wight, Icon. tt. 485 & 486. 1841.

Distrib. : Occasional, in waste places; Deogad-Port Road.

T. sinensis (Lour.) Merr. in Sunyatsenia 1 : 193. 1934 & Trans. Amer. Philos. Soc. Philad. n.s. 24 : 148. 1935; Sant. & Janardh. in Bull. Bot. Surv. India 10 : 368. 1968 (1969). *Campylus sinensis* Lour. Fl. Cochinch. 113. 1790. *Tinospora malabarica* (Lamk.) Hook. f. & Thoms. Fl. Ind. 183. 1855 et in Hook. f. Fl. Brit. India 1 : 96. 1872; Cooke, Fl. Pres. Bombay 1 : 19. 1958 (Repr. ed.).

Straggling shrubs, bark dirty green, warty. Leaves 8-12 cm as long as broad, or broader than long, ovate-cordate, base truncate or cordate; petioles 8-11 cm long. Flowers greenish-yellow, 0.5-0.7 cm across; in long, linear racemes from bare branches. Drupes 0.9-1.2 cm across, orange-red when ripe.

Fls. & Frts. : January—May.

Illus. : Diels in Engl. Pflanzner. 46 : 133. fig. 49 A-C. 1910.

Distrib. : Scarce in deciduous forest; Kudal-Ghotge. Vengurla-Math forest.

NYMPHAEACEAE

NYMPHAEA L.

1. Leaves glabrous on both the surfaces; flowers white	..	<i>N. nouchali</i>
1. Leaves pubescent on lower surface; flowers purple-red	..	<i>N. pubescens</i>

Nymphaea nouchali Burm. f. Fl. Ind. 120. 1768; Hacker & Bakhuizen, f. Fl. Java 1 : 149. 1963. *N. stellata* Willd. Sp. Pl. 2 : 1153. 1799; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 114. 1872; Cooke, Fl. Pres. Bombay 1 : 27. 1958. (Repr. ed.). Mar. : 'Kamal'.

Aquatic herbs, root stock ovoid. Leaves peltate, margins entire or slightly bluntly toothed; petioles 8-23 cm long. Flowers 4-6 cm across; peduncles 25 cm long; sepals green with purple dots, petals linear-oblong; filaments yellow. Fruits globular.

Fls. & Frts. : Almost throughout the year.

Illus. : Wight, Icon. t. 178. 1839.

Distrib. : Scarce, once only collected in a pond at Achre, Malwan.

N. pubescens Willd. Sp. Pl. 2 : 1154. 1799; Backer & Bakhuizen, f. Fl. Java 1 : 148. 1963. *N. lotus* auct. non L. (1753); Hook. f. & Thoms. Fl. Ind. 242. 1855 et in Hook. f. Fl. Brit. India 1 : 114. 1872; Cooke, Fl. Pres. Bombay 1 : 26. 1958 (Repr. ed.). (incl. var. *pubescens* Hook. f. Thoms. (l.c.). Mar. 'Kamal'.

Aquatic herbs with tuberous roots. Leaves 20-35 cm across, peltate, orbicular or reniform; petioles 35 cm long. Flowers 10-15 cm across; peduncles 60-65 cm long; petals oblong, obtuse; filaments dilated at base. Fruits globose, fleshy.

Fls. & Frts. : Throughout the year.

Illus. : Subramanyam, Aquat. Ang. 8. Pl. I. f. 2. 1962.

Distrib. : Infrequent in a pond; Kudal-Nerur.

PAPAVERACEAE

ARGEMONE L.

Argemone mexicana L. Sp. Pl. 50. 1753; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 117. 1872; Cooke, Fl. Pres. Bombay 1 : 29. 1958 (Repr. ed.). Mar. : 'Pisla-dhotra'.

Prickly, glaucous herbs with yellow sap. Leaves pinnatifid, margins spinous, ash-green. Flowers 2-4 cm across, bright yellow; calyx and ovary prickly. Capsules glaucous green, ellipsoid, dehiscing by terminal openings.

Fls. & Frts. : Throughout the year.

Illus. : Wight, *Illus.* 4. 11. 1840.

Distrib. : Common weed on river bed and in waste places; Kankavli-Bhironde and Phonda, Kudal-Parwadwadi near Ghotge, Sawantwadi-Konal near Bhedshi.

BRASSICACEAE

1. Roots not fleshy or tuberous; pods dehiscent, tapering at both ends :	
2. Leaves spatulate, pinnatifid, not compound; pods cylindric, long beaked ..	<i>Brassica</i>
2. Leaves pinnately compound; pods flat, shortly beaked ..	<i>Cardamine</i>
1. Roots fleshy, fusiform; pods indehiscent, cylindric, elongated, beaks tapering ..	<i>Raphanus</i>

BRASSICA L.

Brassica juncea (L.) Czern. Consp. Pl. Chare. 8. 1859; Hook f. & Thoms. in J. Linn. Soc. 5 : 170. 1861, *p.p.* et Hook f. & Anders. in Hook f. Fl. Brit. India 1 : 157. 1872, *p.p.*; Cooke, Fl. Pres. Bombay 1 : 37. 1958 (Repr. ed.). *Synapsis juncea* L. Sp. Pl. 668. 1753. *Mar.* : 'Mohri'.

Erect, branched, annual herbs. Leaves petiolate, 3-6 × 2-3 cm, gradually decreasing in size upwards. Flowers yellow, sepals spreading. Pods torulose, narrow with conical beak. Seeds orbicular, brownish-black.

Fls. & Frts. : August—September.

Distrib. : An escape from cultivation found along roadsides; Sawantwadi-Ramghat near Bhedshi.

CARDAMINE L.

Cardamine trichocarpa Hochst. ex Rich. Tent. Fl. Abyss. 1 : 18. 1847; Dunn in Kew. Bull. 1916 : 61. 1916; Sant. Fl. Khandala e¹, 3. 7. 1967. *C. subumbellata* Hook. f. ex Hook. f. & Anders. in Hook. f. Fl. Brit. India 1 : 138. 1872; Cooke, Fl. Pres. Bombay 1 : 32. 1958 (Repr. ed.).

Diffuse herbs, 10-20 cm high, spreading. Leaves palegreen, leaflets elliptic-ovate, petiolulate, irregularly crenate. Flowers 0.15 cm long, yellow. Pods 3-5 cm long, flat.

Fls. & Frts. : August—December.

Distrib. : Infrequent on wet soil; Sawantwadi-Amboli.

RAPHANUS L.

Raphanus sativus L. Sp. Pl. 669. 1753; Hook. f. & Anders. in Hook. f. Fl. Brit. India 1 : 166. 1872; Cooke, Fl. Pres. Bombay 1 : 37. 1958 (Repr. ed.). *Mar.* : 'Mula'.

Annual herbs with thick taproot. Leaves elliptic-spathulate, lower leaves rosulate, pinnatipartite. Flowers white; in lax racemes; petals obovate. Pods rostrate, cylindrical, spongy, divided into 1-seeded compartments, with long seedless beak.

Fls. & Frts. : September—October.

Distrib. : Cultivated for vegetable; Malwan-Sindhudurg.

CAPPARACEAE

1. Shrubs or trees (sometimes climbing shrubs); fruits berries :	
2. Unarmed trees; leaves trifoliate	.. <i>Crateva</i>
2. Armed shrubs; leaves simple	.. <i>Capparis</i>
1. Herbs; fruits linear capsules	.. <i>Cleome</i>

CAPPARIS L.

1. Leaves ovate-orbicular, membranous; thorns straight, acicular	.. <i>C. rotundifolia</i>
1. Leaves not ovate-orbicular, leathery; thorns recurved :	
2. Young branches rufous tomentose; flowers in supra-axillary rows	.. <i>C. zeylanica</i>
2. Young branches glabrous; flowers in terminal corymbs	.. <i>C. moonii</i>

Capparis moonii Wight, illus. 35. 1840; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 175. 1872; Cooke, Fl. Pres. Bombay 1 : 49. 1958 (Repr. ed.); Jacobs in Blumea 12 : 472. 1965. *Mar.* : 'Wagati'.

Scandent shrubs. Leaves 5-10 × 3-5 cm. elliptic-oblong. Flowers white, 6-8 cm across, outer sepals orbicular, inner oblong, tomentose; gynophore 3.5-5.0 cm long. Fruits 4-12 cm across, subglobose, smooth.

Fls. & Frts. : February—August.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 59. fig. 37. 1909.

Distrib. : Infrequent in scrubby thickets along ghats; Sawantwadi-Chaukul, Ramghat.

C. rotundifolia Rottl. in Neue Schr. Ges. Naturf. Fr. Berlin 4 : 185. 1803; Jacobs in Blumea 12 : 485. 1965. *C. pedunculosa* Wall. ex Wight & Arn. Prodr. 27. 1834; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 176. 1872; Cooke, Fl. Pres. Bombay 1 : 50. 1958 (Repr. ed.). *C. longispina* Hook. f. & Thoms. *i.e.* *C. pedunculosa* Wall. ex Wight & Arn. var. *longispina* (Hook. f. & Thoms.) Trim. Handb. Fl. Ceylon 1 : 63. 1893; Cooke, *l.c.* 51. *C. orbiculata* Wall. ex Hook. f. & Thoms. *l.c.*

Erect, much branched shrubs, 5-8 m high. Leaves 2-4 × 0.5-2.0 cm, pale green. Flowers 1.0-2.5 cm across, white; in terminal or axillary umbels; gynophore 2 cm long. Fruits 1 cm across, subglobose, smooth.

Fls. & Frts. : February—June.

Ilus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 60. fig. 39. 1909.

Distrib. : Frequent on the outskirts of semi-evergreen forest; Kankavli-Phonda-Pawnadevi rai. Kudal-Rangana fort slopes; Shivapur rai. Sawantwadi-Amboli-Ramghat Road, Ambolighat-Temple point.

C. zeylanica L. Sp. Pl. ed. 2, 720. 1762; Cooke Fl. Pres. Bombay 1 : 47. 1958 (Repr. ed.); Jacobs in Blumea 12 : 505. 1965. *C. horrida* L.f. Suppl. 264. 1781; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 178. 1872; Cooke, *l.c.* 51.

Divaricately branched, straggling shrubs, 3-5 m tall. Leaves 2—8 × 2.5—4.5 cm, ovate or elliptic-ovate, leathery. Flowers showy, white, turning pinkish, filaments pink; gynophore 3-5 cm long. Fruits 4-5 cm across, globose or ellipsoid, smooth, reddish when ripe.

Fls. & Frts. : February—August.

Ilus. : Wight, Icon. t. 173. 1839.

Distrib. : Frequent in deciduous forest right from ghat base to coastal area; Deogad-Port. Kudal-Ghotge. Malwan-Achre creek. Sawantwadi-Akeri. Vengurla (Cooke, *l.c.*).

Notes : *C. zeylanica* was described by Linnaeus on Hermann's collection from Ceylon. Subsequently Linnaeus f. described *C. horrida* based on Koenig's collection also from Ceylon and was identical to Hermann's specimen. Willdenow (1799) treated both the species as distinct, subsequent botanists gave different interpretations. Dunn in 1915 (in Gamble's Fl. Pres. Madras 46.) brought out the correct name as mentioned by Jacobs (*l.c.*).

CLEOME L.

1. Plants viscosus, glandular pubescent; seeds ridged	..	<i>C. viscosa</i>
1. Plants otherwise: seeds warty not ridged	..	<i>C. chelidoni</i>

Cleome chelidonii L. f. Suppl. 300. 1781; Hook f. & Thoms. in Hook. f. Fl. Brit. India 1 : 170. 1872; Cooke, Fl. Pres. Bombay 1 : 42. 1958 (Repr. ed.).

Erect herbs, 40-60 cm tall, branches glabrous or sparsely hairy. Leaves compound, leaflets 3-7, 3-7 × 0.5-1 cm, oblong-obovate to narrowly linear, glabrous. Flowers 2.0-2.5 cm across, rosy; in axillary and terminal racemes; sepals ovate, petals 0.9-1.2 cm long, obovate. Capsules 5-8 cm long, cylindric, glabrous, tapering at both ends.

Fls. & Frts. : November-May.

Illus. : Wight, Icon. t. 319. 1840.

Distrib. : Occasional, along roadsides as weed; Sawantwadi-Ramghat.

C. viscosa L. Sp. Pl. 672. 1753; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 170. 1872; Cooke, Fl. Pres. Bombay 1 : 41. 1958 (Repr. ed.); Sant. in Bull. Bot. Surv. India 3 : 14. 1961. *Mar.* : 'Pivli-tivan'.

Erect herbs, 25-50 cm tall, stems grooved. Leaves compound, leaflets 5-7, 1-4 × 0.5-1.8 cm, elliptic-oblong, glabrous above, pubescent beneath. Flowers 1.0-1.5 cm across, yellow; axillary, solitary, apparently in terminal, loose racemes; sepals glandular hairy, petals 1.2 cm long, oblong-obovate. Capsules 4-8 cm long, erect, cylindrical, viscidly hairy.

Fls. & Frts. : February—May.

Distrib. : Frequent, as weed in waste places in plains; Deogad-Rest House Campus. Kudal-Ghotge. Sawantwadi-Akeri-Mangaon, Amboli-Ramghat Road, Hewale. Vengurla (Cooke, l.c.).

CRATEVA L.

Crateva magna (Lour.) DC. Prodr. 1 : 243. 1824. *Capparis magna* Lour. Fl. Cochinch. 1 : 331. 1790. *Crateva nurvala* Buch.-Ham. in Trans. Linn. Soc. 15: 121. 1827; Jacobs in van Steenis, Fl. Males. Ser. 1, 6 : 58. 1960 et in Blumea 12 : 194. 1965. *C. religiosa* Forst. var. *nurvala* (Buch.-Ham.) Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 172. 1872; Cooke, Fl. Pres. Bombay 1 : 44. 1958 (Repr. ed.). *Mar.* : 'Varun'.

Trees, 5-8 m tall, much branched. Leaflets 4-10 × 3-5 cm, elliptic-lanceolate, glabrous, apex acuminate or acute, base tapering. Flowers white; in terminal, corymbose cymes; sepals petaloid, petals 0.8-1.2 cm long. Fruits 3-5 cm, ellipsoid or globose, greenish-yellow, pulpy.

Fls. & Frts. : February-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 64. fig. 43. 1909.

Distrib. : Occasional along river banks in deciduous forest in plains; Sawantwadi-Ainode near Bhedshi.

VIOLACEAE

HYBANTHUS Jacq.

Hybanthus enneaspermus (L.) Muell. Fragm. Phyt. Austr. 10 : 81. 1876; Tennant in Kew Bull. 16 : 431. 1963. *Viola enneasperma* L. Sp. Pl. 937. 1753. *Ionidium heterophyllum* Vent. Jard. Malm. 1 : sub-t. 27. 1803; Cooke, Fl. Pres. Bombay 1 : 55. 1958 (Repr. ed.). *I. suffruticosum* Ging in DC. Prodr. 1 : 311. 1824; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 185. 1872.

Woody, perennial herbs, 10-15 cm tall, stems branched. Leaves 2-4 × 0.3-0.8 cm, linear-lanceolate, glabrous, margins shallowly crenate. Flowers pinkish-red; axillary, solitary; sepals keeled, petals unequal, lower-most elongate. Fruits 0.5 cm across, subglobose, 3-valved.

Fls. & Frts. : August—September.

Illus. : Wight, Icon. t. 308. 1840.

Distrib. : Infrequent in open places on red gravel in plains; Sawantwadi-Ajgaon.

BIXACEAE

BIXA L.

Bixa orellana L. Sp. Pl. 512. 1753; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 190. 1872; Cooke, Fl. Pres. Bombay 1 : 57. 1958 (Repr. ed.).

Shrubs, 3-5 m tall. Leaves 5-15 × 5-8 cm, ovate, apex acuminate. Flowers pale pink; in terminal panicles. Capsules 4-5 cm long, ovoid, prickly. Seeds covered with red powder, yield yellow dye.

Fls. & Frts. : December—March.

Illus. : Wight, Illus. t. 16. 1840.

Distrib. : Cultivated in Agricultural Farm, Kudal-Nileli.

FLACOURTIACEAE

1. Petals present :
 2. Flowers axillary in short cymes or solitary .. *Hydnocarpus*
 2. Flowers in elongate, pendulous, spikelike racemes .. *Homalium*
1. Petals absent :
 3. Armed plants; fruits berries, indehiscent .. *Flacourtia*
 3. Unarmed plants; fruits succulent capsules, dehiscent .. *Casuarina*

CASEARIA Jacq.

1. Young parts and leaves glabrous :
 2. Leaves broadly ovate or oblong-elliptic, apex obtuse or shortly pointed; stipules long, lanceolate-subulate .. *C. graveolens*
 2. Leaves narrowly elliptic or ovate-elliptic, apex abruptly acuminate, with twisted acumen; stipules minute :
 3. Calyx glabrous, thin; capsules globose to ellipsoid, orange-red when ripe .. *C. ovata*
 3. Calyx minutely pubescent, fleshy; capsules obovoid or ellipsoid, yellow when ripe .. *C. rubescens*
1. Young parts and leaves pubescent .. *C. tomentosa*

Casuaria graveolens Dalz. in Hook. J. Bot. & Kew Gard. Misc. 4 : 107, 1852; Clarke in Hook. f. Fl. Brit. India 2 : 592, 1879; Cooke, Fl. Pres. Bombay 1 : 553, 1958 (Repr. ed.).

Small trees, 5-8 m tall. Leaves 6.5-17.0 × 4.5-9.0 cm, margins finely serrate, reticulately veined. Flowers 1.5-2.0 cm across, greenish, with disagreeable odour. Capsules 1.5-2.0 × 1 cm, angled when dry, pendulous from leafless branches.

Fls. & Frts. : February-May.

Distrib. : Frequent in deciduous forest and in scrub jungle; Kankavli-Phondaghat. Kudal-Ghotge. Malwan-Achre, Kolamb, Kunkavle. Vengurla-Math forest.

C. ovata (Lamk.) Willd. Sp. Pl. 2, pt. 2 : 629, 1799; Mukherjee in Bull. Bot. Surv. India 14 : 184, 1972 (1975). *Anavinda ovata* Lamk. Encycl. 1 : 148, 1789. *Casuaria esculenta* Roxb. Fl. Ind. 2 : 422, 1832; Clarke in Hook. f. Fl. Brit. India 2 : 592, 1879; Cooke, Fl. Pres. Bombay 1 : 553, 1958 (Repr. ed.).

Small trees, 5-8 m tall. Leaves 4-6 × 2.5-3.0 cm, margins dentate, base acute or subacute. Flowers 0.25-0.3 cm across, greenish-yellow. Capsules 1.5 × 0.5 cm, 2-3 valved. Seeds emersed in reddish-pulp.

Fls. & Frts. : February—May.

Illus. : Bedd. Fl. Sylv. t. 208. 1872.

Distrib. : Scarce, on the outskirts of semi-evergreen forest; Kankavli-Phondaghat. Sawantwadi-Ambolighat, Ramghat.

C. rubescens Dalz. in Hook. J. Bot. & Kew Gard. Misc. 4 : 108. 1852; Clarke in Hook. f. Fl. Brit. India 2 : 592. 1879; Cooke, Fl. Pres. Bombay 1 : 554. 1958 (Repr. ed.).

Shrubs, 3-5 m tall. Leaves 10-20 × 4-7 cm, margins entire. Flowers greenish, 0.15-0.2 cm across, sepals thick, staminodes villous at apex; pedicels pubescent. Capsules 2-3 cm long, angled.

Fls. & Frts. : February-May.

Distrib. : Infrequent in occurrence in open situations on ghat slopes; Kankavli-Harkool. Kudal-Shivapur-paz.

C. tomentosa Roxb. Fl. Ind. 2 : 21. 1832; Clarke in Hook f. Fl. Brit. India 2 : 593. 1879; Cooke, Fl. Pres. Bombay 1 : 554. 1958 (Repr. ed.); Mukherjee in Bull. Bot. Surv. India 14 : 183. 1972 (1975).

Small trees, 8-10 m tall, bark ash coloured. Leaves 6.4-17.7 × 3.7-6.9 cm, oblong, margins entire or serrulate, pubescent or glabrous above, densely pubescent on nerves beneath. Flowers greenish-white; in axillary fascicles; sepals pubescent, broadly elliptic, staminodes villous at apex. Capsules 2-9 cm long, ellipsoid, shining. Seeds arillate.

Fls. & Frts. : January—May.

Illus. : Wight, Icon. t. 1849. 1852.

Distrib. : This species is included here as Cooke (l.c.) reports it from Vengurla, collection by Stocks.

FLACOURTIA L'Herit.

1. Fruits less than 3 cm across :

2. Young twigs pubescent; fruits ovoid to (rarely) obovoid, 2.5 cm across, reddish-purple when ripe

.. *F. montana*

2. Young twigs glabrous; fruits ovoid, 1.2 cm across, brownish-purple when ripe

.. *F. indica*

1. Fruits 3.5 cm or more across

... *F. jangamas*

Flacourtia indica (Burm. f.) Merr. Interpr. Rumph. Herb. Amb. 377. 1917; Sleum. in van Steenis, Fl. Males. Ser. 1, 5 : 76. f. 30 h-i. 1954. *Gmelina indica* Burm. f. Fl. Ind. 132. t. 39. f. 5. 1768. *Flacourtia ramontchi*

L'Herit. Stirp. Nov. 3 : 59. t. 30 & 30B. 1785; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 193. 1872; Cooke, Fl. Pres. Bombay 1 : 59. 1958 (Repr. ed.). *F. ramontchi* var *latifolia* Hook. f. & Thoms. in Hook. f. l.c. *F. septaria* Roxb. Pl. Cor. 1 : 48. t. 68. 1795; Hook. f. & Thoms. in Hook. f. l.c. 194; Cooke, l.c. 60. *F. latifolia* (Hook. f. & Thoms.) Cooke, Fl. Pres. Bombay 1 : 58. 1901 et 1 : 59. 1958 (Repr. ed.).

Shrubs, 1.5-5.0 m tall, stems and branches thorny. Leaves 2-10 × 2-7 cm, elliptic, base acute, margins dentate. Flowers in puberulous racemes; 0.1-0.15 cm across, (male flowers up to 0.3 cm across), yellowish-green, sepals ovate, ciliate along margins. Fruits ribbed, turning black on drying.

Fls. & Frts. : January—June.

Illus. : Wight, Icon. t. 85. 1839.

Distrib. : Frequent in scrub jungles, from ghat base to coastal areas; Deogad-Tar-mumbri. Kudal-Shivapur rai, Ghotge. Malwan-Achre, Kalwali. Sawantwadi-Hewale.

F. jangomas (Lour.) Raeusch. Nomencl. Bot. ed. 3 : 290. 1797; Sleum. in van Steenis, Fl. Males. Ser. 1, 5 : 72. 1954. *Stigmarota jangomas* Lour. Fl. Cochinch. 2 : 634. 1790. *F. cataphrata* Roxb. ex Willd. Sp. Pl. 4 : 830. 1806; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 193. 1872; Cooke, Fl. Pres. Bombay 1 : 58. 1958 (Repr. ed.).

Small, deciduous trees, 6-10 m tall, branches white dotted. Leaves 5-10 × 2.5-4.3 cm, oblong or oblong-lanceolate, margins crenate-serrate. Flowers 0.25-0.3 cm across, greenish, fragrant, dioecious; in racemes. Fruits 3.6-5.0 cm across, subglobose, blackish when ripe.

Fls. & Frts. : June—December.

Illus. : Fl. Males. (l.c.) fig. 30 a-d.

Distrib. : Cooke (l.c.) cites this species on the authority of Dalzell & Gibson (Bombay Fl. 10. 1861) who report it from 'Wari Country' (Sawantwadi); so this is included here.

F. montana Grah. Cat. Pl. Bombay 10. 1839; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 192. 1872; Cooke, Fl. Pres. Bombay 1 : 58. 1958 (Repr. ed.). *Mar.* : 'Chap'.

Small trees, 5 to 10 m tall, stems long thorny. Leaves 6-10 × 3-6 cm, ovate or oblong-elliptic, hairy on nerves beneath, margins crenate. Flowers pale green, unisexual; in densely pubescent, fascicled racemes; male flowers 0.2-0.3 cm across and female flowers 0.15-0.2 cm across. Fruits obtusely ribbed, edible.

Fls. & Frts. : November—April.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 76. fig. 18. 1909.

Distrib. : Occasional in Konkan, probably planted near villages for edible fruits; Kankavli-Digwal. Kudal-Chapheli. Sawantwadi-Banda, Gavata.

HOMALIUM Jacq.

Homalium zeylanicum (Gardn.) Benth. in J. Linn. Soc. Bot. 4 : 35. 1860; Clarke in Hook. f. Fl. Brit. India 2 : 569. 1879; Cooke, Fl. Pres. Bombay 1 : 555. 1958 (Repr. ed.). *Blackwellia zeylanica* Gardn. in Calcutta J. Nat. Hist. Soc. 7 : 452. 1847.

Trees, 10-15 m tall, bark smooth, grey. Leaves 7-10 × 4-7 cm, elliptic or elliptic-oblong, apex acuminate with twisted acumen, margins crenate-dentate. Flowers 0.3-0.4 cm across, whitish-green, sepals pubescent, petals obovate. Fruits not seen.

Fls. & Frts. : February—May.

Illus. : Wight, Icon. t. 1851. 1852.

Distrib. : Infrequent in semi-evergreen forest along ghats; Sawantwadi-Ambolighat.

HYDNOCARPUS Gaertn.

Hydnocarpus pentandra (Buch.-Ham.) Oken, Allg. Naturgesch. 3, 2 : 1381. 1841; Mukherjee in Bull. Bot. Surv. India 14 : 183. 1972 (1975). *Chilmoria pentandra* Buch.-Ham. in Trans. Linn. Soc. 13 : 301. 1822. *Hydnocarpus wightiana* Bl. in Rumph. 4 : 22. 1848; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 196. 1872; Cooke, Fl. Pres. Bombay 1 : 60. 1958 (Repr. ed.).

Trees, 15-20 m tall. Leaves 8-20 × 3-5 cm, oblong or oblong-ovate, coriaceous, margins serrate. Flowers unisexual and bisexual, pentamerous, sepals brown, outer 3 larger, ovate, petals oblong or orbicular, margins soft hairy; 5 stamens in male flowers, those in bisexual flowers abortive. Berries 5-7 cm across, tomentose, hard.

Fls. & Frts. : March—August.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 79. fig. 53. 1909.

Distrib. : Frequent in gorges at ghat base and less frequent along ghats; Kankavli-Naradave, Phonda, Phondaghat. Kudal-Ghotge, Nerur. Swantwadi-Ambolighat, Ramghat. Vengurla (Cooke, l.c.).

PITTOSPORACEAE

PITTOSPORUM Banks ex Soland. (nom. cons.)

1. Inflorescence and branchlets tomentose	..	<i>P. dasycaulon</i>
1. Inflorescence and branchlets glabrous or glabrescent	..	<i>P. napaulense</i>

Pittosporum dasycaulon Miq. Anal. Bot. 3 : 5. 1852; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 199. 1872; Cooke, Fl. Pres. Bombay 1 : 62. 1958 (Repr. ed.); Nayar & Giri, Fasc. Fl. India 6 : 6. 1980.

Small trees, 4-6 m tall. Leaves 8-15 x 2-3 cm, elliptic, apex acuminate, base cuneate, glabrous above, hairy on midrib beneath. Flowers yellow; in dense, terminal, umbellate corymbs; sepals densely pubescent, petals oblong, narrow. Capsules 0.9-1.2 cm across, ovoid, compressed, tomentose, drying black.

Fls. & Frts. : January-June.

Distrib : This species is included here on the authority of Cooke (*l. c.*) who reports this from Ramghat (S. M. country) based on collection by Ritchie and Bhide also collected this species from Ambolighat on 30-12-1907.

P. napaulense (DC.) Rehd. & Wilson, Pl. 3 : 326. 1916; Gowda in J. Arnold Arb. 32 : 230. 1951; Nayar & Giri, Fasc. Fl. India 6 : 8. 1980. *Senacka napaulensis* DC Prodr. 1 : 347. 1824. *Pittosporum flarbundum* Wight & Arn. Prodr. 154. 1834; Hook. f. & Thoms. in Hook f. Fl. Brit. India 1 : 199. 1872; Cooke, Fl. Pres. Bombay 1 : 61. 1958 (Repr. ed.).

Small trees, 5-8 m tall, bark rough, grey, aromatic. Leaves 7 x 2 — 5 cm, elliptic-lanceolate, apex acute or acuminate, glabrous on both the sides, pale beneath. Flowers 1 cm across, white; in terminal, short panicles; sepals pubescent outside, petals narrow, oblong. Capsules 1 cm across, dorsally gibbous, smooth, black.

Fls. & Frts. : February-May.

Illus. : Ramamoorthy in Saldanha & Nicolson, Fl. Hassan Distt. 206. fig. 45A-AC. 1976.

Distrib. : Infrequent, on red, gravelly slopes of the ghats in semi-evergreen forest; Sawantwadi-Ambolighat.

POLYGALACEAE

1. Flowers yellow, pedicellate	..	<i>Polygala</i>
1. Flowers pink, sessile	..	<i>Salweenia</i>

POLYGALA L.

Polygala elongata Klein in Willd. Sp. Pl. 3 : 879. 1800; Bennett in Hook. f. Fl. Brit. India 1 : 203. 1872, *excl. syn.*; Cooke, Fl. Pres. Bombay 1 : 64. 1958 (Repr. ed.); Mukerjee in Bull. Bot. Soc. Bengal 12 : 36. 1958.

Erect herbs, 10-20 cm tall. Leaves 2 — 5 × 0.2 cm, linear-lanceolate or oblanceolate, subsessile. Flowers in 6-15 cm long, lax racemes; sepals and petals unequal, lower petal keel-shaped, usually with multifid crest. Capsules 0.8-1.0 × 0.4-0.6 cm, oblique, glabrous, retuse at apex. Seeds appressed silky hairy, carunculate, with 3 appendages.

Fls. & Frts. : August-November.

Distrib : Frequent in shady, moist places; Deogad-Nandgaon, Naringre. Kankavli-Phondaghat. Malwan-Adari, Nandos. Kudal-Nerur. Sawantwadi-Akeri, Banda. Vengurla-Math forest.

SALOMONIA Lour. (nom. cons.)

Salomonía ciliata (L.) DC. Prodr. 1 : 334. 1824; Bennett in Hook. f. Fl. Brit. India 1 : 206. 1872; Backer & Bakhuizen, f. Fl. Java 1 : 199. 1963. *Polygala ciliata* L. Sp. Pl. 705. 1753. *Salomonía oblongifolia* DC. Prodr. 1 : 334. 1824; Bennett in Hook f. l. c. 207.

Tiny herbs, 5-10 cm tall. Leaves 0.25 × 0.01 cm, ovate-oblong, sessile, margins sparingly ciliate. Flowers 0.1-0.2 cm long; in 1-2 cm long spikes; stamens-4. Capsules obovoid, notched at tip.

Fls. & Frts. : September-October.

Illus. : Wight, Illus. 22 B & C. 1840.

Distrib. : Occasional, on grassy plain in Konkan; Malwan-Kuperi-ghati.

CARYOPHYLLACEAE

1. Sepals keeled, green with scarious margins	..	<i>Polycarpon</i>
1. Sepals not keeled, entirely scarious	..	<i>Polycarposia</i>

POLYCARPAEA Lamk. (*nom. cons.*)

Polycarpaea corymbosa (L.) Lamk. *Illus. Gen. Encycl.* 2 : 129. 1787; Edgew. & Hook. f. *Fl. Brit. India* 1 : 245. 1874; Cooke, *Fl. Pres. Bombay* 1 : 70. 1958 (Repr. ed.). *Achyranthes corymbosa* L. *Sp. Pl.* 205. 1753.

Erect, branched herbs, tomentose. Leaves fascicled at nodes, 1-2 × 0.1 cm, linear-lanceolate. Flowers in terminal or axillary corymbose cymes; sepals silvery white or pink, longer than petals, petals about 0.12 cm long. Capsules ovoid, 3-valved.

Fls. & Frts. : October-November.

Illus. : Wight, *Icon.* t. 712. 1843.

Distrib. : Scarce, on moist sandy soil of shore; Malwan-Deobag

POLYCARPON L.

Polycarpon prostratum (Forsk.) Aschers. & Schweinf. in *Oesterr. Bot. Zeitscher.* 39 : 128. 1889. *Alsine prostrata* Forsk. *Fl. Aegypt.-Arab.* 207. 1775. *Polycarpon loeflingiae* (Wight & Arn.) Benth. & Hook. f. ex Edgew. & Hook. f. *Fl. Brit. India* 1 : 245. 1874; Cooke, *Fl. Pres. Bombay* 1 : 69. 1958 (Repr. ed.).

Diffuse, branched herbs, ascending stems, 10-20 cm long, lower internodes pubescent, the upper with line of hairs or glabrous. Leaves 0.5-1.5 cm long, linear-oblong or obovate, lower verticillate, upper ones opposite. Flowers greenish-yellow; in many flowered cymes; sepals 0.3-0.4 cm long, petals 0.1-0.15 cm long, thin, translucent. Capsules membranous, 3-valved, enclosed by sepals.

Fls. & Frts. : March-June.

Illus. : Maheshwari, *Fl. Illus. Delhi* t. 20. 1966.

Distrib. : Uncommon, in fallow fields and in waste places; Kudal-Dukanwad, Kerude. Sawantwadi-Ramghat. Vengurla-Math forest.

PORTULACACEAE

PORTULACA L.

Portulaca oleracea L. *Sp. Pl.* 445. 1753; Edgew. & Hook. f. *Fl. Brit. India* 1 : 246. 1874; Cooke, *Fl. Pres. Bombay* 1 : 72. 1958 (Repr. ed.); Gussink in *Blumea* 17 : 292. 1969.

Succulent herbs, stems tinged pinkish. Leaves 1.5×0.5 cm, ovate or obovate, shortly petiolate. Flowers yellow; in axillary clusters; petals 5-6. Capsules enclosed in sepals, circumscissile, operculate portion thin walled.

Fls. & Frts. : May-October

Distrib. : Frequent, in shady, moist places, also in fallow fields as weed; Deogad-Tar-mumbri. Sawantwadi-Akeri.

TAMARICACEAE

TAMARIX L.

Tamarix ericoides Rottl. in Gesel. Naturf. Fr. Berlin Neue Schr. 4 : 214. 1803; Thiselton Dyer in Hook. f. Fl. Brit. India 1 : 249. 1874; Cooke, Fl. Pres. Bombay 1 : 76. 1958 (Repr. ed.).

Shrubs, 1.5-2.0 m tall with casuarinoid habit, old branches brownish-black. Leaves scaly, up to 0.1 cm long. Flowers rose coloured, 0.7-0.9 cm across. Capsules dull yellow, 0.6-0.8 cm long. Seeds comose.

Fls. & Frts. : September-January.

Illus. : Wight, Icon. t. 22. 1838.

Distrib. : Occasional, on sandy riverbed; Kankavli-Janoli river bed.

ELATINACEAE

BERGIA L.

Bergia ammannioides Roxb. ex Roth, Nov. Pl. Sp. 219. 1821; Thiselton Dyer in Hook. f. Fl. Brit. India 1 : 251. 1874; Cooke, Fl. Pres. Bombay 1 : 77. 1958 (Repr. ed.).

Erect, branched herbs, 15-25 cm tall. Leaves $1-3 \times 0.7$ cm, elliptic-oblong or oblanceolate, margins denatate. Flowers 0.2-0.25 cm across, red; in axillary clusters. Capsules 0.2 cm across, ovoid, reddish.

Fls. & Frts. : January-May.

Illus. : Wight, Illus. t. 25. 1840; Maheshwari, Illus. Fl. Delhi t. 22. 1966.

Distrib. : Common along river bank and in harvested rice fields; Kankavli-Harkool, Phonda. Malwan-Deobag.

CLUSIACEAE (GUTTIFERAE)

1. Lateral veins reticulate; stigmas sessile or subsessile :
 2. Plants with yellow or reddish juice; flowers yellow or green .. *Garcinia*
 2. Plants without yellow or reddish juice; flowers white to pale purple .. *Mammea*
1. Lateral veins parallel; stigmas on slender styles :
 3. Leaves glaucous beneath; flowers 4-5 cm across .. *Mesua*
 3. Leaves not glaucous beneath; flowers up to 1.5 cm across .. *Calophyllum*

CALOPHYLLUM L.

1. Branchlets 4-angled; flowers 0.6-0.8 cm across .. *C. apetalum*
1. Branchlets terete; flowers 1.0-1.5 cm across .. *C. inophyllum*

Calophyllum apetalum Willd. Ges. Naturf. Fr. Berlin Mag. Neuesten 5 : 79. 1811; Maheshwari in Bull. Bot. Surv. India 2 : 143. 1960. *C. wightianum* Wall. ex. Planch. & Triana in Ann. Sci. Nat. Bot. Ser. 4, 15 : 256. 1861; Anders. in Hook. f. Fl. Brit. India 1 : 274. 1874; Cooke, Fl. Pres. Bombay 1 : 86. 1958 (Repr. ed.).

Small trees, 5-8 m tall. Leaves 4-6 × 2.5-4.0 cm, obovate or elliptic, rounded at base, lateral nerves making acute angle with midrib. Flowers creamy-white; in axillary racemes. Fruits 1 cm across, ovoid to ellipsoid, reddish-yellow when ripe.

Fls. & Frts. : October - April.

Illus. : Wight, Icon. t. 106. 1839.

Distrib. : Occasional, along river bank; Sawantwadi-Ainode.

C. inophyllum L. Sp. Pl. 513. 1753; Anders. in Hook. f. Fl. Brit. India 1 : 273. 1874; Cooke, Fl. Pres. Bombay 1 : 84. 1958 (Repr. ed.); Maheshwari in Bull. Bot. Surv. India 2 : 145. 1960. *Mar.* : 'Undi'.

Medium sized trees, 10-15 m tall, bark pale grey. Leaves 8-15 × 6-8 cm, oblong-elliptic or obovate, leathery. Flowers white; in axillary or terminal racemes. Fruits 2.5-3.0 cm across, yellowish when ripe, pulpy.

Fls. & Fruits : December-April

Illus. : Wight, Icon. t. 77. 1839.

Distrib. : Frequent, along coastal areas on gravelly as well as sandy soil; Deogad-Nadan-Vir. Malwan-Aohre. Sawantwadi-Akeri-Mangaon Forest.

GARCINIA L.

1. Branches drooping; ripe berries reddish-purple, pulpy	..	<i>G. indica</i>
1. Branches not drooping; ripe berries yellow, not pulpy	..	<i>G. talbotii</i>

Garcinia indica (DuPetit-Thou.) Choisy in DC. Prodr 1 : 561. 1824; Anders. in Hook. f. Fl. Brit. India 1 : 261. 1874; Cooke, Fl. Pres. Bombay 1 : 80. 1958 (Repr. ed.); Maheshwari in Bull. Bot. Surv. India 6 : 127. 1964 (1965). *Brindonia indica* DuPetit-Thou. in Dict. Sci. Nat. 5 : 339. 1804. *Mar.* : 'Kokam', 'Ratamba'.

Tall trees, 15-20 m tall, branchlets terete. Leaves 6-10 × 2.5-4.0 cm, elliptic or elliptic-oblong, reddish when young. Flowers 0.6-1.0 cm across; male flowers in axillary or terminal fascicles; sepals orbicular, thick; female flowers solitary with staminodes in 4-bundles. Berries 4 cm across, sessile, depressed globose, with persistent calyx.

Fls. & Frts. : January-August.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 90. fig. 57. 1909.

Distrib. : Frequent in moist deciduous forest in Konkan and also cultivated along coast for fruits; Kudal-Chapheli, Ghotge. Sawantwadi-Akeri, Amboli, Ambolighat, Gavata, Tirali. Vengurla-Math forest.

G. talbotii Raiz. ex Sant. in Rec. Bot. Surv. India 16 : 14. 1960; Maheshwari in Bull. Bot. Surv. India 6 : 113. 1964 (1965). *G. ovalifolia* Hook. f. var. *macrantha* Anders. in Hook. f. Fl. Brit. India 1 : 269. 1874. *G. spicata* Hook. f. var. *macrantha* Cooke Fl. Pres. Bombay 1 : 79. 1901 et. 1 : 83. 1958 (Repr. ed.).

Small trees, 8-10 m tall, branchlets angled. Leaves 7-15 × 3.5-5.0 cm, oblong, or oblong-elliptic, coriaceous. Flowers 0.5-0.7 cm across, male flowers in short racemes and female flowers in fascicles in axils of fallen leaves; sepals orbicular, staminodes 5. Berries 4-5 cm across, subglobose.

Fls. & Frts. : December-May.

Distrib. : Infrequent, in semi-evergreen forest along ghats; Kankavli-Naradave, Phondaghat (Cooke, l.c.). Sawantwadi-Ambolighat, Chaukul.

MAMMEA L.

Mammea suriga (Buch.-Ham. ex Roxb.) Kosterm. in Comm. For. Res. Indonesia, Bogor 72 : 23. f. 19. 1961; Sant. in Bull. Bot. Surv. India 3 : 19.

1961. *Calophyllum suriga* Buch.-Ham. ex Roxb. Fl. Ind. 2 : 608. 1832. *Ochrocarpus longifolius* Benth. ex Anders. in Hook. f. Fl. Brit. India 1 : 270. 1874; Cooke, Fl. Pres. Bombay 1 : 84. 1958 (Repr. ed.). Mar. : - 'Surangi'.

Moderate sized trees, 8-12 m tall. Leaves 8-20 × 3.6-5.0 cm, oblong or oblong-elliptic, leathery. Flowers 1.0-1.5 cm across ; in fascicles on old wood; sepals reddish. Berries 1.5-2.0 cm across, obliquely ovoid, orange-red when ripe.

Fls. & Frts. : March-June.

Illus. : Wight, Icon. t. 1999. 1853.

Distrib. : Infrequent, in moist deciduous forest, in sacred groves and sometimes cultivated; Kankavli-Phonda, Phondaghat. Kudal-Ghotge.

MESUA L.

Mesua Lerrea L. Sp. Pl. 515. 1753; Anders. in Hook. f. Fl. Brit. India 1 : 277. 1874; Cooke, Fl. Pres. Bombay 1 : 86. 1958 (Repr. ed.); Stevens in Taxon 35:353. 1986.

Trees, 10-15 m tall. Leaves 7-15 × 2.5-4.5 cm, elliptic-oblong, apex acuminate, leathery. Flowers white, fragrant, shortly pedicelled, sepals orbicular. Berries 4.5 cm across, ovoid, brownish, beaked, with persistent sepals. Seeds brownish, winged.

Fls. & Frts. : February-June.

Distrib. : Mostly, this species is cultivated; in sacred groves and in semi-evergreen forest may be an escape; Kudal-Narur. Malwan-Town. Sawantwadi-Bhatwadi, Chaukul, Ramghat.

ANCISTROCLADACEAE

Ancistrocladus heyneanus Wall. ex Grah. Cat. Pl. Bombay 28. 1839; Thiselton Dyer in Hook. f. Fl. Brit. India 1 : 299. 1874; Cooke, Fl. Pres. Bombay 1 : 93. 1958. (Repr. ed.).

Large climbing shrubs with hooked branchlets, grow upto 6-8 m. Leaves 6-15 × 2.5-7.5 cm, elliptic-lanceolate or oblanceolate, coriaceous, crowded

at the ends of branches. Flowers 1.5 cm across, creamy-yellow; in lax, terminal panicles. Fruits ovoid, brown, with 5 unequal, accrescent, spathulate calyx wings.

Fls. & Frts. : February-June.

Illus. : Wight, Icon. tt. 1987-88. 1853.

Distrib. : Frequent, along gravelly slopes and along river / stream banks; Kankavli-Naradave, Phondaghat. Sawantwadi-Amboli, Bhedshi, Chaukul, Ramghat (Cooke, l. c.).

MALVACEAE

1. Ripe carpels separating from main axis at maturity :		
2. Ripe carpels glochidiolate	..	<i>Urena</i>
2. Ripe carpels not glochidiolate :		
3. Mature carpels bursting irregularly, 1-seeded	..	<i>Sida</i>
3. Mature carpels dehiscing by regular central line, 2 or more seeded	..	<i>Abutilon</i>
1. Ripe carpels not separating from the main axis at maturity :		
4. Involucral bracts 4 (rarely 6), persistent and forming spreading wings to the fruits	..	<i>Kydia</i>
4. Involucral bracts 5-10 (sometimes 12), not forming wings to the fruits :		
5. Involucral bracts usually 5 (rarely more); flowers axillary, solitary or in terminal racemes; ovary 5-celled:		
6. All herbaceous parts covered with peltate scales; styles connate up to apex	..	<i>Thespesia</i>
6. Plants without peltate scales; styles divided into 5, spreading :		
7. Calyx splitting on one side at apex, adnate to corolla and falling with corolla after flowering	..	<i>Abelmoschus</i>
7. Calyx not splitting on one side, 5-lobed to 5 partite, not adnate to corolla, persistent after flowering	..	<i>Hibiscus</i>
5. Involucral bracts 10; flowers axillary, solitary or at tips of branches; ovary 10-celled	..	<i>Decaschistia</i>

ABELMOSCHUS Medik.

Abelmoschus manihot (L.) Medik. asp. *tetraphyllus* (Roxb. ex Hornem.) Borssum var. *tetraphyllus* Borssum in Blumea 14 : 95-98. 1966. *Hibiscus manihot* L. Sp. Pl. 696. 1735. *H. tetraphyllus* Roxb. ex Hornem. Hort. Hafn. 661. 1815; Mast. in Hook. f. Fl. Brit. India 1 : 341. 1874; Cooke, Fl. Pres. Bombay 1 : 118. 1958 (Repr. ed.). Mar. : 'Ran-bhendi'.

Undershrubs, 1.0-1.5 m tall. Leaves 4-15 × 3-10 cm, ovate, 5 angled or lobed, sparingly hairy beneath. Flowers 4-6 cm across, corolla orange-yellow with purple centre; bracts of epicalyx leafy. Capsules 3.0-4.5 × 2 cm, oblong-ovoid, pointed, silky tomentose when young. Seeds brown, globular.

Fls. & Frts. : October-December.

Illus. : Wight, Icon. t. 53. 1838.

Distrib. : Frequent in occurrence in waste places and along road sides; Kudal-Chapheli. Malwan-Adari Road. Sawantwadi-Amboli, Ambolighat, Sawantwadi-Bus Stand, Tirali.

Note : Borssum (*l.c.*) has recognised 2 subspecies, of which ssp. *tetraphyllus* is wild, and ssp. *manihot* is cultivated. Under ssp. *tetraphyllus* he has made 2 varieties var. *tetraphyllus* with epicalyx segments densely, softly hairy, and in var. *pungens* epicalyx segments hispid hairy along margins. Plants from Sindhudurg area belong to var. *tetraphyllus*.

ABUTILON Mill.

1. Flowers in terminal racemes; carpels with 5 mericarps	..	<i>A. persicum</i>
1. Flowers axillary, solitary; carpels with usually more than 5-mericarps	..	<i>A. indicum</i>

Abutilon indicum (L.) Sweet, Hort. Brit. ed. 1, 54. 1826. *emend.* Hochr. in Ann. Cons. Jard. Bot. Geneve 6 : 19. 1902; Mast. in Hook. f. Fl. Brit. India 1 : 326. 1874; Cooke, Fl. Pres. Bombay 1 : 102. 1958 (Repr. ed.); Borssum in Blumea 14 : 170. 1966. *Sida indica* L. in Torner, Cent. Pl. 2 : 26. 1756.

Undershrubs, 1.5 m tall, young parts and leaves softly hairy. Leaves 6-12 × 5-10 cm, ovate, base cordate, pale beneath, margins dentate. Flowers 2.0-2.5 cm across, yellow to pale orange. Fruits 2.5-3.0 cm across, oblong, carpels hairy. Seeds brownish-black, minutely scrobiculate.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Icon. t. 12. 1838.

Distrib. : Occasional, along roadsides on gravelly soil; Deogad-Port Road.

A. persicum (Burm. f.) Merr. Philipp. J. Sci. 19 : 364. 1921; Borssum in Blumea 14 : 163. 1966. *Sida persica* Burm. f. Fl. Ind. 148. t. 47. f. 1. 1768. *Abutilon polyandrum* (Roxb.) Wight & Arn. Prodr. 55. 1834; Mast. in Hook. f. Fl. Brit. India 1 : 325. 1874; Cooke, Fl. Pres. Bombay 1 : 101. 1958 (Repr. ed.).

Tall herbs, 1-2 m high, hirsute hairy. Leaves 6-15 × 3-8 cm, ovate, apex acuminate, long tapering, softly tomentose on both the surfaces. Flowers 1.5-2.0 cm across, yellowish-orange, with purple throat. Fruits 1.5-2.0 cm across, sub-cylindric, ripe carpels with long mucro. Seeds brown, smooth.

Fls. & Frts. : November-April.

Distrib. : Scarce, along ghat slopes in moist deciduous forest; Kudal-Ghotge. Sawantwadi-Ambolighat, Ramghat.

DECASCHISTIA Wight & Arn.

Decaschistia trilobata Wight, Icon. t. 88. 1838.; Mast. in Hook. f. Fl. Brit. India 1 : 332. 1874; Cooke, Fl. Pres. Bombay 1 : 109. 1953 (Repr. ed.).

Tomentose, suffruticose herbs, 1.0-1.5 m tall. Leaves 3-lobed, densely woolly, lobes 4-7 × 1.2-3.0 cm, upper leaves with narrow lobes. Flowers 6-7 cm across, bright yellow with purple centre. Fruits 0.8-0.5 × 0.5-0.6 cm, ovoid, tomentose.

Fls. & Frts. : October-February.

Illus. : Wight, l. c.

Distrib. : Frequent on higher ghat slopes in open situations; Kankavli-Phondaghat. Sawantwadi-Amboli-Mahadeogad, Ramghat.

HIBISCUS L. (nom. cons.)

1. Flowers yellow mostly with deep purple or chocolate throat or white, petals entire :

2. Prickly shrubs or herbs :

3. Involucral bracts with leafy appendages .. *H. aculeatus*

3. Involucral bracts without leafy appendages .. *H. cannabinus*

2. Unarmed, herbs or undershrubs :

4. Capsules winged, wings reticulately veined, hairy; seeds not cottony .. *H. vitifolius*

4. Capsules not winged; seeds cottony .. *H. talboti*

1. Flowers deep red, petals dentate .. *H. rosa-sinensis*

Hibiscus aculeatus Roxb. Fl. Ind. 3 : 206. 1832; Paul & Nayar in Bull. Bot. Surv. India 22 (1-4) : 195. 1982. *H. furcatus* Roxb. ex DC. Prodr. 1 : 449. 1824, (*non* Willd. 1809); Mast. in Hook. f. Fl. Brit. India 1 : 335. 1874; Cooke, Fl. Pres. Bombay 1:112. 1958 (Repr. ed.); Rakshit & Kundu in Bull. Bot. Surv. India 12 : 161. 1970 (1972).

Scandent shrubs, grey pubescent. Leaves 4.5-7.0 × 4.0-6.5 cm, ovate, 3-5 lobed, pubescent, nerves prickly. Flowers 6-8 cm across, showy, involucral bracts 8-10, brownish, bristly. Capsules 1.5-2.0 cm across, ovoid, densely silky. Seeds smooth, black.

Fls. & Frts. : September-November.

Ilus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 119, fig. 71. 1909.

Distrib. : Frequent, on the outskirts of semi-evergreen and moist deciduous forests along ghats and in plains; Kudal-Dukanwad, Ghotge, Hanuman ghat, Nerur, Wasuli. Sawantwadi-Akeri, Amboli, Ambolighat, Kudasa, Ramghat (Cooke, l. c.), Tirali.

H. cannabinus L. Syst. Nat. ed. 10, 2 : 1149. 1759; Mast in Hook. f. Fl. Brit. India 1 : 339. 1874; Cooke, Fl. Pres. Bombay 1 : 116. 1958 (Repr. ed.); Borssum in Blumea 14 : 63. 1966; Rakshit & Kundu in Bull. Bot. Surv. India 12 : 164. 1970 (1972). *Mar.* : 'Ambadi'

Herbs, 1 m tall. Leaves deeply palmately 3-5 lobed, margins dentate, nectariferous glands on midrib beneath. Flowers 4-5 cm across, yellow, throat purple; axillary, solitary, sessile or subsessile. Capsules 1.0-1.8 cm across, ovoid, apiculate, hairy. Seeds dotted with scales.

Fls. & Frts. : September-October.

Distrib. : Cultivated as vegetable and for fibre; Kankavli-Phonda.

H. rosa-sinensis L. Sp. Pl. 694. 1753; Mast. in Hook. f. Fl. Brit. India 1 : 334. 1874; Cooke, Fl. Pres. Bombay 1 : 120. 1958 (Repr. ed.); Borssum in Blumea 14 : 72. 1966; Rakshit & Kundu in Bull. Bot. Surv. India 12 : 163. 1970 (1972). *Mar.* : 'Jaswandi'.

Shrubs, 3-5 m tall. Leaves 3-8 × 2-8 cm, ovate or ovate-lanceolate, coarsely serrate towards apex. Flowers 6-10 cm across; solitary from upper axils; epicalyx half as long as calyx, corolla funnel shaped. Fruits not seen.

Fls. : Throughout the year.

Distrib. : Cultivated in back yards; Kudal-Kerude.

H. talbotii (Rakshit) Paul et Nayar in Bull. Bot. Surv. India 22 (1-4) : 198. 1982. *H. hirtus* L. var. *talbotii* Rakshit in Sci. & Cult. 27 : 193. t. 2. 1961; Rakshit & Kundu in Bull. Bot. Surv. India 12 : 170. 1970 (1972). *H. hirtus* *acut. non* L. (1753); Mast. in Hook. f. Fl. Brit. India 1 : 335. 1874. (*p. p.*); Cooke, Fl. Pres. Bombay 1 : 113. 1958 (Repr. ed.).

Undershrubs, 1-2 m tall, branches appressed hairy. Leaves 4-10 × 3.0-4.5 cm, ovate or ovate-lanceolate or oblong-ovate, pale green, basal leaves 3-lobed. Flowers 1.5-2.0 cm across, white, epicalyx 6-9, linear. Capsules 1.5 cm across, ovoid, 5-valved, hairy.

Fls. & frts. : October-May,

Illus. : Wight, Icon. t. 41. 1838.

Distrib. : Uncommon, on ghat slopes and on low hills in plains; Kankavli-Phonda. Kudal-Ghotge. Sawantwadi-Akeri.

H. vitifolius L. Sp. Pl. 696. 1753; Mast. in Hook. f. Fl. Brit. India 1 : 338. 1874; Cooke, Fl. Pres. Bombay 1 : 115. 1958 (Repr. ed.); Borssum in Blumea 14 : 72. 1966; Rakshit & Kundu in Bull. Bot. Surv. India 12 : 166. 1970 (1972).

Weak undershrubs, 1.0-1.5 m tall, young parts pubescent. Leaves 5-12 × 4-10 cm, ovate, 5-7 lobed, pubescent below, margins crenate-serrate or toothed. Flowers 4-5 cm across, golden yellow, throat crimson; solitary or clustered at the ends of branches. Capsules 1.5 cm across, suborbicular or obovate, top blunt, ripe carpels 5, with mucro. Seeds brown.

Fls. & Frts. : September-February.

Distrib. : Very scarce, along roadsides of scrub forest in Konkan; Malvan-Dhamapur.

KYDIA Roxb.

Kydia calycina Roxb. Pl. Cor. 3 : 12. t. 215. 1811; Mast. in Hook. f. Fl. Brit. India 1 : 348. 1874; Cooke, Fl. Pres. Bombay 1 : 100. 1958 (Repr. ed.).

Small trees, 5-8 m tall, young parts brownish hairy. Leaves 6-12 × 4.5-13.5 cm, broadly ovate, 3-5 angled, pubescent above, glaucous below. Flowers 1.5 cm across, creamy; in terminal or axillary panicles; sepals brownish hairy. Capsules 0.4-0.5 cm across, ovoid, depressed, hairy.

Fls. & Frts. : September-April.

Illus. : Wight, Icon. t. 881. 1844-45.

Distrib. : Occasional, in semi-evergreen forest on ghat top; Sawantwadi-Amboli (Cooke, l. c.), Ambolighat, Ramghat.

SIDA L.

1. Carpels 8-10 or more, aristate, arista retrorsely hairy

.. *S. cordifolia*

1. Carpels 3 (Sometimes 6-7), not aristate :
2. Leaves ovate, base cordate; carpels slightly beaked or acute .. *S. cordata*
2. Leaves variable, obovate, rhomboid or sometimes lanceolate; carpels with two short awns .. *S. rhombifolia*

Sida cordata (Burm. f.) Borssum in Blumea 14 : 182. 1966. *Melochia cordata* Burm. f. Fl. Ind. 143. 1768. *Sida veronicifolia* Lamk. Encycl. 1 : 5. 1783; Cooke, Fl. Pres. Bombay 1 : 97. 1958 (Repr. ed.). *S. humilis* Cav. Diss. 5 : 227. t. 134. f. 2. 1788; Mast. in Hook. f. Fl. Brit. India 1 : 322. 1874.

Weak, trailing herbs, branched up to base, 0.5 m long, hairy. Leaves 1.5-4.0 × 1.0-3.5 cm, ovate to orbicular, apex acuminate, margins crenate. Flowers 1.0-2.5 cm across, yellow, petals obovate. Carpels 5, 2.0-2.5 cm long, mucous. Seeds obovoid.

Fls. & Frts : October-January.

Distrib. : Common, from ghat base to coastal areas in various types of habitats; Deogad-Tar-mumbri. Kudal-Ghotge. Sawant-wadi-Akeri. Vengurla-Math forest.

S. cordifolia L. Sp. Pl. 684. 1753; Mast. in Hook f. Fl. Brit. India 1 : 324. 1874; Cooke, Fl. Pres. Bombay 1 : 99. 1958 (Repr. ed.); Borssum in Blumea 14 : 199. 1966.

Erect, much branched herbs, 1 m tall, softly tomentose. Leaves 2.5-4.5 × 2.5-3.5 cm, ovate or oblong-ovate, apex acute, tomentose, whitish green, margins serrate. Flowers 1.5 cm across, pale yellow; solitary or sometimes in clusters of 2-3 at the ends of branches; calyx densely tomentose. Carpels 0.35-0.45 cm long, trigonous, laterally compressed. Seeds reniform.

Fls. & Frts. : September-October.

Distrib. : Scarce, in waste places in a forest near sea; Malwan-Padmagad.

S. rhombifolia L. Sp. Pl. 684. 1753, *emend.* Mast. in Hook. f. Fl. Brit. India 1 : 323. 1874 (incl. vars. *retusa* & *rhomboidea*); Cooke, Fl. Pres. Bombay 1 : 99. 1958 (Repr. ed.); Borssum in Blumea 14 : 193. 1966.

Undershrubs, up to 1 m tall. Leaves 2.5-3.5 × 1.0-1.5 cm, margins serrate to crenate. Flowers 1.5-2.0 cm across; mostly solitary; corolla yellow to pale orange, petals oblique. Carpels 0.2-0.3 cm long, trigonous, flattened sidewise with two short mucros. Seeds reniform, brown to black.

Fls. & Frts. : October-December.

Distrib. : Common as undergrowth in deciduous and semi-ever-green forests, along roadsides and in waste places; Kankavli-Achre Road, Phondaghat. Sawantwadi-Amboli, Gavata, Ramghat. Vengurla-Vagiri forest.

THESPESTIA Soland. ex Correa (*nom. cons.*)

1. Leaves lobed: seeds glabrous	..	<i>T. lampas</i>
1. Leaves not lobed: seeds pubescent	..	<i>T. populnea</i> .

Thespesia lampas (Cav.) Dalz. & Gibs. Bombay Fl. 19. 1861; Mast. in Hook. f. Fl. Brit. India 1 : 345. 1874; Borssum in Blumea 14 : 113. 1966. *Hibiscus lampas* Cav. Diss. 3 : 154. t. 56. f. 2. 1787. *Thespesia macrophylla* Bl. Bijdr. 73. 1825; Cooke, Fl. Pres. Bombay 1 : 121. 1958 (Repr. ed.). *Mar.* : 'Ran-bhendi'.

Shrubs, 1.5-2.0 m tall. Leaves 6—16 × 7—15 cm, broadly ovate, usually 3-lobed (rarely 5-lobed), dark green above. Flowers 5-6 cm across, showy, yellow with dark purple throat. Capsules 2.5 cm across, ovoid to ellipsoid.

Fls. & Frts. : September-January.

Illus. : Wight, Icon. t. 5. 1838.

Distrib. : Frequent, on ghat slopes and in plains in open situations; Deogad-Naringre. Kankavli-Naradave. Sawantwadi-Ambolighat, Gavata. Vengurla-Math forest.

T. populnea (L.) Soland. ex Corr. in Ann. Mus. Hist. Nat. Paris 9 : 290. 1807; Mast. in Hook. f. Fl. Brit. India 1 : 345. 1874; Cooke, Fl. Pres. Bombay 1 : 121. 1958 (Repr. ed.); Borssum in Blumea 14 : 106. 1966. *Hibiscus populneus* L. Sp. Pl. 694. 1753.

Small trees, 5—8 m tall. Leaves 8—12 × 6.5—11.5 cm, broadly ovate, apex acuminate. Flowers 6-8 cm across, yellow with pale purple throat. Capsules 3.0-3.5 cm across, ovoid, depressed.

Fls. & Frts. : November-May.

Illus. : Talb. For. Fl. Bombay Press. & Sind. 1 : 125. fig. 76. 1909.

Distrib. : Usually planted along coast, on sandy soil; Vengurla-Hill near harbour.

URENA L.

Urena lobata ssp. **lobata** var. **lobata** L. Sp. Pl. 692. 1753; Mast. in Hook. f. Fl. Brit. India 1 : 329. 1874; Cooke, Fl. Pres. Bombay 1 : 106. 1958 (Repr. ed.); Borssum in Blumea 14 : 138. 1966.

Woody herbs upto 1 m tall. Leaves 3.5 — 5.5 × 3.0 — 3.5 cm, broadly ovate, entire or deeply lobed, scabrid, margins sinuate. Flowers 3.0—3.5 cm across, rose-red; axillary, solitary. Capsules 1.0—1.2 cm across, ovoid, depressed, hairy.

Fls. & Frts. : October-March.

Distrib. : Frequent, as undergrowth in semi-evergreen forest on ghats and in deciduous forest on ghat slopes and in plains; Kudal-Bhadgaon, Kerude jungle, Sawantwadi-Akeri-Mangaon forest, Ambolighat-Nanapani, Ramghat.

Notes : Borssum in Blumea (14 : 133-145. 1966) has treated *Urena sinuata* as subspecies under *U. lobata*; but as there are overlapping, intergrading characters and variations are also observed, so that subspecies is not followed here.

U. lobata ssp. **lobata** L. var. **viminea** (Cav.) Gurke, Bot. Jahrb. 16 : 375. 1892; Borssum in Blumea 14 : 141. 1966. *U. lobata* L. var. *scabriuscula* Wight & Arn. Prodr. 46. 1834 (*non* DC. 1824); Mast. in Hook. f. Fl. Brit. India 1 : 329. 1874; Cooke, Fl. Pres. Bombay 1 : 106. 1958 (Repr. ed.).

This variety differs from the species, leaves rounded, hardly lobed, bristly hairy beneath, not tomentose.

Fls. : December.

Distrib. : This variety is reported by Cooke (*l. c.*) from 'Phundaghat' (Phondaghat in Kankavli taluka), based on collection by Dalzell and 'Ramghat' (in Sawantwadi taluka) based on collection also by Dalzell; so it is included here.

BOMBACACEAE

BOMBAX L.

Bombax ceiba L. Sp. Pl. 511. 1753, (*p. p.*); Robyns in Taxon 10 : 68 & 160. 1961. *B. malabaricum* DC. Prodr. 1 : 479. 1824; Mast. in Hook. f. Fl. Brit. India 1 : 349. 1874; Cooke, Fl. Pres. Bombay 1 : 127. 1958 (Repr. ed.). *Mar.* : 'Kate-sawat'.

Deciduous trees, 10—15 m high, stems armed with prickles. Leaves palmately compound, leaflets 5-7 (sometimes 3), $9-15 \times 3.5-5.0$ cm, elliptic, apex acuminate. Flowers large, 9—12 cm across, bright red, aggregated at the ends of branches. Capsules $9-10 \times 3.5-4.0$ cm, ovoid, tapering at both ends, pubescent, glabrous at length. Seeds cottony.

Fls. & Frts. : February-April.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 130, figs. 79 & 80, 1909.

Distrib. : Frequent, in deciduous forest; Kankavli-Phondaghat.

STERCULIACEAE

1. Herbs or undershrubs :

2. Flowers in terminal clusters; capsules 5-celled	..	<i>Melochia</i>
2. Flowers in axillary heads; capsules 1-celled	..	<i>Waltheria</i>

1. Trees or shrubs :

3. Flowers unisexual or polygamous, petals absent :		
4. Follicles woody, open at maturity	..	<i>Sterculia</i>
4. Follicles membranous, papery, open before maturity	..	<i>Firmiana</i>
3. Flowers bisexual, petals present :		
5. Flowers red; follicles twisted	..	<i>Helicteres</i>
5. Flowers white; follicles woody, oblong	..	<i>Pterospermum</i>

FIRMIANA Marsili

***Firmiana colorata* (Roxb.) R. Br.** in Bennett & Brown, Pl. Java Rat. 235, 1844; Kosterm. in Reinwardtia 4 : 285, f. 1-3, 1957 *p. p.*; (*descr. excl.*) et *ibid.* 5 : 386, 1960. *Sterculia colorata* Roxb. Pl. Cor. 1 : 26, t. 25, 1795 et Fl. Ind. 3 : 146, 1832; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 359, 1874; Cooke, Fl. Pres. Bombay 1 : 133, 1958 (Repr. ed.).

Trees, 8-10 m tall. Leaves $9-14 \times 12-18$ cm, broadly ovate, palmately 5—7-lobed, glabrous on both surfaces. Flowers 2-1.2 cm, scarlet-red; in 5—7 cm long panicles. Follicles 1.0×0.5 cm, deep orange, winged, wing 6 cm long.

Fls. & Frts. : February-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 140, figs. 85 & 86, 1909.

Distrib. : Scarce, in deciduous forest from ghat base to coastal plains; Kankavli-Bhironde, Kudat-Ghotge, Natar.

HELICTERES L.

Helicteres isora L. Sp. Pl. 963. 1753; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 365. 1874; Cooke, Fl. Pres. Bombay 1 : 136. 1958 (Repr. ed.).
Mar. : 'Murad-sheng'.

Shrubs, 3-4 m tall, young parts stellately pubescent. Leaves 7-14 × 12 cm, obovate or suborbicular, tomentose beneath, scabrid above, margins serrate. Flowers 3 × 2.5 cm; in axillary fascicles of 2-4. Follicles 5-7 cm long, pale brown.

Fls. & Frts. : August-June.

Illus. : Wight, Icon. t. 180. 1839.

Distrib. : Common along ghat as well as in plains in scrubby vegetation; Kankavli-Phondaghat. Kudal-Kadaval. Malwan-Kuperighati. Sawantwadi-Akeri, Ambolighat, Danoli, Gavata, Konal.

MELOCHIA L.

Melochia corchorifolia L. Sp. Pl. 675. 1753; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 374. 1874; Cooke, Fl. Pres. Bombay 1 : 142. 1958 (Repr. ed.).

Woody herbs, up to 1 m tall. Leaves 3-6 × 1-3 cm, ovate, glabrous, margins crenate-serrate, base cordate. Flowers 0.4-0.5 cm across, rosy or pink. Capsules 4-5 cm, ovoid, glabrous.

Fls. & Frts. : April-November.

Illus. : Maheshwari, Illus. Fl. Delhi, t. 30. 1966.

Distrib. : Frequent in moist, waste places, and along river banks; Deogad-Tar-mumbri. Kankavli-Janoli riverbed. Kudal-Chapheli forest nursery. Malwan-Nandos.

PIEROSPERMUM Schreb. (*nom. cons.*)

Pterospermum acerifolium Willd. Sp. Pl. 3 : 729. 1801; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 368. 1874; Cooke, Fl. Pres. Bombay 1 : 137. 1958 (Repr. ed.).

Small trees, 8-10 m tall. Leaves 10-12 × 8-15 cm, peltate, ovate or oblong, lobed or entire, white tomentose beneath, stipules and bracts pinna-

tid. Flowers 12—15 cm across; solitary in axils or 2—3 fascicled; sepals thick, tomentose, petals white, fragrant. Capsules 8—10 cm long, 5-angled, brownish-tomentose.

Fls. & Frts. : October-April.

Illus. : Wight, Icon. t. 63. 1838.

Distrib. : Infrequent, in semi-evergreen forest along ghats; Sawantwadi-Ambolighat, Karnyachi rai near Bhedshi.

STERCULIA L.

1. Leaves palmately lobed; flowers greenish-yellow	..	<i>S. urens</i>
1. Leaves not lobed; flowers reddish	..	<i>S. guttata</i>

Sterculia guttata Roxb. ex DC. Prodr. 1 : 482. 1824; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 355. 1874; Cooke, Fl. Pres. Bombay 1 : 132. 1958 (Repr. ed.). *Mar.* : 'Vandri'.

Medium sized trees, 15—20 m tall, bark slightly cracked. Leaves 15—20 × 7—12 cm, ovate to oblong, brownish hairy beneath, apex acuminate. Flowers 1.5—2.5 cm across; in 8—14 cm long, tawny-tomentose panicles. Follicles 6 × 11 cm, woody, bright red when ripe. Seeds oblong, black.

Fls. & Frts. : November-June.

Illus. : Wight, Icon. t. 487. 1841.

Distrib. : Frequent, in semi-evergreen and moist deciduous forests along ghats and also in sacred groves at ghat base; Kudal-Hanumanghat, Kerude, Narur. Sawantwadi-Amboli, Ambolighat.

S. urens Roxb. Pl. Cor. 1 : 25. t. 24. 1795; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 355. 1874; Cooke, Fl. Pres. Bombay 1 : 131. 1958 (Repr. ed.).

Trees, 8—10 m tall, bark smooth, grey. Leaves 15—18 × 20—30 cm, broadly ovate, 5—7 lobed, softly hairy beneath. Flowers 0.5—0.9 cm across; in 7—10 cm long panicles, glandular pubescent. Follicles 3.5—5.0 × 2.5 cm, brownish hirsute, stinging hairy, acute at both ends.

Fls. & Frts. : October-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 137. fig. 83. 1909.

Distrib. : Scarce, in plains along river bank and in deciduous forest; Deogad-Port Road. Kudal-Chapheli river side. Sawantwadi-Banda.

WALTHERIA L.

Waltheria indica L. Sp. Pl. 673. 1753; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1 : 374. 1874; Cooke, Fl. Pres. Bombay 1 : 144. 1958 (Repr. ed.).

Procumbent, woody herbs, young parts grey pubescent. Leaves 3.5×2.0 – 2.5 cm, ovate or ovate-oblong, greyish-green, margins crenate-serrate. Flowers 0.3–0.4 cm across. Capsules 0.2–0.3 cm across, ovoid.

Fls. & Frts. : February–August.

Distrib. : Infrequent, as weed in moist, open situations; Deogad-Naringre. Kankavli-Nandgaon. Malwan-Achre, Kunkavale.

TILIACEAE

1. Herbs or undershrubs :		
2. Leaves lobed; fruits echinate	..	<i>Triumfetta</i>
2. Leaves not lobed; fruits not echinate	..	<i>Corchorus</i>
1. Trees or shrubs (sometimes climbing shrubs) :		
3. Fruits capsules echinate, woody, triquetrous, usually 3-winged (sometimes 2)	..	<i>Erinocarpus</i>
3. Fruits drupes, not echinate, smooth :		
4. Flowers axillary or extra-axillary, in umbellate cymes	..	<i>Grewia</i>
4. Flowers in terminal panicles or axillary	..	<i>Microcos</i>

CORCHORUS L.

1. Capsules depressed globose, warty, without beak, valves woody	..	<i>C. capsularis</i>
1. Capsules longer than broad, beaked; valves thin :		
2. Capsules 6-angled, winged, beak 3-fid	..	<i>C. aestuans</i>
2. Capsules 10-ribbed, not winged, beak simple	..	<i>C. olitorius</i>

Corchorus aestuans L. Syst. Nat. ed. 10, 1079. 1759. *C. acutangulus* Lamk. Encycl 2 : 104. 1786; Mast. in Hook. f. Fl. Brit. India 1 : 398. 1874; Cooke, Fl. Pres. Bombay 1 : 160. 1958 (Repr. ed.).

Diffuse herbs, woody, 20–50 cm tall. Leaves 2.5 – 6.0×1.5 – 3.5 cm, ovate or ovate-elliptic. Flowers 0.3–0.4 cm across, yellow; 2–3 in fascicles, extra-axillary or leaf-opposed. Capsules 1.5–2.5 cm long. Seeds brownish-black.

Fls. & Frts. : September–November.

Illus. : Wight, Icon. t. 739. 1845.

Distrib. : Frequent, as weed in moist, sandy areas or waste places; Deogad-Naringre. Kudal-Chapheli, Kadaval. Sawantwadi-Akeri, Danoli, Madkhel, Mangaon.

C. capsularis L. Sp. Pl. 529. 1753; Mast. in Hook. f. Fl. Brit. India 1 : 397. 1874; Cooke, Fl. Pres. Bombay 1 : 157. 1958 (Repr. ed.).

50—150 cm tall, herbs or undershrubs. Leaves 7—12 × 2—4 cm, ovate-oblong or elliptic-ovate, glabrous. Flowers 0.3—0.4 cm across, yellow; axillary or extra-axillary, solitary or 2—3 in fascicles. Capsules 1.0—1.2 × 1.0—1.3 cm, obovoid, to subglobose. Seeds wedge-shaped, smooth.

Fls. & Frts. : September-November.

Illus. : Wight, Icon. t. 311. 1840.

Distrib. : Common as weed in waste places and on sandy river bed; Kankavli-Janoli river bed, Phonda. Malwan-Adari Road. Sawantwadi-Karnyachi rai near Bhedshi, Madhkhoh river bed.

C. olitorius L. Sp. Pl. 529. 1753; Mast. in Hook. f. Fl. Brit. India 1 : 397. 1874; Cooke, Fl. Pres. Bombay 1 : 158. 1958 (Repr. ed.).

Erect herbs, 40—100 cm tall. Leaves 5—8 × 2.0—3.5 cm, ovate to ovate-oblong, glabrous. Flowers 0.4—0.6 cm across, yellow; axillary or extra-axillary, solitary or few flowered fascicles. Capsules 4—5 cm long, cylindrical, glabrous. Seeds angular, smooth.

Fls. & Frts. : August-September.

Distrib. : Uncommon, as weed in moist, open situations in plains; Deogad-Naringre.

ERINOCARPUS Nimmo ex Grah.

Erinocarpus nimmonii Grah. ex Dalz. & Gibs. Bombay Fl. 27. 1861; Mast. in Hook. f. Fl. Brit. India 1 : 394. 1874; Cooke, Fl. Press. Bombay 1 : 155. 1958 (Repr. ed.).

Small trees, 5—8 m tall, bark grey. Leaves 6—10 × 8—12 cm, broadly ovate to orbicular, 3—5 lobed, irregularly toothed, hairy on nerves beneath, 2 glands on either side of leaf-base. Flowers 3—4 cm across, yellow; in terminal panicles; sepals fulvous, stellate, pubescent outside, petals shorter than sepals. Fruits 3.5 × 3.0 cm, faces cordate at base, prickles broad based.

Fls. & Frts. : August-December.

Distrib. : Infrequent, in deciduous forest along lower slopes of ghats and at base; Kankavli-Phondaghat. Kudal-Chaphell. Sawantwadi-Ramghat.

GREWIA L.

1. Straggling or scandent shrubs :

1. Leaves ovate to orbicular, irregularly toothed or lobed at apex; drupes faintly 4-lobed, rugose, steel-grey	..	<i>G. abutilifolia</i>
2. Leaves elliptic-oblong or ovate-oblong, apex acuminate; drupes deeply 4-lobed, reddish	..	<i>G. umbellifera</i>

1. Tree shrubs or trees :

3. Flowers bisexual :

4. Young parts and lower surface of leaves softly grey tomentose, stipules leafy 0.5-0.8 cm long	..	<i>G. tilifolia</i> var. <i>leptopetala</i>
4. Young parts and leaves not grey tomentose but stellate hairy, stipules less than 0.5 cm long :		
5. Leaves stellate hairy on both surfaces, elliptic or obovate	..	<i>G. flavescens</i>
5. Leaves sparsely stellately hairy when young, large glabrous, oblong-lanceolate	..	<i>G. serulata</i>

3. Flowers polygamous	..	<i>G. polygama</i>

Grewia abutilifolia Vent. ex Juss. in Ann. Mus. Paris 4 : 92. 1804; Mast. in Hook. f. Fl. Brit. India 1 : 390. 1874; Cooke, Fl. Pres. Bombay 1 : 152. 1958 (Repr. ed.); Narayanaswami & Rao in J. Indian Bot. Soc. 29 : 179. 1950.

Straggling shrubs, 4-8 m tall, branches arched. Leaves 6-12 × 3.5-7.0 cm hispid above, soft below. Flowers 1 cm across, yellow; in axillary 1.0-1.5 cm long fascicles. Drupes 1.0-1.5 cm across, depressed.

Fls. & Frts. : March-August.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 165, fig. 102. 1909.

Distrib. : Common, from ghat-slopes to coastal areas in deciduous forest; Deogad-Naringre, Tar-mumbri. Kankavli-Phonda-Humbrat Road. Kudal-Bhadgaon, Ghotge. Malwan-Achre. Kankavle, Nandod. Sawantwadi-Akeri. Amboli-ghat, Banda, Nemle. Vengurla-Math forest.

G. flavescens Juss. in Ann. Mus. Paris 4 : 89. 1804; Narayanaswami & Rao in J. Indian Bot. Soc. 29 : 187. 1950. *G. pilosa* non Lamk. (1789); Mast. in Hook. f. Fl. Brit. India 1 : 388. 1874, (p. p.); Cooke, Fl. Pres. Bombay 1 : 151. 1958 (Repr. ed.).

Shrubs, 3-5 m tall, young branches hairy. Leaves 4-8 × 2-4 cm, stellately hairy above, softly beneath. Flowers 1 cm across, pale yellow; in axillary, short umbellate cymes. Drupes 0.5-1.2 cm across, 2-4 lobed, orange when ripe.

Fls. & Frts. : June-October.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 162. fig. 99. 1909.

Distrib. : Infrequent, in deciduous forest and scrub jungle along coastal areas; Deogad-Nadar-Vir. Kudal—Kerude jungle. Vengurla-Math forest.

G. polygama Roxb. Fl. Ind. 2 : 588. 1832; Mast. in Hook. f. Fl. Brit. India 1 : 391. 1874; Cooke, Fl. Pres. Bombay 1 : 153. 1958 (Repr. ed.); Narayanaswami & Rao in J. Indian Bot. Soc. 29 : 179. 1950.

Trees, much branched, young parts velvety tomentose. Leaves 5—9 × 1.5—4.5 cm, oblong-lanceolate, margins irregularly serrate. Flowers 1.2 cm across; in axillary umbellate cymes; petals with basal glands in males and hermaphrodite flowers. Drupes 1.2 cm across, brownish, hairy, obscurely 4-lobed.

Fls. & Frts. : September-November.

Distrib. : This species is recorded here on the authority of Cooke (*l.c.*), who reports this from Ambolighat in Sawantwadi taluka, based on collection by Woodrow.

G. serrulata DC Prodr. 1 : 510. 1824; Narayanaswami & Rao in J. Indian Bot. Soc. 29 : 187. 1950 *G. laevigata* non Vahl 1790; Mast. in Hook f. Fl. Brit. India 1 : 389. 1874, (*p.p.*); Cooke, Fl. Pres. Bombay 1 : 152. 1958 (Repr. ed.).

Small trees, 5—8 m tall, branches slender, spreading. Leaves 8—12 × 2.5—4.0 cm, pale green. Flowers 3 cm across, yellow; in axillary, 3 cm long umbellate cymes. Drupes 1.0—1.5 cm across, 4-lobed, black when dry.

Fls. & Frts. : September-February.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 164. fig. 101. 1909.

Distrib. : Uncommon in moist deciduous and deciduous forests along ghats and in hilly areas in plains; Kankavli-Phondaghat. Sawantwadi-Akeri-Mangason forest, Ramghat.

G. tillifolia Vahl. var. *leptopatala* Cooke, Fl. Pres. Bombay 1 : 142. 1901 et 1 : 150. 1958 (Repr. ed.). *G. tiliaefolia* Vahl. var. *argentina* Burret in Not. Bot. Gart. & Mus. 9 : 661. 1926; Narayanaswami & Rao in J. Indian Bot. Soc. 29 : 183. 1950.

Trees, 8—10 m tall, bark grey. Leaves 6—15 × 4—9 cm, base oblique.

Flowers 1.5 cm across, yellow; in axillary 1—2 cm long fascicles. Drupes 0.5—0.8 cm across, 1—2 lobed, brownish-red when ripe.

Fls. & Frts. : April-September.

Distrib. : Frequent, along semi-evergreen forest edges and in deciduous forest in plains; Deogad-Naringre. Sawantwadi-Ambolighat, Hewale, Konal, Mulas.

G. umbellifera Bedd. For. Man. Bot. 37. 1871; Mast. in Hook. f. Fl. Brit. India 1 : 389. 1874; Cooke, Fl. Pres. Bombay 1 : 147. 1958 (Repr. ed.); Narayanaswami & Rao in J. Indian Bot. Soc. 29 : 179. 1950.

Scandent shrubs. Leaves 8 — 12 × 4.5 — 7.0 cm, margins entire or crenate-serrate, lower surface brownish-green. Flowers 1.0—1.8 cm across, reddish-yellow; in axillary, extra-axillary or leaf-opposed, umbellate cymes, 4.5—5.0 cm long. Drupes 1 × 2 cm, smooth, lobes obovoid.

Fls. & Frts. : October-March.

Distrib. : Scarce, on ghat top in scrubby Vegetation and along slopes of the ghats in semi-evergreen forest; Kankavli-Phondaghat. Sawantwadi-Amboli, Ambolighat.

MICROCOS L.

Microcos paniculata L. Sp. Pl. 514. 1753; Narayanaswami & Rao in J. Indian Bot. Soc. 29 : 181. 1950. *Grewia microcos* L. Syst. ed. 12, 2 : 602. 1762; Mast. in Hook. f. Fl. Brit. India 1 : 392. 1874; Cooke, Fl. Pres. Bombay 1 : 154. 1958 (Repr. ed.). *Mar.* : 'Hasoli'.

Shrubs, 3—5 m tall. Leaves 8 — 15 × 4 — 7 cm, ovate-lanceolate, apex acuminate. Flowers 1.5 cm across, reddish-yellow; in 4-15 cm long panicles; sepals pubescent. Drupes 1.0 — 1.2 × 0.6 — 0.8 cm, obovoid, black when ripe.

Fls. & Frts. : June-November.

Illus. : Wight, Icon. t. 84. 1838.

Distrib. : Common, in deciduous forest from lower slopes of the ghats to coastal areas; Kankavli-Phondaghat. Kudal-Ghotge, Tambyachiwadi. Malwan-Kuperighati. Sawantwadi-Banda, Danoli, Kolgaon. Vengurla-Math forest.

Notes : Narayanaswami & Rao (*l. c.*) made it clear following Burret (Not. Bot. Cart. Berlin 6 : 773. 1926) and stated that *Microcos* should be maintained as distinct genus on the basis of bracts, inflorescence and fruits.

TRIUMFETTA L.

Triumfetta rhomboidea Jacq. Enum. Pl. Carib. 22. 1760; Mast. in Hook. f. Fl. Brit. India 1 : 395. 1874; Cooke, Fl. Pres. Bombay 1 : 156. 1958 (Repr. ed.).

Herbs or undershrubs, up to 1 m tall. Leaves 6—10 × 4—6 cm, ovate, basal 3—5 lobed, upper linear-lanceolate or rhomboid, stellately hairy. Flowers 0.6—0.8 cm across, reddish-yellow; in axillary fascicles. Fruits 0.3—0.5 cm across, ovoid, white hairy.

Fls. & Frts. : October-April.

Illus. : Wight, Icon. t. 320. 1840.

Distrib. : Common, as undergrowth in forest on slopes and tops of ghats, also in plains in waste places, roadsides; Deogad-Naringre. Kankavli-Digwal, Harkool, Humbrat, Phonda, Phondaghat, Kudal-Ghotge, Sawantwadi-Akeri, Amboli, Banda, Chaukul, Kolgaon, Ramghat.

ELAEOCARPACEAE

ELAEOCARPUS L.

Elaeocarpus serratus L. Sp. Pl. 515. 1753; Mast. in Hook. f. Fl. Brit. India 1 : 401. 1874; Cooke, Fl. Pres. Bombay 1 : 161. 1958 (Repr. ed.); Merr. in J. Arnold Arb. 32 : 194. 1951.

Evergreen trees, 10—15 m tall. Leaves 5—10 × 3.5—5.0 cm, elliptic or elliptic-obovate, at the tips of branches. Flowers 1.0—1.5 cm across, white; in 8—10 cm long racemes; petals fimbriate up to middle. Drupes 3.5 × 2.5 cm, ellipsoid.

Fls. & Frts. : May-June.

Illus. : Wight, Illus. t. 83. 1840.

Distrib. : Occasional, in semi-evergreen forest; Sawantwadi-Ramghat.

LINACEAE

1. Erect herbs or undershrubs

2. Herbs not woody; leaves sessile

2. Woody herbs or undershrubs; leaves petiolate

1. Scandent shrubs :

.. *Linum*

.. *Reynoldsia*

.. *Higsonia*

HUGONIA L.

Hugonia mystax L. Sp. Pl. 675. 1753; Hook. f. Fl. Brit. India 1 : 413. 1874; Cooke, Fl. Pres. Bombay 1 : 166. 1958 (Repr. ed.).

Shrubs, 2--4 m tall, branches yellow tomentose, hooks in pairs. Leaves 3.6 — 6.0 × 1.4 — 3.6 cm, elliptic-obovate, apex obtuse or subacute. Flowers 2.4—3.0 cm across, yellow; at extremities of short branchlets; sepals fulvous pubescent, petals ovate, longer than sepals. Drupes 0.6 cm across, globose.

Fls. & Frts. : August-November.

Distrib. : This species is included here as Cooke (*l.c.*) records it from place between Malwan and Vengurla. based on collection by Dalzell.

LINUM L.

Linum mysorense Heyne ex Benth. Edward's Bot. Reg. 16 : t. 1326. 1830; Hook. f. Fl. Brit. India 1 : 411. 1874; Cooke, Fl. Pres. Bombay 1 : 164 1958 (Repr. ed.).

Slender, erect herbs, 10—25 cm tall. Leaves 0.5 — 1.5 × 0.1 — 0.2 cm, linear-lanceolate or oblong. Flowers 0.3—0.4 cm across, yellow. sepals oblong, petals obovate. Capsules 0.4 cm across, globose. glabrous.

Fls. & Frts. : January-March.

Distrib. : Frequent on higher slopes and tops of ghats in open situations; Kankavli-Nandgaon, Phonda-Bhairi pathar, Phonda-ghat. Sawantwadi-Amboli.

REINWARDITA Dumort.

Reinwardita indica Dumort. Comm. Bot. 19. 1822. *R. trigyna* (Roxb.) Planch. in Hook. Lond. J. Bot. 7 : 22. 1848; Hook. f. Fl. Brit. India 1 : 412. 1874; Cooke, Fl. Pres. Bombay 1 : 165. 1968 (Repr. ed.).
Mar. : ' Ranchitki '.

Undershrubs, 50 — 100 cm tall. Leaves 2 — 5 × 1 — 2 cm, obovate or elliptic-oblong, thin, base cuneate. Flowers 2.0 — 2.5 cm across, yellow; axillary, solitary or 2—3 together; petals oblong, styles 3. Capsules 3—4 cm long glabrous.

Fls. & Frts. : October-November.

Distrib. : Occasional, found growing on wall of a temple; Sawantwadi-Chaukul.

MALPIGHIACEAE

1. Leaves elliptic-oblong, acute or acuminate; calyx with single gland ..	<i>Hiptage</i>
1. Leaves ovate to orbicular, apex abruptly caudate-acuminate; calyx not glandular ..	<i>Aspidopterys</i>

ASPIDOPTERYS A. Juss.

Aspidopterys cordata (Heyne) A. Juss. in Ann. Sci. Nat. Ser. 2, 13 : 267. 1840; Hook. f. Fl. Brit. India 1 : 421. 1874; Cooke, Fl. Pres. Bombay 1 : 168. 1958 (Repr. ed.). *Hiraea cordata* Heyne ex Wall. Pl. Asiat. Rar. 1 : 13. 1829.

Rambling shrubs, young parts rufous hairy. Leaves 7 — 15 × 6 — 9 cm, broadly ovate, grey hairy on both surfaces. Flowers 0.5 cm across, white; in grey tomentose panicles. Fruits 3 samaras, 3.0—3.5 cm across, wings ovate-orbicular.

Fls. & Frts. : November-May.

Distrib. : Scattered, in deciduous forest in open situations; Kankavli-Digwal, Phondaghat. Malwan-Dhamapur. Sawantwadi-Ambolighat-Nauapani.

HIPTAGE Gaertn.

Hiptage benghalensis (L.) Kurz in J. Asiat. Soc. Bengal 43 : 136. 1874. *Banisteria benghalensis* L. Sp. Pl. 427. 1753. *Hiptage madagblota* Gaertn. Fruct. 2 : 169. t. 116. 1791; Hook. f. Fl. Brit. India 1 : 418. 1874; Cooke, Fl. Press. Bombay 1 : 167. 1958 (Repr. ed.).

Extensive climbers. Leaves 8 — 15 × 4 — 8 cm, coriaceous, two glands on lower-surface near base. Flowers 2.0—2.5 cm across, white, throat yellowish; in terminal racemes or panicles. Fruits 1—3 samaras, unequally 3-winged.

Fls. & Frts. : January-March.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 178. fig. 110. 1909.

Distrib. : Scarce, in deciduous forest; Kankavli Ghonsari. Kudal-Dukanwad. Sawantwadi-Akeri-Mangaon forest.

OXALIDACEAE

1. Leaves palmately compound, 3-foliate	..	<i>Oxalis</i>
1. Leaves pinnately compound, more than 3-foliate	..	<i>Biophytum</i>

BIOPHYTUM DC.

Biophytum sensitivum (L.) DC. var *candolleianum* (Wight) Edgew. & Hook. f. Fl. Brit. India 1 : 437. 1874.

Suffruticose herbs, 8—15 cm tall, stems appressed hairy. Leaves 2—5 cm long, leaflets oblong, base oblique, terminal pairs slightly bigger, obliquely ovate, all hairy. Flowers 0.2—0.3 cm across, yellow; in umbelliform inflorescence. Capsules 0.35×0.2 cm, ovoid. Seeds pitted.

Fls. & Frts. : August-November.

Illus. : Ramamoorthy in Saldanha & Nicolson, Fl. Hassan Distt. 398. Fig. 77. A to Ad. 1976.

Distrib. : Frequent, in moist situations; Kankavli-Nandgaon, Phonda, Phondaghat. Malwan-Kasal. Sawantwadi-Amboli-ghat, Banda. Vengurla-Vagiri forest.

OXALIS L.

Oxalis corniculata L. Sp. Pl. 435. 1753; Edgew. & Hook. f. Fl. Brit. India 1 : 436. 1874; Cooke, Fl. Press. Bombay 1 : 177. 1958 (Repr. ed.).

Trailing herbs, rooting at nodes. Leaves rounded, leaflets $1.0-1.5 \times 1.1$ cm, obovate, thin, notched at apex. Flowers 0.6—0.8 cm across, yellow; in axillary umbels. Capsules 1.0—1.5 cm long, cylindrical, pubescent. Seeds ribbed.

Fls. & Frts. : May-June.

Illus. : Wight, Icon. t. 18. 1838.

Distrib. : Scarce, as weed along roadsides; Sawantwadi-Ramghat.

BALSAMINACEAE

IMPATIENS L.

1. Plants acaulescent :
 2. Wing petals 2-partite .. *I. acaulis*
 2. Wing petals 3-partite .. *I. scapiflora*
1. Plants caulescent :
 3. Leaves mostly opposite :
 4. Spur of lip longer than wings or shorter :
 5. Pedicels with line of pubescence on either side; wings not stipitate .. *I. kleiniformis*
 5. Pedicels without line of pubescence; wings stipitate .. *I. kleinii*
 4. Spur of lip very short or absent :
 6. Lip scapiform or cymbiform :
 7. Flowers 0.3-0.4 cm in diam., spur less than 0.2 cm or absent .. *I. inconspicua*
 7. Flowers 0.9-1.2 cm in diam., spur 0.3 cm long .. *I. lawii*
 6. Lip saccate :
 8. Plants tomentose .. *I. tomentosa*
 8. Plants glabrous .. *I. oppositifolia*
 3. Leaves mostly alternate :
 9. Spur exceeding 4 cm; capsules glabrous .. *I. pulcherrima*
 9. Spur 2.5 cm long; capsules tomentose .. *I. balsamina*

Impatiens acaulis Arn. in Hook. Comp. Bot. Mag. 1 : 325. 1835; Hook. f. Fl. Brit. India 1 : 443. 1874 et Rec. Bot. Surv. India 4 : 44. 1906; Cooke, Fl. Pres. Bombay 1 : 180. 1958 (Repr. ed.).

Scapigerous herbs with tuberous root stock. Leaves 4—8 × 2.5—5.0 cm, ovate-elliptic or oblong, radical, margins entire or irregularly crenate to toothed. Flowers 2.5—3.0 cm across, pink to pale purple; in racemes; spur 4.5 cm long. Capsules 1.2 × 0.4 cm. ovoid.

Fls. & Frts. : July-September.

Distrib. : Common on damp rocks near waterfalls along ghats; Kankayli-Phondaghat. Sawantwadi-Abolighat.

I. balsamina L. Sp. Pl. 938. 1753; Hook. f. Fl. Brit. India 1 : 453. 1874. et Rec. Bot. Surv. India 4 : 47. 1906; Cooke, Fl. Pres. Bombay 1 : 184 1958 (Repr. ed.). *Mar.* : 'Terda'.

Annual, branched herbs, 15—35 cm tall. Leaves 5—10 × 1.0—2.5 cm, elliptic or elliptic-lanceolate; petioles 2—4 glandular, margins serrate. Flowers 2.0—2.5 cm across, purple or pink, lateral sepals ovate, lips saccate with 3—4 cm long spur. Capsules 1.5—1.7 cm, long, ellipsoid.

Fls. & Frts. : July-September.

Distrib. : Common, in open situations on plains; Deogad-Naringre. Malwan-Kasal, Sindhudurg. Saswantwadi-Amboli-Mahadeogad, Ambolighat-Nanapani. Banda, Danoli-Kesari R. F.

L. inconspicua Benth. ex Wight & Arn. Prodr. 139. 1834.; Hook. f. Fl. Brit. India 1 : 447. 1874 et Rec. Bot. Surv. India 4 : 46. 1906; Cooke, Fl. Pres. Bombay 1 : 182. 1958 (Repr. ed.). *L. inconspicua* Benth. var. *pusilla* (Heyne ex Hook. f. & Thoms.) Cooke, l. c. 1 : 172. 1903. (1 : 182. 1958, Repr. ed.) *L. inconspicua* var. *filiformis* (Wight & Arn.) Cooke, l. c.

Slender, annual herbs, 15—30 cm tall, branched from base. Leaves 1.5—4.0 × 1.2 cm, elliptic-ovate to oblong, glaucous beneath. Flowers 0.4—0.5 cm across, pink, spur curved. 0.1—0.2 cm long; 2—3 fascicled, pedicels 0.5—0.8 cm long with line of hairs. Capsules upto 0.6 cm long, ellipsoid.

Fls. & Frts. : August-October..

Illus. : Wight, Icon: tt. 750 & 970. 1844-45.

Distrib. : Sawantwadi-Akeri-Mangaon forest, Amboli-Mooseplateau and Ranghat Road, Ambolighat, Danoli.

L. kleiniiformis Sedw. in Rec. Bot. Surv. India 5 : 351. 1919; Blatter. in in J. Bombay nat. Hist. Soc. 36 : 311. 1933.

Erect herbs, stems flaccid, up to 25 cm tall. Leaves 9 × 2.5 cm (largest in the middle of stems), elliptic or oblong, margins crenate, uppermost leaves sessile, Flowers 0.6 cm across, rose, inner side of wing with longitudinal purple lines, spur 0.9 cm long; peduncles 2 cm long, 2-3 fascicled. Capsules fusiform.

Fls. & Frts. : September.

Distrib. : Sawantwadi-Ambolighat.

L. kleini Wight & Arn. Prodr. 140. 1834; Hook. f. Fl. Brit. India 1 : 445. 1874 et Rec. Bot. Surv. India 4 : 46. 1906; Cooke, Fl. Pres. Bombay 1 : 181. 1958. (Repr. ed.).

Delicate, annual herbs, 15—30 cm tall. Leaves 3.5 — 7.0 × 1 — 2 cm, ovate-oblong or linear, margins entire or sparsely serrulate, two glands at the attenuate base. Flowers 0.4—0.8 cm across, pale pink to white; solitary, axillary; spur 0.5—1.0 cm long; pedicels filiform, 0.5—1.5 cm long. Capsules cylindric, 1.5 cm long, glabrous.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 884. 1844-45.

Distrib. : Common in moist areas along roadsides, on ghat slopes and in deciduous forest in plains; Kankavli-Kudal Road, Nandgaon, Phonda-Devichi Rai, Phondaghat. Malwan-Dhamapur, Kasal, Kunkavle, Kuperighati. Sawantwadi-Akeri, Ambolighat, Banda, Danoli, Ramghat. Vengurla-Vagiri forest.

I. lawii Hook. f. & Thoms. in J. Linn. Soc. 4 : 22. 1860; Hook f. Fl. Brit. India 1 : 448. 1874 et Rec. Bot. Surv. India. 4 : 46. 1906; Cooke, Fl. Pres. Bombay 1 : 183. 1958 (Repr. ed.).

Herbs, 15—25 cm tall, nodes swollen. Leaves 2.5 — 5.0 × 0.6 — 1.5 cm, elliptic or oblong, margins sparsely serrate, serratures 0.5 emlong. Flowers across, purple-red, spur 0.5 cm long, curved. Capsules 1.5 cm × 0.5 cm, ellipsoid. Seeds ovoid, black.

Fls. & Frts. : August-October.

Distrib. : Frequent, in open areas and roadsides in ghats as well as in hilly areas in plains; Kankavli-Ghonsari, Phonda-Devichi Rai. Malwan-Kasal. Sawantwadi-Amboli-Mabadeogad and Nangartas, Ambolighat, Chaukul.

I. oppositifolia L. Sp. Pl. 937. 1753; Hook. f. Fl. Brit. India 1 : 448. 1874 et Rec. Bot. Surv. India 4 : 46. 1906; Cooke, Fl. Pres. Bombay 1 : 182. 1958 (Repr. ed.).

Erect herbs, 25—35 cm tall, stems glabrous, flaccid. Leaves 2.4 — 7.2 × 1.0—1.8 cm, linear-lanceolate or oblong or obovate, margins remotely, sparsely spinous-serrate. Flowers 1.2 cm across, purple or purple with orange tinge, standard orbicular, spur short, stout. Capsules upto 1.0—1.2 cm long, ellipsoid.

Fls. & Frts. : August

Distrib. : This species is included here on the authority of Cooke (*J. c.*) who mentions locality 'Vingorla' (Vengurla) based on collection by Dalzell.

I. pulcherrima Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 37. 1850; Hook. f. Fl. Brit. India 1 : 458. 1874 et Rec. Bot. Surv. India 4 : 47. 1906; Cooke, Fl. Pres. Bombay 1 : 185. 1958 (Repr. ed.).

Robust herbs, 35—50 cm tall, stems pink in colour. Leaves 6—10 × 3.5—5.0 cm, elliptic or elliptic-oblong, 6—8 stalked glands at leaf base. Flowers 3—4 cm across, pale purple, spur 3-4 cm long, curved. Capsules 1.5 × 0.5 cm, ellipsoid, glabrous.

Fls. & Frts. : August-October.

Distrib. : Frequent, along ghat slopes and scarce in hilly areas in plains; Kankavli-Phondaghat. Malwan-Kasal. Sawantwadi-Ambolighat-Kumbheshwar and Nanapani; 'Waricountry'-Dalz. & Gibs. (Cooke, *l.c.*).

I. scapiflora Heyne ex Roxb. Fl. Ind. 2 : 464. 1824; Hook. f. Rec. Bot. Surv. India 4 : 44. 1906; Blatter in J. Bombay nat. Hist. Soc. 36 : 310. 1933. *I. rivalis* Wight, Icon. t. 751. 1844; Hook. f. Fl. Brit. India 1 : 444. 1874; Cooke, Fl. Pres. Bombay 1 : 181. 1958. (Repr. ed.).

Delicate herbs, stems very short, root stock tuberous. Leaves 4.8—15 × 5—10 cm, ovate-oblong or ovate-orbicular, reddish. Flowers pink; in racemes, scapes 14 cm long; sepals ovate, standard rounded, spur long, curved. Capsules elliptic.

Fls. & Frts. : July-September.

Illus. : Wight, *l.c.*

Distrib. : This species is included here as Cooke (*l.c.*) cites 'Ramghat' as locality, based on collection by Dalzell.

I. tomentosa Heyne ex Wight & Arn. Prodr. 139. 1834; Hook. f. Fl. Brit. India 1 : 449. 1874, *p. p.* et Rec. Bot. Surv. India. 4 : 46. 1906; Cooke, Fl. Pres. Bombay 1 : 184. 1958 (Repr. ed.).

Erect herbs, young parts clothed with rufous hairs. Leaves 1.2—2.4 × 0.6—1.2 cm, elliptic or ovate-oblong, uppermost linear, margins distantly spinuous toothed; petioles rufous hairy. Flowers 0.8—1.2 cm across, standard orbicular, slightly keeled, spur short, stout, hooked or absent. Capsules 1.2 cm long, acute at both ends.

Fls. & Frts. : September.

Distrib. : Cooke (*l.c.*) cites 'Phunda (Phonda) ghat' as its locality, collection by Dalzell, so this species is included here.

RUTACEAE

1. Climbing or scandent shrubs, armed :

2. Leaves unifoliate ..

Paramignya

2. Leaves trifoliate :

3. Plants prickly; flowers unisexual ..

Toddalia

3. Plants thorny; flowers bisexual ..

Lavanga

1. Erect shrubs or trees :

4. Leaves unifoliate :

5. Plants not armed; flowers in corymbose cymes, fragrant ..	<i>Acronychia</i>
3. Plants sometimes armed; flowers in short racemes, not fragrant ..	<i>Atalantia</i>

4. Leaves tri- or more foliate :

6. Plants unarmed :

7. Leaves trifoliate, leaflets digitate; flowers unisexual ..	<i>Euodia</i>
7. Leaves 3 or more foliate, leaflets not digitate; flowers bisexual :	
8. Leaflets 3-5, base equal; anthers glandular ..	<i>Glycosmis</i>
8. Leaflets 5 or more, base unequal; anthers not glandular :	
9. Flowers axillary, solitary or in terminal, few-flowered corymbose cymes ..	<i>Murraya</i>
9. Flowers in axillary racemes ..	<i>Clauena</i>
6. Plants armed ..	<i>Zanthoxylum</i>

ACRONYCHIA J. R. & G. Forst. (*nom. cons.*)

Acronychia pedunculata (L.) Miq. Fl. Ind. Bat. Suppl. 532. 1861; Rau in Bull. Bot. Surv. India 10 (Suppl. No. 2) : 18. 1968; Hartley in J. Arnold Arb. 55 : 549. 1974. *Jambolifera pedunculata* L. Sp. Pl. 349. 1753. *Acronychia laurifolia* Bl. Cat. Gew. Buitenz. 63. 1823 et Bijdr. 245. 1825; Hook. f. Fl. Brit. India 1 : 498. 1875; Cooke, Fl. Pres. Bombay 1 : 191. 1958 (Repr. ed.).

Small trees, 8—10 m tall with dense canopy. Leaves 8—12 × 3.5—6.0 cm, elliptic-oblong or oblanceolate, pale green, chartaceous. Flowers 2.0—2.5 cm across, white; in corymbose-cymes in axils of leaves at the tips of branches; petals hairy inside towards base. Drupes 1.2—1.2 cm long, obovoid, angled.

Fls. & Frts. : September–November.

Distrib. : Occasional, along higher slopes of the ghats, Sawantwadi–Ambolighat.

ATALANTIA Correa (*nom. cons.*)

1. Stamens combined into a tube ..	<i>A. racemosa</i>
1. Stamens not combined into a tube ..	<i>A. wightii</i>

Atalantia racemosa Wight & Arn. Prodr. 91. 1834; Hook. f. Fl. Brit. India 1 : 512. 1875; Cooke, Fl. Pres. Bombay 1 : 199. 1958 (Repr. ed.). *Mar.* : 'Makadi'.

Trees, 8—10 m high, unarmed or armed. Leaves 4.5—9.5 × 2.5—4.5 cm, ovate or elliptic-oblong, leathery, apex obtuse or retuse. Flowers 1 cm

across, white; in racemes; petals elliptic or obovate. Berries 2.0 — 2.5 × 1.5 cm, globose, creamy when ripe.

Fls. & Frts. : October-June.

Illus. : Wight Icon. t. 71. 1838.

Distrib. : Frequent, along higher slopes and on tops of ghats in moist deciduous forest; Kankavli-Phonda-Harkul. Kudal-Shivapur paz. Sawantwadi-Amboli-Hiranyakeshi, Amboli-ghat-Temple point, Ramghat.

A. wightii Tanaka in Bull. Soc. Bot. France 75 : 714. 1928. *A. ceylanica* (Atn.) Oliver in J. Linn. Soc. 5 (Suppl. 2) : 25. 1861; Hook. f. Fl. Brit. India 1 : 512. 1875; Cooke, Fl. Pres. Bombay 1 : 199. 1958 (Repr. ed.), (all *p. p.*).

Shrubs, much branched, stems armed with sharp spines, bark smooth. Leaves 2.5—10.0 cm long, variable, ovate-oblong or elliptic-oblong, coriaceous, glabrous. Flowers in racemose or corymbose cymes; sepals 4, petals 0.6—0.8 cm long, elliptic-oblong. Berries 1.2 × 0.6 cm across, globose or ovoid, 2—4 seeded.

Fls. & Frts. : November-January.

Distrib. : This species is reported from Phonda ghat by Cooke (*l. c.*) based on sole collection by Ritchie. So far it is not recollected.

CLAUSENA Burm f.

Clausena dentata (Willd.) Roem. Syn. Hesper. 44. 1846. *Amyris dentata* Willd. Sp. Pl. 2 : 337. 1799. *Clausena willdenowii* Wight & Arn. Prodr. 96. 1834; Hook. f. Fl. Brit. India 1 : 506. 1875; Cooke, Fl. Pres. Bombay 1 : 194. 1958 (Repr. ed.).

Small trees, 8—10 m tall, young parts grey tomentose. Leaves imparipinnate; leaflets 4—8 × 2.5—5.0 cm, ovate or elliptic, pale green, base oblique, margins entire or dentate. Flowers 0.8 cm across, white; in axillary racemes. Berries 1.2 cm across, ovoid to orbicular, white when ripe.

Fls. & Frts. : February-May.

Illus. : Wight, Icon. t. 14. 1838.

Distrib. : Scarce, in semi-evergreen forest along higher slopes of the ghats; Sawantwadi-Ramghat, Terwan.

EUODIA J. R. & G. Forest.

Euodia lunu-ankenda (Gaertn.) Merr. in Philipp. J. Sci. Bot. 7 : 378. 1915 (*Evodia lunur-ankenda*). *Fagara lunu-ankenda* Gaertn. Fruct. 1 : 334. t. 68. f. 9. 1788. *Evodia roxburghiana* Benth. Fl. Hongk. 59. 1861; Hook. f. Fl. Brit. India 1 : 487. 1875; Cooke, Fl. Pres. Bombay 1 : 188. 1958 (Repr. ed.).

Trees, 10—15 m tall, branching above the 2/3 portion of stem. Leaflets 8—15 × 6 cm, elliptic-ovate or obovate, nerves prominent above. Flowers 0.15—0.20 cm across, greenish-yellow, 4-merous; in terminal panicles. Cocci 0.4—0.5 cm across, globose, 1-seeded. Seeds bi-convex, black.

Fls. & Frts. : January-May.

Illus. : Wight, Icon. t. 204. 1839.

Distrib. : Scarce, in semi-evergreen forest along higher slopes of the ghats; Sawantwadi-Ambolighat-Nanapani, Ramghat, Terwan.

GLYCOSMIS Correa

Glycosmis muritiana (Lamk.) Tanaka in Bull. Soc. Bot. France 75 : 708. 1928; Brizicky in J. Arnold Arb. 43 : 90. 1962. *Limonia mauritiana* Lamk. Encycl. 3 : 517. 1792. *Glycosmis pentaphylla* DC. Prodr. 1 : 538. 1824; Hook f. Fl. Brit. India 1 : 499. 1875; Cooke, Fl. Pres. Bombay 1 : 192. 1958 (Repr. ed.).

Shrubs, 3—5 m tall. Leaflets 3—5, 7—15 × 3—7 cm, obovate, elliptic or elliptic-oblong or lanceolate, pale green, margins entire and wavy, sometimes sparsely dentate. Flowers 0.6—0.8 cm across, white; in axillary, short brown pubescent panicles. Berrises 1.2 × 1.2 cm, ovoid, glandular-pitted, pinkish-creamy when ripe.

Fls. & Frts. : December-May.

Illus. : Wight, Icon. t. 167. 1839.

Distrib. : Frequent, in deciduous forest in hilly areas in plains and along slopes of the ghats; Sawantwadi-Akeri-Mangaon forest, Amboli, Ambolighat-Nanapani, Danoli, Gavata, Mulas, Ramghat.

LUVUNGA Buch.-Ham. ex Wight & Arn.

Luvunga sarmentosa (Bl.) Kurz in J. Asiat Soc. Bengal 39 : 69. 1870. *Triphasia sarmentosa* Bl. Bijdr. 132. 1825. *Luvunga eleutherandra* Dalz. in

Hook. J. Bot. & Kew Gard. Misc. 2 : 258. 1850; Hook. f. Fl. Brit. India 1 : 509. 1875; Cooke, Fl. Pres. Bombay 1 : 196. 1958 (Repr. ed.) Mar. : 'Aklan'.

Scandent shrubs, thorns 2.5 cm long, stout. Leaflets 6—10 × 3—5 cm, elliptic-oblong or obovate, dark green above, coriaceous, margins inturned. Flowers 1.0—1.5 cm across, white; in axillary, short cymes. Berries 3 × 2 cm, ellipsoid, 3-angled, pitted with glands.

Fls. & Frts. : January-April.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 196. fig. 120. 1909.

Distrib. : Frequent, in semi-evergreen forest and in sacred groves; Sawantwadi-Amboli, Chaukul. Ramghat.

MURRAYA L. (*nom. cons.*)

1. Leaves aromatic; flowers not fragrant; in terminal, corymbose cymes *M. koenigii*

1. Leaves not aromatic; flowers fragrant, solitary,
axillary or in short, terminal cymes *M. paniculata*

Murraya koenigii (L.) Spreng. Syst. 2 : 315. 1825; Hook. f. Fl. Brit. India 1 : 503. 1875; Cooke, Fl. Pres. Bombay 1 : 193. 1958 (Repr. ed.). *Bergera koenigii* L. Mant. 1 : 565. 1757. Mar. : 'Kadhi-limb'.

Shrubs, 3—5 m tall, branches brownish, lenticellate. Leaflets 11—21, 3—8 × 1—3 cm, elliptic or ovate, dark green, base oblique. Flowers 0.8—1.0 cm across, greenish-white, pedicels and sepals pubescent. Berries 1.4 × 1.0 cm, ovoid, pitted with glands, deep violet when ripe.

Fls. & Frts. : March-June.

Illus. : Wight, Icon. t. 13. 1838.

Distrib. : Frequent in moist deciduous forest; Kudal-Kerude Jungle. Sawantwadi-Amboli, Ambolighat-Nanapani, Ramghat.

M. paniculata (L.) Jack. Mal. Misc. 1 : no. 5, 31. 1820. *Chalcas paniculata* L. Mant. 68. 1767. *Murraya exotica* L. Mant. alt. 563. 1771 ('*Murraea*'); Hook. f. Fl. Brit. India 1 : 502. 1875; Cooke, Fl. Pres. Bombay 1 : 193. 1958 (Repr. ed.). Mar. : 'Pandhari'.

Shrubs, 3—6 m tall, bark rough, yellowish-white. Leaflets 3—7, 4—8 × 1.5—3.0 cm, elliptic-ovate, pale-green, coriaceous, apex acuminate with notch at tip. Flowers 3.5 cm across, white, petals oblong. Berries 1.5 × .6 cm, ellipsoid, gland dotted, reddish when ripe.

Fls. & Frts. : January-September.

Illus. : Wight, Icon. t. 96. 1838.

Distrib. : Scattered, in semi-evergreen forest and also cultivated; Kankavli-Naradave. Kudal-Shivapur paz. Sawantwadi-Amboli, Ramghat, Sawantwadi-Bhatwadi.

PARAMIGNYA Wight

Paramignya monophylla Wight, *Illus.* 1 : 109. t. 42. 1840; Hook. f. *Fl. Brit. India* 1 : 510. 1875; Cooke, *Fl. Pres. Bombay* 1 : 197. 1958 (Repr. ed.).
Mar. : *Narayan-makadi* *

Evergreen climbers, young parts pubescent, thorns 1 cm long. Leaves 5—8 × 3—5 cm, elliptic-ovate, pale green. Flowers 2.5—3.0 cm across, white; in 2-3 flowered cymes; sepals tomentose. Berries 4 × 3 cm, obovoid, brownish-grey pubescent.

Fls. & Frts. : December-April.

Illus. : Talb. *For. Fl. Bombay Pres. & Sind* 1 : 199. fig. 122. 1909.

Distrib. : Frequent in moist deciduous forest along ghats and in hilly areas in plains; Kankavli-Naradave-Brahmanachi Rai, Phondaghat. Kudal-Ghotge, Narur. Sawantwadi-Ambolighat-Nanapani, Gavata, Ramghat.

TODDALIA A. Juss. (*nom. cons.*)

Toddalia asiatica (L.) Lamk. *Illus.* 2 : 116. 1793. *Paullinia asiatica* L. *Sp. Pl.* 365. 1753. *Toddalia aculeata* Pess. *Syn.* 1 : 249. 1805; Hook. f. *Fl. Brit. India* 1 : 497. 1875; Cooke, *Fl. Pres. Bombay* 1 : 190. 1958 (Repr. ed.).

Scandent shrubs, prickles curved. Leaflets 4.5—7.0 × 2—4 cm, elliptic or obovate, apex acuminate, margins serrate, coriaceous. Flowers 0.6—0.8 cm across, yellowish-green, sepals triangular. Berries 0.6—1.0 cm across, globose, depressed, pitted, yellow when ripe.

Fls. & Frts. : December-April.

Illus. : Talb. *For. Fl. Bombay Pres. & Sind* 1 : 189. fig. 115. 1909.

Distrib. : Infrequent, in open situations or along forest edges on higher slopes of the ghats; Sawantwadi-Ramghat.

ZANTHOXYLUM L.

Zanthoxylum rhetsa (Roxb.) DC. Prodr. 1 : 728. 1824; Hook. f. Fl. Brit. India 1 : 495. 1875; Cooke, Fl. Pres. Bombay 1 : 189. 1958 (Repr. ed.); Babu in Bull. Bot. Surv. India 15 : 56. 1974 (1977). *Fagara rhetsa* Roxb. Fl. Ind. 1 : 438. 1820. *Mar.* : *Tirphal*’, *Tisal*’.

Deciduous trees, 8—10 m tall, stem and branches prickly. Leaflets 11—23, 3.0—10.0 × 3—5 cm, elliptic-oblong or ovate, apex acuminate. Flowers 0.6—0.8 cm across, greenish-yellow; in terminal cymes; 4-merous. Cocci 0.8 × 0.6 cm across, globose, 1-seeded.

Fls. & Frts. : July-November.

Distrib. : Frequent, in deciduous forest in plains; Kankavli-Harkul-Rhairypathar. Kudal-Ghotge. Sawantwadi-Banda, Danoli. Vengurla-Vagiri forest.

OCHNACEAE

OCHNA L.

Ochna obtusata DC. in Ann. Mus. Paris 17 : 411. t. 11. 1811; Kanis in Blumea 16 : 29. 1968. *O. squarrosa* auct. non L. (1753) ; Bennett in Hook. f. Fl. Brit. India 1 : 523. 1875; Cooke, Fl. Pres. Bombay 1 : 208. 1958 (Repr. ed.).

Shrubs, 2—3 m tall. Leaves 6—10 × 2—4 cm, elliptic or oblanceolate, margins serrulate, young leaves pale reddish. Flowers 1.5—2.0 cm across, yellow, fragrant, petals shorter than sepals. Drupes 1.5 × 0.6 cm, ovoid, 2—4 together, black when ripe, surrounded by persistent calyx.

Fls. & Frts. : February-April.

Illus. : Talbot For. Fl. Bombay Pres. & Sind] 1 : 212. fig. 129. 1909.

Distrib. : Frequent, in scrub forest from ghat base to coastal areas; Kankavli-Ghonsari, Kanedi. Kudal-Bhadgaon, Kerude jungle. Sawantwadi-Ambolighat-Kumbheshwar, Banda, Bhedshi, Hewale. Vengurla-Math forest.

BURSERACEAE

GARUGA Roxb.

Garuga pinnata Roxb. Pl. Cor. t. 208. 1811; Bennett in Hook. f. Fl. Brit. India 1 : 528. 1875; Cooke, Fl. Pres. Bombay 1 : 211. 1958 (Repr. ed.).

Deciduous trees, 5—8 m tall, young parts pubescent. Leaves imparipinnately compound, leaflets 6—9 (10) pairs, ovate to elliptic-oblong, pubescent beneath, margins crenate-serrate. Flowers 0.8—1.0 cm across, yellowish-green; in axillary, spreading panicles, tomentose. Drupes 1.5 cm across, globose, rugose.

Fls. & Frts. : February-June.

Illus. : Wight, Icon, tt. 1594 & 1595. 1850.

Distrib. : Scarce, in deciduous forest in plains; Kankavli-Digwal-Sawantwadi-Banda, Bhedshi, Kudasa.

MELIACEAE

1. Shrubs or trees :

2. Leaves simple	..	<i>Turraea</i>
2. Leaves compound :		
3. Seeds winged :		
4. Seeds winged at both the ends; capsules oblong to sub-fusiform, not woody	..	<i>Toona</i>
4. Seeds winged at one end; capsules sub globose, woody	..	<i>Chukrasia</i>
3. Seeds not winged :		
5. Leaves 3-foliate, sometimes 5-foliate, palmate, base equal sided	..	<i>Walsura</i>
5. Leaves 5 or more foliate, base unequal sided, not palmate :		
6. Capsules woody, 1-4 celled	..	<i>Dysoxylum</i>
6. Capsules or berries not woody, 2-3 celled :		
7. Staminal tube entire, globose; anthers included in staminal tube	..	<i>Aglaia</i>
7. Staminal tube short, filaments more or less free; anthers at the tips of filaments	..	<i>Trichilia</i>
1. Woody herbs	..	<i>Naregamia</i>

AGLAIA Lour (nom. cons.)

1. Inflorescence rufous scaly; petals and anthers 5	..	<i>A. elaeagnoides</i>
1. Inflorescence yellowish scaly; petals 4, anthers 8-10	..	<i>A. lawii</i>

Aglaia elaeagnoidea (Juss.) Benth. Fl. Australia 1 : 383. 1863. *Nemadra elaeagnoidea* Juss. in Mem. Mus. Hist. Nat. Paris 19 : 259. t. 14. 1830. *Aglaia roxburghiana* Miq. in Ann. Ludg.-Bat. 4 : 41. 1868; Hiern in Hook f. Fl. Brit. India 1 : 555. 1875. *A. odoratissima* Bl. Bijdr. 171. 1825; Cooke, Fl. Pres. Bombay 1 : 222. 1958 (Repr. ed.).

Trees, 10—15 m tall. Leaflets 5—7, 5.5—8.0 × 2.5—4.0 cm, elliptic or oblong-lanceolate, pale beneath, drying brownish. Flowers 0.15—0.20 cm across, petals drying yellowish-brown; in axillary panicles. Berries 1.5 × 1.5 cm, ovoid, pale reddish.

Fls. & Frts. : November-June.

Illus. : Wight, Icon. t. 166. 1839.

Distrib. : Frequent, in semi-evergreen forest along higher slopes of the ghats; Kankavli-Phondaghat. Kudal-Hanuman ghat Rai. Sawantwadi-Ambolighat-Nanapani, Ramghat (Cooke, l.c.).

A. lawii (Wight) Saldanha in Saldanha & Nicolson, Fl. Hassan Distt. 392. 1976. *Nimmonia lawii* Wight in Calc. J. nat. Hist. 7 : 13. 1847. *Amoora lawii* (Wight) Bedd. Fl. Sylv. t. 133. 1871; Hiern in Hook. f. Fl. Brit. India 1 : 561. 1875; Cooke, Fl. Pres. Bombay 1 : 225. 1958 (Repr. ed.).

Trees, 10—15 m tall. Leaflets 3—5, 8—12 × 5 × cm, elliptic-oblong or ovate-lanceolate, coriaceous. Flowers 0.3 cm across, creamy, drying brown, petals oblong. Fruits 1.8 × 1.6 cm, obovoid, covered with yellow scales.

Fls. & Frts. : January-June.

Illus. : Bedd. l.c.

Distrib. : Scattered, in semi-evergreen forest along ghats; Kankavli-Naradave. Kudal-Shivapur paz. Sawantwadi-Ambolighat, Ramghat.

CHUKRASSIA A. Juss.

Chukrassia tabularis Juss. var. *velutina* King in J. Asiat. Soc. Bengal 64 : 88. 1895; Cooke, Fl. Pres. Bombay 1 : 230. 1958 (Repr. ed.). *Mar.* : 'Dungmoi'

Trees, 8—10 m tall, young parts, inflorescence and leaflets pubescent. Leaflets 3—5 pairs, 5—10 × 3.5—6.0 cm, ovate or ovate-oblong, apex

acuminate. Flowers 1.2×2.2 cm, dirty white, sepals pubescent, petals linear-oblong. Capsules 4.2×5.0 cm, ovoid, woody, black.

Fls. & Frts. : April-July.

Distrib. : Scarce, in moist deciduous forest; Kankavli Phonda-Harkul forest. Kudal-Shivapur Rai. Sawantwadi-Ramghat.

DYSOXYLUM Bl.

Dysoxylum binectariferum (Roxb.) Hook. f. ex Bedd. in Trans. Linn. Soc. 25 : 212. 1866; Hiern in Hook. f. Fl. Brit. India 1 : 546. 1875; Cooke, Fl. Pres. Bombay 1 : 221. 1958 (Repr. ed.) *Guarea binectarifera* Roxb. Fl. Ind. 2 : 240. 1832. *Mar.* : 'Yerindi'.

Tall trees, 15—20 m tall. Leaflets 3—5 pairs, $8-14 \times 3-5$ cm, elliptic-oblong or elliptic-lanceolate, apex acuminate, pale green. Flowers 0.8×0.5 cm, white, calyx cupular, petals 4; staminal column 0.4 cm long. Capsules 4—6 cm, obovoid, woody, 2—4 seeded, reddish when ripe.

Fls. & Frts. : October-February.

Illus. : Bedd. Fl. Sylv. t. 150. 1871.

Distrib. : Frequent, in semi-evergreen forest along higher slopes of the ghats; Kankavli-Phondaghat. Kudal-Hanumanghat Rai. Sawantwadi-Amboli, Ambolighat-Nanapani, Ramghat.

NAREGAMIA Wight & Arn.

Naregamia alata Wight & Arn. Prodr. 117. 1834; Hiern in Hook. f. Fl. Brit. India 1 : 542. 1875; Cooke, Fl. Pres. Bombay 1 : 217. 1958 (Repr. ed.).

Erect or decumbent, woody herbs, 10—25 cm tall. Leaves trifoliate, leaflets $1-4 \times 1.0-1.5$ cm, obovate, petioles winged. Flowers 2.5—3.0 cm long, 3 cm across, white, showy, fragrant; axillary, solitary or 2-together. Capsules 0.6—0.8 across, ovoid, 3-lobed. Seeds tubercled, brown.

Fls. & Frts. : August-December.

Illus. : Wight, Icon. t. 90. 1838.

Distrib. : Frequent, in the undergrowth of deciduous forest in plains; Malwan-Adari, Kuperghati. Sawantwadi-Akeri-Nemale forest, Banda, Dandoli, Khanale.

TOONA Roem.

Toona ciliata Roem. Syn. Hesper. 139. 1848. *Cedrela toona* Roxb. ex Rottl. in Ges. Naturf. Freunde Berlin Schriften 2 : 198. 1803; Hiern in Hook. f. Fl. Brit. India 1 : 568. 1875; Cooke, Fl. Pres. Bombay 1 : 230. 1958 (Repr. ed.).

Trees, 10—15 m tall. Leaflets 4—8 pairs, 4.5—9.0 × 2.5—4.0 cm, elliptic-oblong or ovate-oblong, apex acuminate. Flowers 0.3—0.35 cm across, white, stamens free. Capsules 3.0 × 1.5 cm, ovoid, 5-angled, with thick central column, 5-valved.

Fls. & Frts. : December-May.

Illus. : Wight, Icon. t. 161. 1839.

Distrib. : Scarce in semi-evergreen forest along higher slopes of the ghats; Kudal—Songad. Sawantwadi—Hewale, Ramghat.

TRICHILIA P. Browne

Trichilia connaroides (Wight & Arn.) Benth. in Acta Bot. Neerl. 11 : 13. 1962. *Zanthoxylum connaroides* Wight & Arn. Prodr. 148. 1834. (*Zanthoxylum*). *Heynea trifuga* Roxb. ex Sims, Bot. Mag. 41 : t. 1738. 1815 (non Vell. 1825); Hiern in Hook. f. Fl. Brit. India 1 : 565. 1875; Cooke, Fl. Pres. Bombay 1 : 227. 1958 (Repr. ed.).

Trees, 8—10 m tall, branches spreading. Leaflets 7—9, 5—10 × 2.5—4.0 cm, elliptic-oblong or ovate, pale beneath, apex acuminate. Flowers 0.4—0.5 cm across, white; staminal tube in basal 1/2 portion only hairy, 0.2 cm long, anthers yellow. Capsules 1.2 × 1.3 cm, obovoid, 2—5 seeded, reddish-pink when ripe.

Fls. & Frts. : March-September.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 242. fig. 144. 1909.

Distrib. : Scattered, collected once only from moist deciduous forest along ghat top; Kankavli-Phondaghat.

WALSURA Roxb.

Walsura trifolia (A. Juss.) Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 19/B : 119, 177. 1940. *Heynea trifolia* A. Juss. in Mem. Mus. Hist. Nat. Paris 19 : 235. 1830. *Walsura piscida* Roxb. Fl. Ind. 2 : 387. 1832; Hiern in Hook. f. Fl. Brit. India 1 : 564. 1875; Cooke, Fl. Pres. Bombay 1 : 227. 1958 (Repr. ed.).

Trees, 8—10 m tall, young parts glabrous. Leaflets usually 3 (sometimes 5), 6—10 × 2.5—4.0 cm, elliptic-oblong to ovate-lanceolate, glaucous beneath, coriaceous. Flowers 0.5 cm across, greenish-creamy, sepals ciliate; filaments united into tube in basal 1/3 portion. Berries 1.4 × 0.9 cm, ovoid, brownish hairy.

Fls. & Frts. : November-December.

Distrib. : Occasional, in semi-evergreen forest along the slopes of the ghats; Sawantwadi-Ramghat.

DICHAPETALACEAE

DICHAPETALUM Thouars

Dichapetalum gelonioides (Roxb.) Engl. in Engl. & Prantl, Pflanzenfam. 3 (4) : 348. 1891; Leenhouts in van Steenis, Fl. Males. Ser. 1, 5 : 310, 1957. *Moacurra gelonioides* Roxb. Fl. Ind. 2 : 69. 1832. *Chaillertia gelonioides* Bedd. Fl. Sylv. 3 : 59. t. 9.f. 1. 1871; Hook. f. Fl. Brit. India 1 : 570. 1875. *C. sumatrana* Miq. Fl. Ind. Bat. Suppl. 328. 1860; Cooke, Fl. Pres. Bombay 1 : 232. 1958 (Repr. ed.).

Shrubs, 1.5—2.0 m tall, young parts grey tomentose. Leaves 6—10 × 2.5—4.0 cm, elliptic or oblong-elliptic, pale green, apex acuminate. Flowers 0.3—0.35 cm across, white; in axillary fascicles; sepals densely grey tomentose, petals notched at tip. Drupes 1.2 × 1.4 cm, obovoid, 1—2 lobed, pubescent.

Fls. & Frts. : February-May.

Illus. : Bedd. l. c.; Talb. For. Fl. Bombay Pres. & Sind 1 : 253 fig. 151. 1909.

Distrib. : Frequent, along higher slopes of the ghats; Sawantwadi-Amboli, Ramghat.

OLACACEAE

1. Scandent shrubs; calyx accrescent in fruits	..	<i>Olax</i>
1. Trees; calyx not accrescent in fruits	..	<i>Strombosia</i>

OLAX L.

Olax imbricata Roxb. Fl. Ind. 1 : 69. 1820; Sleum. in Blumea 26 : 156. 1980. *O. wightiana* Wall. ex Wight & Arn. Prodr. 89. 1834; Mast. in Hook.

f. Fl. Brit. India 1 : 575. 1875; Cooke, Fl. Pres. Bombay 1 : 235. 1958 (Repr. ed.).

Scandent, rarely erect shrubs. Leaves $6-10 \times 3-5$ cm, oblong-ovate or elliptic-oblong, coriaceous. Flowers 1.0×0.6 cm, white; in axillary, short, pubescent racemes; calyx cupular. Drupes 1.4×1.2 cm, ovoid, red when mature.

Fls. & Frts. : January-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 257. fig. 152. 1909.

Distrib. : Infrequent, along the slopes of the ghats and in plains; Kudal-Ghotge, Pangrad. Sawantwadi-Akeri-Mangaon forest, Ramghat, Tirali.

STROMBOSIA BL.

Strombosia ceylanica Gardn. in Calc. J. nat. Hist. 6 : 350. 1846; Mast. in Hook. f. Fl. Brit. India 1 : 579. 1875; Cooke, Fl. Pres. Bombay 1 : 236. 1958 (Repr. ed.); Sleum. in Blumea 26 : 164. 1980.

Trees with bark grey. Leaves $6-12 \times 3-5$ cm, oblong-lanceolate, coriaceous, pellucid dotted, apex shortly acuminate. Flowers 0.3 cm across, white, subsessile; in axillary cymes; petals finely pubescent. Drupes $2.0-2.5 \times 1.5-1.8$ cm, globose or ovoid-pyriform, rugose, purple when ripe.

Fls. & Frts. : January-March.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 260. fig. 154. 1909.

Distrib. : This species is included here because Cooke (*l. c.*) has reported it from 'Wari country' (Sawantwadi) based on collection by Dalzell.

OPILIACEAE

CANSJERA JUSS. (*nom. cons.*)

Cansjera rheedii Gmel. Syst. 2 : 280. 1791; Mast. in Hook. f. Fl. Brit. India 1 : 582. 1875; Cooke, Fl. Pres. Bombay 1 : 237. 1958 (Repr. ed.).

Climbing shrubs, young branches pubescent. Leaves $4-9 \times 2.5-3.2$ cm, elliptic-oblong, unequal sided, pale green, chartaceous, apex acuminate.

Flowers 3.5—4.0 cm long, greenish-white, sessile; in axillary, 1.5—2.5 cm long racemes, 1-2 together. Drupes 1.2 — 1.5 × 0.6 — 0.8 cm, ellipsoid, red when ripe.

Fls. & Frts. : December-March.

Illus. : Wight, Icon. t. 1861. 1852.

Distrib. : Scattered, in moist deciduous forest and in scrub jungle along coast; Malwan-Achre. Sawantwadi-Ambolighat-Temple point.

ICACINACEAE

NOTHOPOLYTES Bl.

Nothopolytes foetida (Wight) Sleum. in Notizbl. Bot. Gart. Berlin-Dahlem 15 : 247. 1940 et Blumea 17 : 232. 1969. *Stemonurus foetidus* Wight, Icon. t. 955. 1845. *Mupia foetida* (Wight) Miers in Ann. Mag. Nat. Hist. Ser. 2, 3 : 395. 1852; Mast. in Hook. f. Fl. Brit. India 1 : 589. 1875; Cooke, Fl. Pres. Bombay 1 : 239. 1958 (Repr. ed.). *Mar.* : *Anruta*.

Trees, 5—10 m tall. Leaves 7 — 14 × 4 — 7 cm, ovate-oblong or elliptic-oblong, dark green above, pale and hairy beneath. Flowers 0.6—0.9 cm across, dirty white, unpleasantly odorous; in terminal, hairy panicles; petals pubescent. Drupes 1.2 — 1.5 × 0.6 — 0.8 cm, ellipsoid, black when ripe.

Fls. & Frts. : November-March.

Illus. : Wight, l. c.

Distrib. : Frequent on tops and slopes of ghats and also in hilly-areas in plains; Kankavli-Phonda ghat. Sawantwadi-Akeri-Mangaon forest, Amboli, Ambolighat.

AQUIFOLIACEAE

ILEX L.

Ilex malabarica Bedd. Fl. Sylv. t. 143. 1871; Hook. f. Fl. Brit. India. 1 : 600. 1875; Cooke, Fl. Pres. Bombay 1 : 241. 1958 (Repr. ed.).

Large trees, young parts glabrous. Leaves 5.0 — 10.2 × 2.3 — 3.5 cm, elliptic to lanceolate, apex acute. Flowers white; in axillary, umbellate cymes;

sepals puberulous, 6, petals united at base, oblong, 6; stamens alternate with petals. Drupes 0.3 cm across, globose, 6-celled, with persistent calyx.

Fls. & Frts. : February-April.

Illus. : Wight, Icon. t. 1216. 1848.

Distrib. : This species is reported by Cooke (*l.c.*) from Ghats near Sivapur (Wari country) i. e. ghats near Shivapur-Sawant-wadi, based on collection by Dalzell. So this species is included here.

CELASTRACEAE

(including *Hippocrateaceae*)

1. Leaves alternate :

2. Unarmed plants; inflorescence terminal	..	<i>Celastrus</i>
2. Armed plants; inflorescence axillary	..	<i>Maytenus</i>

1. Leaves opposite or subopposite :

3. Fruits berry or drupe, indehiscent :

4. Fruits hard, blackish-brown	..	<i>Cassine</i>
4. Fruits pulpy, scarlet-red	..	<i>Salacia</i>

3. Fruits capsular, dehiscent :

5. Seeds winged, exarillate

6. Fruits 3-angled, woody	..	<i>Lophopetalum</i>
6. Fruits flat, not woody	..	<i>Reissantia</i>

5. Seeds not winged, arillate

.. *Euonymus*

CASSINE L.

Cassine glauca (Rottb.) Kuntze, Rev. Gen. Pl. 1 : 114. 1891; Ding Hou in van Steenis, Fl. Males. Ser. 1, 6 : 286. 1962. *Mangifera glauca* Rottb. Nye Saml. Kongel. Norske Vidensk. Selsk. Skr. 2 : 534. t. 4. f. 1. 1783. *Elaeodendron glaucum* (Rottb.) Pers. Syn. 1 : 241. 1805; Lawson in Hook. f. Fl. Brit. India 1 : 623. 1875; Cooke, Fl. Pres. Bombay 1 : 248 1958 (Repr. ed.).

Trees, 8—10 m tall, bark greyish-brown. Leaves 5—9 × 2.5—5.0 cm, elliptic-oblong, coriaceous, margins entire or sparsely crenate-dentate, veinlets forked, one end joining the end of another form looped intra-marginal vein;

drying pale green to brown, apex acuminate, twisted, base acute. Flowers, 0.6—0.7 cm across greenish-white; in cymes. Fruits 1.5×1.3 cm, globose, at base, disc present hard, 1-seeded.

Fls. & Frts. : February-April.

Distrib. : Scarce, along the higher slopes of the ghats; Sawantwadi-Amboli-Hemkunj Palace and Ramghat Road, Chaulkul.

CELASTRUS L.

Celastrus paniculatus Willd. Sp. Pl. 1 : 1125. 1797; Lawson in Hook. f. Fl. Brit. India 1 : 617. 1875; Cooke, Fl. Pres. Bombay 1 : 245. 1958 (Repr. ed.); Ding Hou in van Steenis, Fl. Males. Ser. 1, 6 : 235. 1962. *Mar.* : 'Kangun'.

Scandent shrubs, branches lenticellate. Leaves $5-9 \times 3-6$ cm, obovate or elliptic, apex acuminate or acute, base cuneate, margins serrate. Flowers 0.5 cm across, greenish-yellow; in terminal, pubescent panicles; polygamous, sepals orbicular with ciliate margins, petals ovate. Capsules $0.8-1.0 \times 0.5-0.8$ cm, subglobose, bright yellow. Seeds brownish-red, aril scarlet to red.

Fls. & Frts. : March-October.

Illus. : Wight, Icon. t. 158. 1839.

Distrib. : Frequent, along slopes of the ghats and in hilly areas in plains; Kankavli-Natal jungle, Phonda-Harkool forest Kudal-Kochre. Sawantwadi-Akeri-Mangaon forest, Banda-Tamboli forest, Chaulkul, Ramghat, Terwan.

EUONYMUS Tournef. ex. L.

Euonymus indicus Heyne ex Wall. in Roxb. Fl. Ind. 2 : 409. 1824; Lawson in Hook. f. Fl. Brit. India 1 : 608. 1875; Cooke, Fl. Pres. Bombay 1 : 242. 1958 (Repr. ed.). *Mar.* : 'Sarpin'.

Shrubs or small trees, 5—8 m tall. Leaves $4-8 \times 2-4$ cm, elliptic, coriaceous, dark green, shining, apex acuminate, margins undulate. Flowers 1.0—1.2 cm across, rosy-pink; axillary, solitary or 2-3 together; petals fimbriate. Capsules, 1.6—2.0 cm across, obovate or obcordate, 5-lobed, sharply angular, reddish when ripe.

Fls. & Frts. : February-August.

Illus. : Wight, Icon. t. 215. 1839.

Distrib. : Scattered, in semi-evergreen forest along the higher slopes of the ghats; Sawantwadi-Amboli-Hiranyakeshi, Chaukul, Ramghat.

LOPHOPETALUM Wight ex. Arn.

Lophopetalum wightianum Arn. in Ann. Nat. Hist. 3 : 151. 1893; Lawson in Hook. f. Fl. Brit. India 1 : 615. 1875; Cooke, Fl. Pres. Bombay 1 : 241. 1958 (Repr. ed.); Ding Hou in van Steenis, Fl. Males. Ser. 1, 6 : 267. 1962.

Large trees, 15—20 m tall. Leaves 8—12 × 4—7 cm, broadly elliptic or elliptic-oblong, coriaceous, apex acute or obtuse. Flowers 2.5 cm across, white, showy; in terminal or axillary panicles; sepals triangular, petals broadly ovate with margins undulate. Capsules 10—12 cm long, 3 angled, woody. Seeds 7.0 × 2.5 cm, thin, flat, brownish.

Fls. & Frts. : December-May.

Illus. : Wight, Icon. t. 162. 1839.

Distrib. : Scarce, in moist deciduous forest at ghat base; Kankavli-Bhironde jungle.

MAYTENUS Molina

Maytenus rothiana (Walp.) Lobreau-Callen in Adansonia, ser. 2, 15 : 223. 1975. *Catha rothiana* Walp. Rep. 1 : 532. 1842. *Gymnosporia rothiana* (Walp.) Lawson in Hook. f. Fl. Brit. India 1 : 619. 1875; Cooke, Fl. Pres. Bombay 1 : 246. 1958 (Repr. ed.).

Shrubs, 1.5—3.0 m tall, thorns straight, 2.5 cm long. Leaves 6—10 × 4—8 cm, obovate or broadly elliptic, coriaceous, apex obtuse, base acute. Flowers 0.2—0.25 across, white; in axillary clusters. Capsules 1.5 cm long, broad at tip, obovoid, 3-lobed, reddish-purple when ripe.

Fls. & Frts. : Almost throughout the year.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 278. fig. 164. 1909.

Distrib. : Frequent along the slopes of the ghats and in hilly areas in plains; Kankavli-Naradave- Brahmanachi Rai. Kudal-Songadpaz. Sawantwadi-Akeri-Mangaon forest, Amboli, Ambolighat, Ramghat.

REISSANTIA Halle

1. Inflorescence dichotomous cymose; pericarp of follicles leathery ..	<i>R. indica</i>
1. Inflorescence paniculate or thyrsiform; pericarp of follicles hard ..	<i>R. grahamii</i>

Reissantia grahamii (Wight) Ding Hou in *Blumea* 12 : 33. 1963 et in van Steenis, *Fl. Males. Ser. 1*, 6 : 402. fig. 29. 1964. *Hippocratea grahamii* Wight, *Illus.* 134. 1839 et *Icon.* t. 380. 1840; Lawson in *Hook. f. Fl. Brit. India* 1 : 624. 1875; Cooke, *Fl. Pres. Bombay* 1 : 249. 1958 (Repr. ed.).

Woody climbers. Leaves 6—12 × 4—6 cm, broadly elliptic or elliptic-oblong, coriaceous, apex shortly acuminate. Flowers 0.5 cm across, greenish-yellow, sepals triangular, ciliate along the margins, petals oblanceolate with usually inflexed margins. Follicles 8 × 4 cm, obovate-oblong, flat.

Fls. & Frts. : January-October.

Illus. : Wight, *l. c.*; Ding Hou, *l. c.*

Distrib. : Scattered, along the slopes of the ghats; Kankavli-Phonda-ghat. Sawantwadi-Bhedshi-Karnyachi Rai.

R. indica (Willd.) Halle in *Mem. Inst. Fr. Afr. Noire* n. 64 : 85. 1962; Ding Hou in *Blumea* 12 : 33. 1963 et in van Steenis, *Fl. Males. Ser. 1*, 6 : 401. 1964. *Hippocratea indica* Willd. *Sp. Pl.* 1 : 193. 1797; Lawson in *Hook. f. Fl. Brit. India* 1 : 624. 1875; Cooke, *Fl. Pres. Bombay* 1 : 250. 1958 (Repr. ed.).

Climbing shrubs. Leaves 4—8 × 1.5—4.0 cm, elliptic, pale green, thin, margins entire or serrulate, apex acute or acuminate. Flowers 0.25 cm across, pale yellow, sepals ovate, petals lanceolate. Capsules 4.0 × 1.5 cm, oblong, flat.

Fls. & Frts. : February-June.

Illus. : Talb. *For. Fl. Bombay Pres. & Sind* 1 : 285. fig. 169. 1909.

Distrib. : Frequent in deciduous forest from lower slopes of the ghats to coastal hilly areas; Kudal-Ghotge. Malwan-Kunkavle. Sawantwadi-Ambolighat-Nanapani, Ramghat.

SALACIA L.

1. Woody climbers; flowers 8-12 in the axils of leaves ..	<i>S. macrocarpa</i>
1. Scandent shrubs; flowers upto 4 in the axils of leaves :	
2. Calyx cupular, lobes rounded; petals oblong or obovate ..	<i>S. chinensis</i>
2. Calyx 5-toothed, teeth blunt; petals ovate ..	<i>S. bracteolata</i>

Salacia brunoniana Wight & Arn. Prodr. 105. 1834; Lawson in Hook. f. Fl. Brit. India 1 : 626. 1875; Cooke, Fl. Pres. Bombay 1 : 251. 1958 (Repr. ed.).

Scandent shrubs with terete branches. Leaves oblong or elliptic, coriaceous, black when dry, margins minutely serrate, apex acuminate or subobtus, base acute; petioles 0.6 cm long. Flowers greenish; 1-2 in the axils of leaves, pedicels equalling the petioles; petals with incurved margins when dry, somewhat persistent.

Fls. : January-February.

Distrib. : This species is included on the authority of Cooke (*l. c.*) who cites Ramghat in Sawantwadi taluka, as locality based on Dalzell & Gibson, Bombay Fl. 33. 1861.

S. chinensis L. Mant. 2 : 293. 1767; Ding Hou in van Steenis, Fl. Males. Ser. 1, 6 : 419. 1964. *S. prinoides* DC Prodr. 1 : 571. 1824; Lawson in Hook. Fl. Brit. India 1 : 626. 1875; Cooke, Fl. Pres. Bombay 1 : 250. 1958 (Repr. ed.). *S. latifolia* Wall. ex Lawson in Hook. f. *l. c.* 629. *Mar.* : 'Saptarangi'.

Straggling or scandent shrubs, stems yellowish-green. Leaves 4.0—8.5 × 2.5—4.2 cm, elliptic or elliptic-oblong, margins sparsely crenate-dentate, subcoriaceous, apex acuminate. Flowers 0.5—0.6 cm across, yellowish-green; in axillary fascicles, 1-2 together; sepals triangular, petals ovate to orbicular. Fruits 1 × 1 cm, globose, orange-red, when mature, pulpy.

Fls. & frts. : December-June.

Distrib. : Common, in open situations on ghat top and also in plains on gravelly soil; Kankavli-Digwal, Nandgaon-Belachi Rai, Naradave-Dirbyachi Rai, Phondaghat (Cooke, *l. c.*), Kudal-Bhadgaon, Ghotge-way to Patgaon, Songad-paz, Sawantwadi-Akeri-Mangaon forest, Amboli, Bhedshi.

S. macrosperma Wight, Icon. t. 962. 1840; Lawson in Hook. f. Fl. Brit. India 1 : 628. 1875; Cooke, Fl. Pres. Bombay 1 : 251. 1958 (Repr. ed.). *Mar.* : 'Dhaysi'

Woody climbers, stems blackish-brown. Leaves 6—11 × 3—5 cm, elliptic-oblong or oblanceolate, dark green, subcoriaceous, margins entire, apex acute or acuminate. Flowers 0.35 cm across, greenish; in axillary fascicles; sepals ovate, frilled along margins, petals oblong. Fruits 2—3 × 2.2—2.5 cm, globose to obovoid, reddish, wrinkled when mature, not pulpy.

Fls. & Frts. : February-August.

Illus. : Wight, *l. c.*

Distrib. : Frequent on the outskirts of semi-evergreen or moist deciduous forests along ghats; Kankavli-Phondghat. Sawantwadi-Amboli at Hiranyakeshi, Mahadeogad and Malai jungle, Ramghat.

RHAMNACEAE

1. Climbing, straggling or scandent shrubs :

2. Plants armed :

3. Young parts glabrous; leaves opposite or subopposite .. *Scutia*

3. Young parts tomentose; leaves alternate .. *Ziziphus*

2. Plants unarmed :

4. Tendrils present; fruits not winged .. *Gouania*

4. Tendrils absent; fruits winged :

5. Flowers in terminal panicles .. *Ventilago*

5. Flowers in axillary fascicles .. *Smythea*

1. Erect trees or shrubs :

6. Fruits capsular, subglobose, dehiscent .. *Colubrina*

6. Fruits drupes, globose or ovoid, indehiscent .. *Ziziphus*

COLUBRINA L. C. Rich, ex Brongn. (*nom. cons.*)

Colubrina asiatica (L.) Brongn. in Ann. Sci. Nat. 10 : 369. 1827; Lawson in Hook. f. Fl. Brit. India. 1 : 642, 1875; Cooke, Fl. Pres. Bombay 1 : 261. 1958 (Repr. ed.). *Ceanothus asiaticus* L. Sp. Pl. 196. 1753.

Shrubs, 1-2 m tall, much branched. Leaves 5—7 × 3—5 cm, ovate, thin, pale green, margins crenate-serrate, apex acuminate. Flowers 0.5 cm across, yellowish-white; in axillary, short cymes; sepals triangular, petals ovoid. Capsules 10 × 8 cm, obscurely 3-lobed, 3-seeded. Seeds brownish-black.

Fls. & Frts. : November-February.

Illus. : Taib. For. Fl. Bombay Pres. & Sind 1 : 304. fig. 180. 1909.

Distrib. : Occasional, in rocky area along coast; Deogad-Port Road.

GOUANIA Jacq.

Gouania microcarpa DC. Prodr. 2 : 40. 1825; Lawson in Hook. f. Fl. Brit. India 1 : 643. 1875; Cooke, Fl. Pres. Bombay 1 : 262. 1958 (Repr. ed.).

Shrubs, climbing by circinate tendrils. Leaves 4.8—9.6 × 2.4—5.4 cm, broadly ovate, chartaceous, apex acute to acuminate, rufous pubescent on nerves beneath. Flowers greenish-white, densely tomentose; in axillary or terminal panicles; sepals densely tomentose, petals white, emarginate at tip. Capsules 0.8—1.0 cm across, 3-angled or winged, with persistent calyx.

Fls. & Frts. : November-March.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 304. fig. 181. 1909.

Distrib. : This species is included here on the authority of Cooke (l. c.) who cites 'Wari' (Sawantwadi), collection by Dalzell and 'Banda' collection also by Dalzell and 'Ramghat' collection by Ritchie, all in Sawantwadi taluka.

SCUTIA (Comm. ex A. P. DC.) Brongn. (*nom. cons.*)

Scutia myrtina (Burm. f.) Kurz in J. Asiat. Soc. Bengal 44 : 166. 1875. *Rhamnus myrtinus* Burm. f. Fl. Ind. 60. 1768. *Scutisa indica* Brongn. in Ann. Sci. Nat. (Paris) 10 : 363. 1827; Lawson in Hook. f. Fl. Brit. India 1 : 640. 1875; Cooke, Fl. Pres. Bombay 1 : 260. 1958 (Repr. ed.).

Glossy, dark green climbing shrubs, armed with recurved spines. Leaves 2.0—4.5 × 1.9—3.0 cm, ovate to orbicular, drying brown to black, apex acute to obtuse. Flowers 0.5 cm across, greenish-white; in axillary umbels; sepals triangular, petals ovate, notched at apex. Fruits 0.5 × 0.5 cm, obovoid, with persistent calyx.

Fls. & Frts. : March-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 302. fig. 179. 1909.

Distrib. : Frequent, in open situations from higher slopes of the ghats to plains; Kankavli-Phondaghat (Cooke l. c.). Kudal-Songad paz. Sawantwadi-Akeri-Mangaon forest, Amboli, Ambolighat, Chaukul, Ramghat.

SMYTHEA Seem. ex Gray

Smythaea bombaiensis (Dalz.) Banerjee et Mukerjee in Indian For. 96 : 214. 1970. *Ventilago bombaiensis* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3:36. 1851; Lawson in Hook. f. Fl. Brit. India 1 : 631. 1875; Cooke, Fl. Pres. Bombay 1 : 254. 1958 (Repr. ed.).

Lofty climbers, young parts fulvous pubescent. Leaves 4—7 × 2.5—3.5 cm, elliptic or elliptic-oblong, pale green, margins serrate, apex acute or acuminate. Flowers 0.3 cm across, greenish; in axillary fascicles, 8—15 flowered; sepals strongly fulvous pubescent outside, lobes triangular, petals glabrous, truncate or obcordate. Capsules 1-chambered and 1-seeded, wing 6.0 × 1.5 cm, fulvous pubescent, calyx saucer-shaped.

Fls. & Frts. : January-April.

Distrib. : Occasional, in semi-evergreen forest along higher slopes of the ghats; Sawantwadi-Ambolighat (top).

VENTILAGO Gaertn.

Ventilago madraspatana Gaertn. Fruct. 1 : 223. t. 49. f. 2. 1788; Lawson in Hook. f. Fl. Brit. India 1 : 631. 1875; Cooke, Fl. Pres. Bombay 1 : 253. 1958 (Repr. ed.); Banerjee & Mukerjee in Indian For. 96 : 207. 1970.

Large woody climbers, young parts grey puberulous or glabrous. Leaves 4—7 × 2—3 cm, elliptic or elliptic-oblong or ovate, margins entire or crenate to dentate, apex acuminate. Flowers 0.2 — 0.22 cm across, greenish; in terminal panicles; sepals puberulous outside, triangular, petals glabrous truncate and obcordate. Fruits samaroid, seed chamber 0.2—0.2 cm across, globose, wing 5 cm long, yellow to grey puberulous.

Fls. & Frts. : December-April.

Illus. : Wight, Icon. t. 163. 1839.

Distrib. : Frequent, in moist deciduous forest in plains; Kankavli-Naradave-Dirbyachi Rai. Kudal-Narur. Sawantwadi-Gavata, Ramghat, Tirali.

ZIZIPHUS Mill.

1. Trees or shrubs mostly unarmed; fruits 1.5-2.0 cm across	..	<i>Z. xylopyrus</i>
1. Straggling or climbing shrubs, usually armed; fruits up to 1.5 cm across :		
2. Young parts rusty tomentose; petals present	..	<i>Z. oenoplia</i>
2. Young parts greyish tomentose; petals absent	..	<i>Z. rugosa</i>

Ziziphus oenoplia (L.) Mill. Gard. Dict. ed. 8, 3. 1768; Lawson in Hook. f. Fl. Brit. India 1 : 634. 1875; Cooke, Fl. Pres. Bombay 1 : 257. 1958 (Repr. ed.). *Rhamnus oenoplia* L. Sp. Pl. 194. 1753.

Straggling shrubs, 5-8 m tall. Leaves 2.5—5.0 × 1.5—3.0 cm, obliquely ovate to ovate-oblong, pubescent above, tomentose beneath, apex acute to acuminate. Flowers 0.2—0.25 cm across, creamy-yellow; in axillary cymes; sepals hirsute, petals glabrous. Fruits 0.6—0.7 × 0.5—0.6 cm, globose, wrinkled and black when ripe.

Fls. & Frts. : August-November.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 296. fig. 176. 1909.

Distrib. : Common in moist deciduous forest along lower slopes of the ghats and at base and in dry deciduous forest in plains along coast; Deogad-Naringre. Kankavli-Digwal Road, Nandgaon-Belachi Rai, Naradave-Brahmanachi Rai. Kudal-Ghotge, Kadaval. Sawantwadi-Akeri-Mangaon forest, Khanale, Madkhol.

Z. rugosa Lamk. Encycl. 3 : 319. 1789; Lawson in Hook. f. Fl. Brit. India 1 : 636. 1875; Cooke, Fl. Pres. Bombay 1 : 258. 1958 (Repr. ed.). *Mar.* : 'Toran'.

Scandent shrubs. Leaves 5—12 × 3.0—7.0 cm, oblong-elliptic or ovate-oblong, glabrous above, pubescent beneath, margins serrulate, apex rounded, acute or obtuse. Flowers 0.3—0.35 cm across, greenish-yellow; in terminal panicles; sepals tomentose, ovate. Fruits ovoid, white when ripe.

Fls. & Frts. : December-May.

Illus. : Wight, Icon. t. 339. 1840.

Distrib. : Common in moist and dry deciduous forests from ghat-tops to coastal areas; Deogad-Nadan-Vir. Kankavli-Phondaghat. Kudal-Ghotge. Sawantwadi-Akeri-Mangaon forest, Khanale.

Z. xylopyrus (Retz.) Willd. Sp. Pl. 1 : 1104. 1798; Lawson in Hook. f. Fl. Brit. India 1 : 634. 1875; Cooke, Fl. Pres. Bombay 1 : 258. 1958 (Repr. ed.). *Rhamnus xylopyrus* Retz. Obs. Bot. 2 : 11. 1781.

Usually unarmed shrubs or trees, branches grey tomentose. Leaves 4—6 × 2.5—4.0 cm, obliquely elliptic-oblong or rounded, glabrous above, tomentose beneath, apex mucronate. Flowers 0.2-0.3 cm across, greenish-yellow; in pubescent, paniculate cymes; sepals pubescent, petals obovate. Drupes globose, woody, grey tomentose.

Fls. & Frts. : April-November.

Distrib. : Infrequent in deciduous forest along ghats and plains; Kudal-Kerude jungle. Sawantwadi-Khanale, Ramghat.

VITACEAE (excluding LEEACEAE)

1. Leaves simple, entire, or lobed; flowers in cymes on leaf-opposed tendrils :
 2. Flowers bisexual, 4-merous .. *Cissus*
 2. Flowers polygamo-dioecious, 4-5 merous .. *Ampelocissus*
1. Leaves pedately or palmately compound; flowers not as above :
 3. Flowers bisexual, stigmas broadened, 4-lobed .. *Tetrastigma*
 3. Flowers unisexual, stigmas indistinct, simple .. *Cayratia*

AMPELOCISSUS Planch.

Ampelocissus latifolia (Roxb.) Planch. in J. Vigne-Amer. 374. 1884 ('*latifolia*') & in DC. Mon. Phan. 5 : 370. 1887. *Vitis latifolia* Roxb. Fl. Ind. 1 : 661. 1832; Lawson in Hook. f. Fl. Brit. India 1 : 652. 1875; Cooke, Fl. Pres. Bombay 1 : 269. 1958 (Repr. ed.).

Extensive climbers, young parts reddish tomentose. Leaves 8—15 × 10—20 cm, broadly ovate, 3—5-lobed or 5-angled, margins serrate, cottony tomentose beneath when young, glabrous at length. Flowers 0.1 - 0.15 cm across, reddish; in thyrsoid panicles; calyx cup-shaped. Fruits 1.0 × 0.8 cm, globose, red when ripe.

Fls. & Frts. : June-August.

Distrib. : Frequent in dry deciduous forest in hilly areas in plains; Deogad-Naringre. Kankavli Phonda-Harkool forest, Phonda ghat. Sawantwadi-Akeri-Mangaon forest. Vengurla-Hill near harbour.

CAYRATIA A. L. Juss.

1. Leaves trifoliate, pubescent; fruits 2-4-seeded .. *C. trifolia*
1. Leaves 5-7-foliate, glabrous or pubescent, fruits 1-2-seeded :
 2. Tendrils 2-3-forked, stipules leafy, auricular .. *C. auriculata*
 2. Tendrils simple; stipules cordate, not leafy .. *C. elongata*

Cayratia auriculata (Roxb.) Gamble, Fl. Pres. Madras 237. 1918 et 1 : 170. 1957 (Repr. ed.). *Cissus auriculata* Roxb. Fl. Ind. 1 : 130. 1820. *Vitis auriculata* (Roxb.) Wight & Arn. Prodr. 129. 1834, p. p.; Lawson in Hook. f. Fl. Brit. India 1 : 658. 1875; Cooke, Fl. Pres. Bombay 1 : 273. 1958 (Repr. ed.). Mar. : 'Jangli-Kajorni'.

Extensive climbers with reddish, succulent stems, young parts softly pubescent. Leaflets 4.8—7.2 × 2.4—4.8 cm, obovate or rhomboid, membranous, pubescent beneath, margins serrate. Flowers 0.4 cm across, 4-merous; in divaricate cymes; calyx truncate, pubescent outside, petals oblong, pubescent outside. Fruits 1.0—1.5 cm across, globose, red when ripe.

Fls. & Frts. : March-August.

Illus. : Wight, Icon. t. 145. 1839.

Distrib. : Cooke (*l. c.*) has reported this species from 'Vengurla' based on collection by Dalzell. So it is included here.

C. elongata (Roxb.) Suesseng. in Engl. & Prantl, Pflanzenfam. ed. 2, 20d : 281. 1953. *Cissus elongata* Roxb. Fl. Ind. 1 : 411. 1832. *Vitis elongata* Wall. ex Wight & Arn. Prodr. 128. 1834; Lawson in Hook. f. Fl. Brit. India 1 : 658. 1875; Cooke, Fl. Pres. Bombay 1 : 273. 1958 (Repr. ed.).

Glabrous climbers, stems succulent. Leaflets 3—5, 6—12 × 2—4 cm, elliptic-lanceolate, margins dentate-serrate, apex acuminate. Flowers 0.2 cm across, greenish-purple; in dichotomous cymes; calyx cup-shaped, petals oblong. Fruits 0.9 × 0.8 cm, ellipsoid to globose, black when ripe.

Fls. & Frts. : July - November.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 320. fig. 190. 1909.

Distrib. : Frequent in moist and dry deciduous forests from ghat top to coastal areas; Deogad-Naringre. Kankavli-Phonda-ghat. Kudal-Songadpaz. Sawantwadi-Akeri-Mungaon forest, Amboli, Ambolighat-Nanapani, Chaukul, Ram-ghat.

C. trifolia (L.) Domin in Biblioth. Bot. 89. 370. 1927. *Vitis tritolia* L. Sp. Pl. 203. 1753; Cooke, Fl. Pres. Bombay 1 : 271. 1958 (Repr. ed.). *V. carnosa* Wall. ex Wight & Arn. Prodr. 127. 1834; Lawson in Hook. f. Fl. Brit. India 1 : 654. 1875 (excl. *C. auriculata* Roxb.).

Climbers or trailers. Leaflets 3.5—7.0 × 2.4—4.0 cm, ovate, lateral ones oblique, margins crenate-dentate, hairy on nerves. Flowers 0.4 cm across, greenish-white; in axillary, dichotomous cymes; calyx saucer-shaped, calyx and petals pubescent. Fruits 0.4-0.5 cm across, depressed-globose, red turning black.

Fls. & Frts. : May-September.

Illus. : Wight, Icon. t. 171. 1839.

Distrib. : Infrequent in open situations and waste places in dry deciduous forest in plains; Kudal-Kochre. Malwan-Sindhudurg. Sawantwadi-Satarda.

CISSUS L.

1. Entire plant reddish and showy; leaves greenish above, blotched with purple or purplish-red beneath	..	<i>C. discolor</i>
1. Entire plant not reddish and showy; leaves green, not blotched with purple beneath :		
2. Young parts and young leaves glabrous and glaucous	..	<i>C. repens</i>
2. Young parts and young leaves rufous or orange-red tomentose :		
3. Leaves shallowly cordate; stipules oblong, densely woolly; cymes slender	..	<i>C. repanda</i>
3. Leaves broadly cordate; stipules suborbicular, adnate to petiole, not woolly; cymes compact	..	<i>C. adnata</i>

Cissus adnata Roxb. Fl. Ind. 1 : 405. 1820. *Vitis adnata* Wall ex Wight & Arn. Prodr. 126. 1834; Lawson in Hook. f. Fl. Brit. India 1 : 649. 1875; Cooke, Fl. Pres. Bombay 1 : 267. 1958 (Repr. ed.).

Climbers, young parts and leaves orange-red tomentose, old stems wrinkled. Leaves 3—6 × 3—8 cm, broadly ovate, sometimes 3-5 lobed, margins serrate, apex acuminate. Flowers 0.15 cm across, red; in terminal, dichotomous cymes, inflorescence and calyx orange-red tomentose; calyx saucer-shaped, petals oblong, hairy outside. Fruits 0.8 × 0.6—0.7 cm, ovoid, purplish-red, beaked.

Fls. & Frts. : December-March.

Illus. : Wight, Icon. t. 144. 1839.

Distrib. : Infrequent in dry deciduous forest in plains; Kankavli-Phonda-Dindya-che-pan forest. Kudal-Ghotge. Malwan-Kankavle.

C. discolor Bl. Bidr. 181. 1825. *Vitis discolor* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 39. 1950; Lawson in Hook. f. Fl. Brit. India 1 : 647. 1875; Cooke, Fl. Pres. Bombay 1 : 266. 1958 (Repr. ed.).

Climbers, stems woody at base only, branches angled, tendrils simple. Leaves 6—9 × 2.5—5.0 cm, ovate-oblong, margins crenate-dentate, apex acuminate, base cordate. Flowers 0.1 cm across, reddish, 4-merous; in umbellate-

cymes; calyx saucer-shaped, petals oblong. Fruits 0.6 cm in length, subglobose, dark-red when ripe.

Fls. & Frts. : August-October.

Distrib. : Frequent along the slopes of the ghats in moist deciduous forest; Kankavli-Phonda-Devichi Rai. Sawantwadi-Ambolighat-Nanapani, Ramghat.

C. repanda Vahl, Symb. 3 : 18. 1794. *Vitis repanda* Wight & Arn. Prodr. 125. 1834; Lawson in Hook. f. Fl. Brit. India 1 : 648. 1875.(excl. *C. vitiginea* L.); Cooke, Fl. Pres. Bombay 1 : 267. 1958 (Repr. ed.).

Climbing shrubs, young parts and young leaves rufous tomentose, nodes swollen. Leaves 5—8 × 4—7 cm, ovate, margins crenate-dentate, apex acuminate. Flowers 0.15 cm across, reddish-pink; in dichotomous cymes; calyx cupular, petals oblong. Fruits 1.0 × 0.5 cm, ovoid or pyriform, beaked, dark purple when ripe.

Fls. & Frts. : April-June.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 312. figs. 184 & 185. 1909.

Distrib. : Infrequent in dry deciduous forest in plains; Kudal-Kochre-river bank. Sawantwadi-Satarda.

C. repens Lamk. Encycl. 1 : 31. 1783. *Vitis repens* Wight & Arn. Prodr. 125. 1834; Lawson in Hook. f. Fl. Brit. India 1 : 646. 1875; Cooke, Fl. Pres. Bombay 1 : 265. 1958 (Repr. ed.).

Climbers, stems white pruinose. Leaves 6—11 × 4—10 cm, ovate or ovate-oblong, margins obscurely crenate-dentate, apex acuminate, base deeply cordate. Flowers 0.2 cm across, brick-red; in corymbose umbels; calyx cup-shaped, petals ovate. Fruits 0.7 × 0.4 cm, ellipsoid, red when ripe.

Fls. & Frts. : February-June.

Distrib. : Uncommon in moist and dry deciduous forests along the slopes of the ghats and in plains; Kudal-Wasuli Rai. Sawantwadi-Ambolighat-Nanapani, Hewale, Khanale, Ramghat.

TETRASTIGMA Planch.

Tetragstigma canarense (Dalz.) Gamble, Fl. Pres. Madras 228. 1918 et 1 : 164. 1957 (Repr. ed.). *Vitis canarense* Dalz. in Hook. J. Bot. & Kew

Gard. Misc. 3 : 123. 1851; Lawson in Hook. f. Fl. Brit. India 1 : 655. 1875; Cooke, Fl. Pres. Bombay 1 : 255. (as *V. canarensis*), 1958 (Repr. ed.).

Extensive climbers, stems corky. Leaves trifoliate, leaflets 6—12 × 2.5—5.0 cm, elliptic, lateral ones oblique, drying yellowish-brown, apex acuminate, base cuneate. Flowers 0.3-0.5 cm across, purple; in leaf-opposed, puberulous cymes; calyx 4-lobed, rounded, petals oblong-ovate, sepals and petals pubescent. Fruits 0.6-0.8 cm across, globose, scarlet-red when mature.

Fls. & Frts. : January-March.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 319. fig. 189. 1909.

Distrib. : Occasional, in deciduous forest on hill slopes; Sawantwadi-Akeri-Mangaon forest.

LEEACEAE

LEEa van Royen ex L. (*nom. cons.*)

1. Peduncles fluted or crispately winged; corolla tube + staminodial lobes usually up 0.25 cm and staminodial tube up to 0.15 cm long .. *L. asiatica*
1. Peduncles not fluted nor crispately winged; corolla tube + staminodial lobes over 0.4 cm long and staminodial tube upto 0.23 cm long :
 2. Leaflets generally 5-nerved at base; calyx and corolla lobes mealy pubescent .. *L. macrophylla*
 2. Leaflets 3-nerved at base; calyx and corolla lobes glabrous .. *L. indica*

Leea asiatica (L.) Ridsdale in Manilal, Bot. Hist. Hort. Malab. 189. 1980. *Phytolacca asiatica* L. Sp. Pl. 474. 1753. *Leea crispa* van Royen ex L. Syst. Nat. ed. 12, 2 : 627. 1767 & Mant. 1 : 124. 1767; Lawson in Hook. f. Fl. Brit. India 1 : 665. 1875; Cooke, Fl. Pres. Bombay 1 : 276. 1958 (Repr. ed.); Ridsdale in Blumea 22 : 88. 1974. *L. aspera* Edgew. in Trans. Linn. Soc. 20 : 36. 1846, *nom. illeg.*; Lawson in Hook. f. l. c.; Cooke, l. c. 277. *L. edgeworthii* Sant. in Rec. Bot. Surv. India. 16(1) : 54. 1953.

Shrubs, 1-2 m tall. Leaves pinnately compound, leaflets 5-7, 8-15 × 5—9 cm, ovate to elliptic-oblong, pubescent beneath, margins crenate to serrate, apex acuminate, base rounded to cordate. Flowers 0.3-0.35 cm across, greenish-white; in axillary or terminal cymes; calyx and petals pubescent. Fruits 0.8-1.0 cm across, steel-grey to brownish-grey, 4-6-lobed.

Fls. & Frts. : May-October.

Distrib. : Infrequent in deciduous forest along the slopes of the ghats and in plains; Kudal-Shivapur paz. Sawantwadi-Amboli-ghat, Ramghat. Vengurla-Vagiri forest.

L. indica (Burm. f.) Merr. in Philip. J. Sc. 14 : 245. 1919; Ridsdale in Blumea 22 : 95. 1974. *Staphylea indica* Burm. f. Fl. Ind. 75. t. 24. f. 2. 1768. *Leela sambucina* (L.) Willd. Sp. Pl. 1 : 1177. 1798, *nom. illeg.*; Lawson in Hook. f. Fl. Brit. India 1 : 666. 1875, *p. p.*; Cooke, Fl. Pres. Bombay 1 : 277. 1958 (Repr. ed.). *Mar.* : 'Dinda'.

Shrubs, 1-2 m tall, sometimes with aerial or stilt roots during monsoon. Leaves bi-or tripinnately compound, leaflets 7-20 × 3-7 cm, ovate or ovate-oblong, margins crenate or dentate, apex acute or acuminate, base truncate-cordate. Flowers 0.6 cm across, greenish-white; in terminal di-or trichotomous cymes. Fruits 0.6 cm across, dorsally compressed, 1-4-lobed.

Fls. & Frts. : February-November.

Illus. : Wight, Icon. t. 78. 1838.

Distrib. : Fairly common in deciduous and semi-evergreen forests; Kankavli-Phonda-Ghonsari Rai, Phondaghat. Kudal-Ghotge, Kochre. Sawantwadi-Akeri-Mangaon forest, Amboli, Ambolighat-Kumbheshwar and Temple point, Chaukul, Danoli, Gavata, Terwan. Vengurla-Math forest.

L. macrophylla Roxb. ex Hornem. Hort. Hafn. 1 : 231. 1813; Lawson in Hook. f. Fl. Brit. India 1 : 664. 1875 (excl. Syn. *L. latifolia*); Cooke, Fl. Pres. Bombay 1 : 276. 1958 (Repr. ed.); Ridsdale in Blumea 22 : 85. 1974. *L. integrifolia* Roxb. Fl. Ind 2 : 472. 1824; Lawson in Hook. f. l. c. 667. *L. robusta* Roxb. Fl. Ind. 2 : 468. 1824; Lawson in Hook. f. l. c. *p. p.*; Cooke, l. c. 278. *L. cinerea* Lawson in Hook. f. l. c. 665. *L. coriacea* Lawson in Hook. f. l. c. *L. diffusa* Lawson in Hook. f. l. c. 667. *L. angustifolia* Lawson in Hook. f. l. c. 665. *L. parallela* Wall. ex Lawson in Hook. f. l. c. 666. *L. latifolia* Wall. ex Kurz in J. Asiat. Soc. Bengal 44 (2) : 178. 1875; Cooke, l. c. 277. *Mar.* : 'Dinda'.

Undershrubs or shrubs, 1.0-2.5 m tall, young branches pubescent. Leaves unifoliate or 1-2-pinnate, leaflets 1 or 5-7 or more, 20-40 × 15-35 cm, broadly ovate when unifoliate, 8-15 × 4-8 cm, ovate or elliptic-oblong in pinnate leaves, margins serrate to crenate, apex acuminate, base rounded or cordate, pubescent beneath. Flowers 0.5-0.7 cm across, greenish-white; in multi-branched cymes; calyx divided 1/3 way down or shallowly lobed, petals oblong, greyish pubescent to papillose. Fruits 0.8-1.0 cm across, depressed-globose, blackish-grey, 2-6 lobed.

Fls. & Frts. : July-September.

Illus. : Wight, Icon. t. 1154. 1846; Icon. Roxb. Fasc. IV : 7. f. 3. 1970 (Repr. ed.).

Distrib. : Infrequent in deciduous forest from ghat top to plains; Malwan-Kuperighati. Sawantwadi-Amboli.

Notes : Ridsdale (*l. c.*) states that after examination of type material and classical Indian collections at Kew indicate that the flower structure is the same in all cases, the degree of indentation of the lobes of staminodial tube could not be confirmed, and other aspects such as leaves uni or trifoliate or 1 or 2 pinnate etc. have well been discussed by him in the article.

SAPINDACEAE

1. Climbing, tendrilar herbs; leaves biternate ..	<i>Cardiospermum</i>
1. Shrubs or trees; leaves not biternate :	
2. Leaves digitately trifoliate ..	<i>Allophylus</i>
2. Leaves pinnate :	
3. Petals absent; fruits globose, apiculate with persistent style ..	<i>Schleichera</i>
3. Petals present; fruits schizocarpic, 1-3 cocci :	..
4. Fruits reddish -orange, tubercled; seeds arillate ..	<i>Dimocarpus</i>
4. Fruits yellowish, not tubercled; seeds exarillate :	
5. Fruits when young 3-lobed, pericarp saponiferous, fibrous ..	<i>Sapindus</i>
5. Fruits yellow-velvety, 3-angled, pericarp not saponiferous and fibrous ..	<i>Lepisanthes</i>

ALLOPHYIUS L.

***Allophylus cobbe* (L.)** Raeusch. Nomencl. Bot. ed. 3, 108. 1797; Hiern in Hook. f. Fl. Brit. India 1 : 673. 1875; Cooke, Fl. Pres. Bombay 1 : 282. 1958 (Repr. ed.); Leenhouts in Blumea 15 : 322. 1967. *Rhus cobbe* L. Sp. Pl. 267. 1753.

Scandent shrubs, ferruginous tomentose. Leaflets 4—16 × 2.5—8.0 cm, ovate or elliptic, middle one obovate, brownish tomentose beneath, sparsely above, margins serrate, apex acuminate. Flowers 0.2—0.25 cm across, white; in axillary racemes, with several interrupted fascicles; sepals and petals obovate. Fruits 0.6 × 0.5 cm, globose, 1-seeded, purplish-red when ripe.

Fls. & Frts. : May-October.

Illus. : Wight, Icon. t. 964. 1845.

Distrib. : Frequent in semi-evergreen and deciduous forests from ghat top to coastal hilly areas; Sawantwadi-Amboli-Hemkunj Palace and Hiranyakeshi, Ambolighat-Kumbheshwar and Nanapani, Ramghat, Satarda. Vengurla-Hill near harbour, Math forest.

CARDIOSPERMUM L.

Cardiospermum halicacabum L. Sp. Pl. 366. 1753; Hiern in Hook. f. Fl. Brit. India 1 : 670. 1875; Cooke, Fl. Pres. Bombay 1 : 280. 1958 (Repr. ed.).

Slender, annual herbs with perennial rootstock. Leaflets 3-5x2-3 cm, ovate-lanceolate, margins toothed. Flowers 0.4—0.45 cm across, white, 4-merous; in corymbose, tendriferous cymes; petals unequal with scales on inner side at base. Fruits 2—3x2.0—2.4 cm, trigonous, inflated. Seeds arillate.

Fls. & Frts. : November-December.

Illus. : Wight, Icon. t. 508. 1841.

Distrib. : Scarce, in coastal areas in open situations; Malwan-Kalawli.

DIMOCARPUS Lour.

Dimocarpus longan Lour. Fl. Cochinch. 233. 1790; Leenhouts in Blumea 19 : 122. 1971. *Nephelium longana* (Lamk.) Camb. in Mem. Mus. Hist. Nat. 18 : 30. 1829; Hiern in Hook. f. Fl. Brit. India 1 : 688. 1875; Cooke, Fl. Pres. Bombay 1 : 285. 1958 (Repr. ed.). *Mar.* : 'Umb, Vumb'.

Trees, 8-10 m tall. Leaves paripinnate, 3-5 pairs, leaflets 8—16x2.5—4.0 cm, oblong-elliptic, alternate, coriaceous, glaucous beneath, apex acute or obtuse. Flowers 0.4 cm across, white to creamy, sepals pubescent outside, petal pilose at base. Fruits 1.5x1.2 cm, globose, tuberculate, red when ripe.

Fls. & Frts. : February-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 338. fig. 200. 1909.

Distrib. : Frequent in semi-evergreen and moist deciduous forests along higher slopes of the ghats and at base in Raies; Kankavli-Phondaghat. Kudal-Wasuli Rai. Sawantwadi-Amboli, Ambolighat-Temple point, Ramghat.

LEPISANTHES Bl.

Lepisanthes tetraphylla (Vahl) Radlk. Sitz. Math. Phys. Koenigl. Bayer. Akad. Wiss. Munch. 8 : 276. 1878; Leenhouts in Blumea 17 : 63. 1969. *Sapindus tetraphylla* Vahl. Symb. 3 : 54. 1794. *Hemigyrosa canescens* Bl. in Rumphia 3 : 166. 1849; Hiern in Hook. f. Fl. Brit. India 1 : 671. 1875; Cooke, Fl. Pres. Bombay 1 : 281. 1958 (Repr. ed.).

Shrubs or small trees, 5-8 m. tall. Leaves paripinnately compound, leaflets 2-3 pairs, 7—14 × 3—6 cm, oblong or oblong-elliptic, coriaceous, apex rounded to variably acuminate, base acute to rounded. Flowers 0.6-0.8 cm across, white to greenish-white; in yellow pubescent, axillary, simple racemes or panicles; sepals ovate to orbicular, densely hairy, petals oblong or obovate, hairy along margins. Fruits 2 × 1.5 cm, 3-angled, yellow velvety.

Fls. & Frts. : February-May.

Illus. : Wight, Icon. t. 141. 1839; Bedd. Sylv. t. 231. 1872.

Distrib. : Frequent in semi-evergreen and deciduous forests along the ghats and at base; Kankavli Phonda-Harkool forest and Mhatardeo Rai. Kudal-Ghotge. Sawantwadi-Amboli, Ambolighat-Nanapani, Ramghat.

SAPINDUS L.

Sapindus laurifolius Vahl. Symb. 3 : 54. 1794; Cooke, Fl. Pres. Bombay 1 : 284. 1958 (Repr. ed.) ('*laurifolius*'). *S. trifoliatus* auct. non L. (1753); Hiern in Hook. f. Fl. Brit. India 1 : 682. 1875, p. p. Mar. : '*Ritha*'.

Trees, 8-15 m tall. Leaflets 2-3 pairs, 5—12 × 3—5 cm, lanceolate or elliptic-oblong, apex acute or acuminate, glabrous on both sides or sometimes pubescent beneath, drying pale green. Flowers 0.4 - 0.5 cm across, white, or greenish-white; in terminal, rusty-pubescent panicles; sepals pubescent, petals longer than sepals. Fruits 1.8—2.0 × 1.0—1.2 cm, 3-lobed, brownish when ripe.

Fls. & Frts. : November-March.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 337. fig. 199. 1909.

Distrib. : Scattered, along ghat in semi-evergreen forest; Sawantwadi-Ramghat.

SCHLEICHERA Willd. (nom. cons.)

Schleicheria oleosa (Lour.) Oken, Allg. Naturgesch. 3 (2) : 1341. 1849. *Pistacia oleosa* Lour. Fl. Cochinch. 615. 1790. *Schleicheria trijuga* Willd. Sp. Pl. 4 : 1096. 1805; Hiern in Hook. f. Fl. Brit. India 1 : 681. 1875; Cooke, Fl. Pres. Bombay 1 : 283. 1958 (excl. *Sapindus trifoliata* L.) (Repr. ed.). Mar. : '*Kosab, Koshimb*'.

Trees, 10-15 m tall. Leaves even pinnate, young leaves reddish, leaflets 2-4 pairs, 5—15 × 2.6—5.2 cm, oblong or elliptic-oblong, apex acute, rounded

or emarginate, hairy on nerves. Flowers 0.25-0.3 cm across, greenish-white, unisexual; fascicled in interrupted, branched racemes; calyx acute. Fruits 2.0—2.5 × 1.5—2.0 cm, ovoid, echinate with long prickles, straw-coloured, 1-celled.

Fls. & Frts. : March-June.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 335, fig. 177. 1909.

Distrib. : Frequent in deciduous forest along the slopes of the ghats and at base; Kankavli-Kumbhavde. Kudal-Narur. Sawantwadi-Akeri-Mangaon forest, Ambolighat-Nanapani.

ANACARDIACEAE

1. Leaves compound :

2. Leaflets with intra-marginal veins; flowers bisexual .. *Spondias*

2. Leaflets without intra-marginal veins; flowers unisexual .. *Lannea*

1. Leaves simple :

3. Petioles with 1-2 pairs of spur-like appendages; fruits partly or wholly embedded in accrescent calyx .. *Hollernia*

3. Petioles without any spur-like appendage; fruits not embedded in calyx :

4. Flowers bisexual; fruits scantily fleshy .. *Buchanania*

4. Flowers polygamous; fruits or hypocarp much fleshy :

5. Fruits on fleshy hypocarp :

6. Flowers with 7-10 stamens, one much longer and exerted than the rest, 1-2 perfect; carpel - 1 .. *Anacardium*

6. Flowers with 5-6 stamens, subequal in length, not exerted, 5 perfect; carpels - 3 .. *Semecarpus*

5. Fruits without fleshy hypocarp :

7. Flowers 4-merous; carpels-3 .. *Nothopegia*

7. Flowers 4-5 merous; carpel-1 .. *Mangifera*

ANACARDIUM L.

Anacardium occidentale L. Sp. Pl. 383. 1753; Hook. f. Fl. Brit. India 2 : 20. 1876; Cooke, Fl. Pres. Bombay 1 : 292. 1958 (Repr. ed.). *Mar.* : 'Kaju.'

Small trees, 5-8 m tall. Leaves 8-16 × 5-9 cm, elliptic-ovate or obovate-oblong, apex acute or rounded, emarginate, base acute. Flowers 1 cm across,

creamy or yellow, streaked with purple; in terminal panicles; sepals and petals pubescent, petals lanceolate. Fruits 3.0×2.8 cm, nuts reniform, resinous, attached to swollen fleshy receptacles, 5-8 cm long.

Fls. & Frts. : December-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 350, fig. 205. 1909.

Distrib. : Cultivated and naturalized in deciduous forest in plains; Kankavli-Dukanwad. Sawantwadi-Akeri-Mangaon forest, Ambolighat-Kumbheshwar, Vengurla-Math forest.

BUCHANANIA Spreng.

Buchanania lanzan Spreng. in Schrad. J. Bot. 4 : 234. 1801; Cooke, Fl. Pres. Bombay 1 : 293. 1958 (Repr. ed.). *B. latifolia* Roxb. Fl. Ind. 2 : 385. 1832; Hook. f. Fl. Brit. India 2 : 23. 1876. *Mar.* : 'Char'.

Small trees, 5-8 m tall, young parts silky tomentose. Leaves $10-20 \times 6-9$ cm, broadly oblong, apex emarginate, hairy beneath. Flowers 0.3—0.4 cm across, white; in pubescent, dense panicles; sepals hairy, petals oblong. Fruits 0.8-1.2 cm across, laterally compressed, black when ripe.

Fls. & Frts. : January-May.

Illus. : Bedd. Fl. Sylv. t. 165. 1871.

Distrib. : Frequent in dry deciduous forest in plains; Kudal-Bhadrangon, Nileli. Malwan-Kunkavle. Sawantwadi-Khanale, Kudasa.

HOLIGARNA Buch.-Ham. ex Roxb. (*nom. cons.*)

1. Leaves glabrous beneath; drupes completely embedded in accrescent calyx	..	<i>H. arnottiana</i>
1. Leaves rusty pubescent beneath; drupes partly embedded in accrescent calyx	..	<i>H. grahamii</i>

Holigarna arnottiana Hook. f. Fl. Brit. India 2 : 36. 1876; Cooke, Fl. Pres. Bombay 1 : 298. 1958 (Repr. ed.). *Mar.* : 'Ranhiba'.

Moderate-sized trees, 10-15 m tall with black, acrid, resinous juice. Leaves $10-20 \times 4-8$ cm, oblanceolate, coriaceous, apex acute to acuminate, base cuneate. Flowers 0.5 cm across, greenish-yellow; in rusty-tomentose panicles; sepals brownish hirsute inside. Drupes 2.0×1.5 cm, obliquely ellipsoid.

Fls. & Frts. : January-June.

Illus. : Bedd. Fl. Sylv. t. 167. 1871.

Distrib. : Frequent, in deciduous forest along the slopes of the ghats and in plains; Kudal-Chapheli-Pulas jungle, Narur. Sawant-adi-Akeri-Mangaon forest, Amboli, Ambolighat-Nanapani, Banda-Tamboli forest, Danoli-Kesari R. F.

H. grahamii (Wight) Kurz in J. Asiat. Soc. Bengal 42 : 305. 1872; Hook, f. Fl. Brit. India 2 : 37. 1876; Cooke, Fl. Pres. Bombay 1 : 298. 1958 (Repr. ed.); Bennet & Sahni in Indian For. 102 : 89. 1976. *Semecarpus grahamii* Wight, Icon. t. 235. 1840.

Trees, 10-15 m tall. Leaves 20-30 × 10-15 cm, oblanceolate, suddenly broadened in the middle, apex acute. Flowers 0.5-0.7 cm across, white or yellowish-green; in terminal, ferruginous panicles; crowded at the apices of branches; calyx cup-shaped, rufous hirsute. Drupes 2.8 × 1.6 cm, ovoid, basal 3/4 portion enclosed in calyx.

Fls. & Frts. : January-June.

Illus. : Wight, l. c.

Distrib. : Scattered, in semi-evergreen forest along the higher slopes of the ghats; Sawantwadi-Ramghat.

LANNEA Rich. (*nom. cons.*)

Lannea coromandelica (Houtt.) Merr. in J. Arnold Arb. 19 : 353. 1939. *Dialium coromandelicum* Houtt. Nat. Hist. Ser. II, 2 : 39. t. 5. f. 2. 1774. *Odina wodier* Roxb. Fl. Ind. 2 : 293. 1832; Hook. f. Fl. Brit. India 2 : 29. 1876; Cooke, Fl. Pres. Bombay 1 : 296. 1958 (Repr. ed.). *Mar.* : 'Mal'.

Deciduous trees, 8-10 m tall. Leaves imparipinnate, leaflets 7-9, 4-8 × 2-4 cm, rufous pubescent when young, ovate to lanceolate, apex acuminate, base rounded-truncate. Flowers 0.3 cm across greenish-yellow; in cymose fascicles (when tree is leaf-less); calyx 4-5-lobed, fused below, petals 4-5, oblong, reflexed. Drupes 1.2 × 0.7 cm, reniform, compressed, purplish when ripe.

Fls. & Ferts. : February-June.

Illus. : Wight, Icon. t. 60. 1838.

Distrib. : Frequent in deciduous forest in plains; Deogad-Nadanvir. Kudal-Ghotge, Kerude. Sawantwadi-Khanale. Vengurla-Math forest.

MANGIFERA L.

Mangifera indica L. Sp. Pl. 200. 1753; Hook. f. Fl. Brit. India 2 : 13. 1876; Cooke, Fl. Pres. Bombay 1 : 291. 1958 (Repr. ed.). Mar. : 'Amba'.

Trees, 15-20 m tall. Leaves 9—16 × 2.5—5.0 cm, oblong-lanceolate, glabrous, coriaceous, margins entire, apex acuminate. Flowers 0.5 cm across, creamy or white with unpleasant odour; in terminal panicles; calyx pubescent outside, petals oblong. Drups ovoid or oblong, resinous, fleshy.

Fls. & Frts. : January-June.

Illus. : Bedd. Fl. Sylv. t. 162. 1871.

Distrib. : Infrequent in semi-evergreen forest; Sawantwadi-Amboli-ghat.

NOTHOPEGIA Bl. (*nom. cons.*)

Nothopegia racemosa (Dalz.) Ramam. in Saldanha & Nicolson, Fl. Hassan Distt. 377. 1976. *Glycicarpus racemosus* Dalz. in J. Asiat. Soc. Bombay 3 : 69. 1849. *Nothopegia colebrookiana* (non Bl. 1849); Hook. f. Fl. Brit. India 2 : 40. 1876, *p. p.*; Cooke, Fl. Pres. Bombay 1 : 299. 1958 (Repr. ed.). Mar. : 'Ambeti, Amberi'.

Small trees, 5-8 m tall. Leaves 9—14 × 2.5—4.0 cm, oblong-elliptic, coriaceous, apex acuminate, base rounded. Flowers 0.3-0.35 cm across, white or greenish-yellow; in axillary racemes; calyx lobed, persistent, petals oblong. Drupes 1.0 × 1.2 cm, depressed-globose, dark purple when ripe, pulpy.

Fls. & Frts. : January-May.

Illus. : Bedd. Fl. Sylv. t. 164. 1871.

Distrib. : Frequent on the outskirts of semi-evergreen or in moist deciduous forests along ghats; Kankavli- Naradave, Phondaghat. Kudal-Rangana fort slopes. Sawantwadi-Amboli-Hemkunj Palace and Ramghat Road, Terwan near Ramghat.

SEMECARPUS L. f.

Semecarpus anacardium L. f. Suppl. 182. 1781; Hook. f. Fl. Brit. India 2 : 30. 1876; Cooke, Fl. Pres. Bombay 1 : 296. 1958 (Repr. ed.). Mar. : 'Biba'.

Small trees, 5-8 m tall, young parts grey tomentose. Leaves 10—20 × 5—9 cm, broadly oblong or ovate-oblong, coriaceous, grey hairy below, on nerves above, apex obtuse, emarginate or acute, base truncate-cordate. Flowers 0.35—0.4 cm across, greenish-yellow; in pubescent panicles; calyx and petals pubescent, petals oblong-ovate. Nuts 2.0 × 1.5 cm, ovoid black when ripe, with plenty of acrid juice, hypothalamus 2.5-3.0 cm long.

Fls. & Frts. : May-July.

Illus. : Wight, Icon. t. 558. 1842.

Distrib. : Scattered in deciduous forest in plains; Malwan-Kuperighati. Sawantwadi-Akeri-Mangaon forest, Bhedshi.

SPONDIAS L.

Spondias pinnata (L. f.) Kurz, Pegu Report A. 44. 1875; Airyshaw & Forman in Kew Bull. 21 : 8. 1967. *Mangifera pinnata* L. f. Suppl. 156. 1781. *Spondias mangifera* Willd. Sp. Pl. 2 : 751. 1799; Hook. f. Fl. Brit. India 2 : 43. 1876; Cooke, Fl. Pres. Bombay 1 : 299. 1958 (Repr. ed.). *S. acuminata* Roxb. Fl. Ind. 2 : 453. 1832; Hook. f. l. c. 42; Cooke, l.c. 300. *Mar.* : 'Ambada'.

Trees, 10-15 m tall. Leaves odd pinnate, leaflets 7-11, 4—8 × 2—4 cm, elliptic, apex acuminate, base obliquely rounded. Flowers 0.4 cm across, greenish-white; in terminal panicles; sepals suborbicular, margins ciliate, petals oblong. Drupes 3.2 × 1.9 cm, oblong-ellipsoid, mesocarp fibrous.

Fls. & Frts. : December-July.

Illus. : Bedd. Fl. Sylv. t. 169. 1872; Airy Shaw & Forman l. c. 7. f. 182.

Distrib. : Infrequent in deciduous forest in plains and along lower slopes of the ghats; Kudal-Kerude jungle. Sawantwadi-Hewale, Ramghat, Satarda.

CONNARACEAE

1. Inflorescence glabrous; calyx accrescent in fruits	..	<i>Raurea</i>
1. Inflorescence rusty pubescent; calyx not accrescent in fruits	..	<i>Connarus</i>

CONNARUS L.

Connarus wightii Hook f. Fl. Brit. India 2 : 51. 1876; Cooke, Fl. Pres. Bombay 1 : 304. 1958 (Repr. ed.). *C. ritchiei* Hook. f. l. c. ; Cooke, l. c.

Scandent shrubs. Leaves odd pinnate, leaflets 5-7, $4.8 \times 2.5-3.5$ cm, oblong-elliptic, apex acuminate, base rounded, subcoriaceous. Flowers 0.45-0.5 cm across, white; in terminal panicles; calyx and petals rufous pubescent. Fruits 3.0×1.6 cm, ovoid, bright red when mature. Seeds-1, arillate.

Fls. & Frts. : February-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 370. fig. 214. 1909.

Distrib. : Frequent in moist deciduous forest from base to higher slopes of the ghats; Kankavli-Phondaghat. Kudal-Kerude jungle, Narur, Shivapur Rai. Sawantwadi-Amboli R. F., Ambolighat-Temple point, Danoli-Kesari R. F., Ramghat.

ROUREA Aubl. (*nom. cons.*)

1. Fruits dehiscing irregularly	..	<i>R. prainiana</i>
1. Fruits dehiscing along ventral lengthwise slit	..	<i>R. minor</i>

Rourea minor (Gaertn.) Alston in Trim. Handb. Fl. Ceylon 6 : 67. 1931 ('*minus*'); Leenhouts in van Steenis, Fl. Males. Ser. 1, 5 : 514. 1958. *Aegiceras minus* Gaertn. Fruct. 1 : 215. t. 46. 1788. *Rourea santaloides* (Vahl) Wight & Arn. Prodr. 144. 1834; Hook. f. Fl. Brit. India 2 : 47. 1876; Cooke, Fl. Pres. Bombay 1 : 303. 1958 (Repr. ed.).

Climbing shrubs. Leaves imparipinnate, leaflets 5-7, or 9, $3.8-8.5 \times 1.9-3.8$ cm, elliptic or lanceolate, apex caudate-acuminate, base rounded, shining above, nerves prominent beneath. Flowers small, sepals broadly ovate or suborbicular, petals 0.45-0.5 cm long, spatulate-oblong. Fruits 2 cm long, falcately curved, chest-nut brown.

Fls. & Frts. : October-January.

Illus. : Ramamoorthy in Saldanha & Nicolson, Fl. Hassan Distt. 362. fig. 71B-Ba. 1976.

Distrib. : Cooke, (*l. c.*) records this species from 'Wari country (Sawantwadi) based on Dalzell & Gibson's record (Bombay Fl. 63. 1861) and S. M. country-Ramghat' - in Sawantwadi based on collection by Ritchie; so this species is included here.

R. prainiana Talb. For. Fl. Bombay Pres. & Sind 1 : 368. fig. 213. 1909; Leenhouts in van Steenis, Fl. Males. Ser. 1, 5 : 520. 1958.

Scandent shrubs, branches circinate climbing. Leaves odd pinnate, leaflets 5-7, $4-7 \times 2-3$ cm, oblong-ovate, apex acuminate, base rounded,

slightly oblique, terminal one equilateral, shining above, glaucous beneath. Flowers 0.8-1.0 cm across, rosy when young, white at length, sepals ovate, petals oblong. Fruits 2.0 × 1.2 cm, elliptic-ovoid, purplish-yellow when mature. Seeds with creamy-white, fleshy aril.

Fls. & Frts. : September-May.

Illus. : Talb. *l. c.*

Distrib. : Infrequent in moist deciduous and semi-evergreen forests along higher slopes of the ghats; Sawantwadi-Amboli-Mahadeogad and Moose plateau, Ambolighat, Chaukul-Linga Sakhal and Soliya jungle.

FABACEAE

1. Plants erect, suberect or prostrate, but not climbing :

2. Trees :

3. Leaves trifoliate :

4. Pods turgid, torulose, glabrous .. *Erythrina*

4. Pods flat, brownish hairy .. *Butea*

3. Leaves more than trifoliate :

5. Leaflets opposite; pods woody, obliquely oblong, 1-seeded .. *Pongamia*

5. Leaflets alternate; pods not woody, 1-many seeded .. *Dalbergia*

2. Shrubs, undershrubs or herbs :

6. Leaves simple or unifoliate :

7. Flowers enclosed in foliaceous, folded bracts .. *Flemingia*

7. Flowers not enclosed in foliaceous bracts :

8. Flowers yellow; pods not jointed :

9. Leaf-base oblique; flowers axillary, solitary .. *Gonolobos*

9. Leaf-base equal sided; flowers in racemes *Crotalaria*

8. Flowers pale reddish or purple, (rarely white); pods jointed or septate :

10. Claws teeth deep, upper 2-conate; pods jointed :

11. Joints of the pods folded one above the other .. *Uraria*

11. Joints of the pods not folded :

12. Joints of pods turgid .. *Alysicarpus*

12. Joints of pods flat ..	<i>Desmodium</i>
10. Calyx teeth short or deep, upper 2 not connate; pods septate between seeds ..	<i>Indigofera</i>
6. Leaves compound :	
13. Leaves even pinnate :	
14. Leaflets 1-2 pairs; pods not folded :	
15. Leaflets 1-pair; bracts not enclosing flowers ..	<i>Zornia</i>
15. Leaflets in 2-pairs; bracts enclosing flowers ..	<i>Geissaspis</i>
14. Leaflets 2-more pairs; pods folded, joints one above the other ..	<i>Smithia</i>
13. Leaves odd pinnate :	
16. Leaflets usually-3 :	
17. Pods turgid or inflated, hairy or glabrous :	
18. Racemes longer than leaves; flowers yellow ..	<i>Crotalaria</i>
18. Racemes shorter than leaves; flowers pale purple or white :	
19. Petioles 0.5 - 0.9 cm long; leaflets obovate ..	<i>Pycnospora</i>
19. Petioles 4 - 5 cm long; leaflets ovate- oblong or sub lanceolate ..	<i>Flemingia</i>
17. Pods flat, jointed or constricted between seeds or septate :	
20. Plants viscous hairy; pods septate, sticky ..	<i>Pseudarthria</i>
20. Plants not viscous hairy; pods not septate nor sticky :	
21. Flowers pale purple or white; pods jointed, joints separating ..	<i>Desmodium</i>
21. Flowers yellow; pods constricted between seeds, not separating ..	<i>Atylosia</i>
16. Leaflets more than 3 :	
22. Pods up to 4 cm long, not torulose :	
23. Pods jointed, indented, curved ..	<i>Aeschynomene</i>
23. Pods septate or continuous, flat or cylindric not jointed :	
24. Pods cylindric, septate ..	<i>Indigofera</i>

24. Pods flat, not septate	..	<i>Tephrosia</i>
22. Pods 15-20 cm long, torulose	..	<i>Sesbania</i>
1. Plants climbing or twining :		
25. Leaflets 3 :		
26. Calyx strongly accrescent, scarious	..	<i>Paracalyx</i>
26. Calyx not accrescent :		
27. Calyx and pods covered with irritating bristles	..	<i>Mucuna</i>
27. Calyx and pods not irritatingly bristly :		
28. Leaflets punctate beneath :		
29. Pods faintly or deeply constricted between the seeds	..	<i>Atylosia</i>
29. Pods with faint lines between the seeds, not constricted	..	<i>Dunbaria</i>
28. Leaflets not punctate beneath :		
30. Styles bearded below the stigma	..	<i>Vigna</i>
30. Styles not bearded below the stigma :		
31. Stamens diadelphous	..	<i>Galactia</i>
31. Stamens monadelphous :		
32. Flowers bluish-violet; pods membranous, constricted	..	<i>Pueraria</i>
32. Flowers reddish or pink; pods not membranous, not constricted :		
33. Pods turgid and broad with distinct ribs on sutures	..	<i>Canavalia</i>
33. Pods compressed, narrow without ribs	..	<i>Teramnus</i>
25. Leaflets more than 3 :		
34. Leaves even pinnate; pods turgid	..	<i>Abrus</i>
34. Leaves odd pinnate; pods flat :		
35. Herbaceous climbers; pods slightly recurved	..	<i>Glycine</i>
35. Woody climbing shrubs; pods straight :		
36. Leaflets opposite; pods winged on upper or lower or on both the sutures	..	<i>Derris</i>
36. Leaflets alternate; pods not winged	..	<i>Dalbergia</i>

ABRUS Adanson

Abrus precatorius L. Syst. ed. 12, 472. 1767; Baker in Hook. f. Fl. Brit. India 2 : 175. 1876; Cooke, Fl. Pres. Bombay 1 : 382. 1958 (Repr. ed.); Verdcourt in Kew Bull. 24 : 240. 1970. Mar. : 'Gunj'.

Woody twiners. Leaflets $0.5-1.5 \times 0.3-0.5$ cm, oblong, pale green, thin, glabrous above, appressed hairy beneath. Flowers pale pink to rosy or white; in axillary racemes, shorter than leaves; calyx with short teeth. Pods $2.0-3.5 \times 1.0-1.5$ cm, oblong, thick, pubescent. Seeds red with black spot at base.

Fls. & Frts. : August-December.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 397. fig 223. 1909.

Distrib. : Frequent in deciduous forest in Konkan plains; Kankavli-Phonda-Devichi Rai and Harkool forest. Kudal-Chapheli. Vengurla-Vagiri forest.

AESCHYNOMENE L.

Aeschynomene indica L. Sp. Pl. 713. 1753; Baker in Hook. f. Fl. Brit. India 2 : 151. 1876; Cooke, Fl. Pres. Bombay 1 : 363. 1958 (Repr. ed.); Rudd in Reinwardtia 5 : 30. 1959.

Suffruticose, glabrous herbs. Leaves 8-10 cm long, imparipinnate, leaflets $0.4-0.6 \times 0.15-0.2$ cm, oblong, sessile, apex obtuse or subacute, base oblique. Flowers 1.0-1.5 cm long, pale yellow to creamy; in 2-5-flowered, axillary racemes; calyx thin, membranous. Pods $3-4 \times 0.2-0.3$ cm, 6-10 jointed, slightly falcate.

Fls. & Frts. : September-December.

Illus. : Wight, Icon. t. 405. 1840.

Distrib. : Frequent in moist places in plains, usually as weed in rice fields; Kankavli-Phonda-Bhairi pathar and Devichi Rai. Malwan-Sindhudurg. Sawantwadi-Akeri-Mangaon forest, Ramghat.

ALYSICARPUS Desv. (*nom. cons.*)

1. Calyx segments not over-lapping in fruiting condition, shorter than 2 lowermost joints of pods :

2. Pods compressed, shallowly indented along both the sutures . . . *A. hamosus*

2. Pods turgid, hardly indented . . . *A. vaginalis*

1. Calyx segments distinctly over-lapping in fruiting condition; equal to or longer than 2 lower most joints of pods :
 3. Calyx 0.9 - 1.2 cm long; pods slightly exerted or included .. *A. belgaumensis*
 3. Calyx 0.6 - 0.9 cm long; pods much exerted :
 4. Joints of pods smooth; flowers in lax racemes .. *A. bupleurifolius*
 4. Joints of the pods transversely reticulate or ribbed; flowers in dense racemes :
 5. Joints of pods finely reticulate .. *A. longifolius*
 5. Joints of pods ribbed .. *A. rugosus*

Alysicarpus belgaumensis Wight, Icon. t. 92. 1838; Baker in Hook. f. Fl. Brit. India 2 : 160. 1876; Cooke, Fl. Pres. Bombay 1 : 372. 1958 (Repr. ed.).

Erect herbs, 25-30 cm tall, stems stout. Leaves 3.0—7.5 × 1.2—2.5 cm, oblong-lanceolate to oblong, apex acute to mucronate, base subcordate, glabrous above, silky hairy beneath. Flowers rosy; in pairs in racemes, bracts broadly ovate, strongly nerved; calyx hairy, ciliate along margins with long, stiff hairs. Pods 1.0-1.3 cm long, pubescent, slightly moniliform, reticulately veined, joints 3-4.

Fls. & Frts. : October-November.

Illus. : Wight, l. c.

Distrib. : Frequent on the top and along higher slopes of the ghats in open, grassy areas; Kankavli-Phondaghat. Sawantwadi-Amboli-Hiranyakeshi and Nangartas, Ambolighat, Ramghat (Cooke l. c.).

A. bupleurifolius (L.) DC. Prodr. 2 : 352. 1825; Baker in Hook. f. Fl. Brit. India 2 : 158. 1878; Cooke, Fl. Pres. Bombay 1 : 370. 1958 (Repr. ed.); van Meeuwen in Reinwardtia 6 : 88. 1961. *Hedyssarum bupleurifolium* L. Sp. Pl. 745. 1753.

Erect or decumbent-ascending herbs. Leaves 1.5—4.8 × 0.5—0.9 cm, linear-lanceolate (upper) to oblong or elliptic-suborbicular (basal), glabrous, hairy on nerves. Flowers bluish-pink; paired, in lax, elongated racemes; calyx ciliate. Pods 0.8-1.0 cm long, joints slightly longer than broad, rugose.

Fls. & Frts. : September-December.

Illus. : Maheshwari, Illus. Fl. Delhi, fig. 70. 1966.

Distrib. : Frequent in open situations in deciduous forest in plains; Kankavli-Digwal Road, Phonda-Bhairi pathar. Matwan-Adari Road. Sawantwadi-Akeri Rest House campus.

A. hamosus Edgew. in J. Asiat. Soc. Bengal 21 : 171. 1853; Baker in Hook f. Fl. Brit. India 2 : 157. 1876; Cooke, Fl. Pres. Bombay 1 : 368. 1958 (Repr. ed.).

Procumbent-ascending, annual herbs, stems and branches clothed with spreading hairs. Leaves 1.5—3.0 × 0.6—2.0 cm, ovate or suborbicular, apex rounded or mucronate, base slightly cordate, hairy on both surfaces. Flowers pale purple, 0.35-0.4 cm long; in lax racemes. Pods 1.2 cm long, compressed, hooked and straight hairy, joints 3-6.

Fls. & Frts. : September-October.

Distrib. : Occasional, in moist, open situations in fort on rock in sea; Malwan-Sindhudurg.

A. longifolius (Rottl. ex Spreng.) Wight & Arn. Prodr. 233. 1834; Baker in Hook. f. Fl. Brit. India 2 : 159. 1876; Cooke, Fl. Pres. Bombay 1 : 370. 1958 (Repr. ed.). *Hedysarum longifolium* Rottl. ex Spreng. Syst. 5 : 319. 1820.

Herbs, 1 m tall, stems ascending, glabrous. Leaves 2.5—8.0 × 0.9—1.8 cm, oblong or lanceolate, appressedly hairy on nerves beneath, apex mucronate, base rounded. Flowers reddish-purple; in dense racemes, bracts ovate, silky hairy outside; calyx pubescent, oiliate. Pods 0.9-1.2 cm long, shortly stalked, slightly moniliform, glabrous, joints 4-6.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 251. 1840.

Distrib. : Occasional, once only collected in moist places in fort on rock in sea; Malwan-Sindhudurg.

A. rugosus (Willd.) DC. Prodr. 2 : 353. 1825; Baker in Hook. f. Fl. Brit. India 2 : 159. 1876 (excl. vars.); Cooke, Fl. Pres. Bombay 1 : 371. 1958 (Repr. ed.); van Meeuwen in Reinwardtia 6 : 88. 1961; Verdcourt in Kew Bull. 24 : 67. 1970. *Hedysarum rugosum* Willd. Sp. Pl. 3 : 1172. 1802.

Procumbent-ascending herbs, glabrous or slightly hairy. Leaves 2.5—4.0 × 0.8—1.2 cm, lanceolate-oblong to ovate, slightly hairy beneath. Flowers reddish-purple; in dense, 3-6 cm long racemes, bracts ovate, glabrous; calyx glabrous, lobes oiliate. Pods 1 cm long, 3/4 portion included in calyx, slightly moniliform, joints 3-5.

Fls. & Frts. : September-October.

Distrib. : Occasional in moist, open area in fort on rock in sea; Malwan-Sindhudurg.

A. vaginalis (L.) DC. Prodr. 2 : 353. 1825; Baker in Hook. f. Fl. Brit. India 2 : 158. 1876; Cooke, Fl. Pres. Bombay 1 : 369. 1958 (Repr. ed.); van Meeuwen in Reinwardtia 6 : 87. 1961. *Hedysarum vaginale* L. Sp. Pl. 746. 1753. *Alysicarpus vaginalis* (L.) DC. var. *nummularifolius* Baker in Hook. f. l. c.; Cooke, l. c. *A. vaginalis* (L.) DC. var. *stocksii* Baker in Hook. f. l. c.; Cooke, l. c.

Prostrate herbs, stems mostly glabrous, sometimes with few scattered hairs. Leaves 1.0—4.5 × 0.6—1.2 cm, lanceolate to ovate or oblong, very variable, apex acute, base cordate. Flowers 0.35-0.4 cm long, reddish; in elongate racemes; calyx glabrescent. Pods 1.2-1.6 cm long, obscurely moniliform, reticulately veined, joints 4-6.

Fls. & Frts. : September-November.

Illus. : Maheshwari, illus. Fl. Delhi, fig. 69. 1966.

Distrib. : Frequent in open, moist situations in plains (in diverse ecological conditions); Deogad-Rest House Campus, Naringre. Kankavli-Phondaghat. Kudal-Chapheli-Pulas jungle. Sawantwadi-Akeri-Rest House Campus and Mangon forest, Banda, Danoli.

ATYLOSIA Wight & Arn.

1. Erect undershrubs; flowers in pairs	..	<i>A. lineata</i>
1. Climbing or trailing herbs or undershrubs; flowers in short racemes	..	<i>A. scarabaeoides</i>

Atylosia lineata Wight & Arn. prodr. 258. 1834. Baker in Hook. f. Fl. Brit. India 2 : 213. 1876; Cooke, Fl. Pres. Bombay 1 : 408. 1958 (Repr. ed.).

Undershrubs, 1.0-1.5 m tall, branches softly hairy. Leaflets 1.2—3.0 × 1.0—1.5 cm, obovate or obovate-oblong, membranous, grey pubescent, apex slightly mucronate. Flowers 1.2 cm long, yellow, calyx hairy. Pods 1.8 × 0.6 cm, oblong, grey-silky pubescent, turgid, depressed.

Fls. & Frts. : November-March.

Illus. : Wight, Icon. t. 93. 1838.

Distrib. : Frequent in open situations and in cleared forest areas along higher slopes of the ghats; Kankavli-Phondaghat. Sawantwadi-Amboli, Chaukul, Ramghat.

A. scarabaeoides (L.) Benth. in Miq. Pl. Jungh. 2 : 243. 1852; Baker in Hook. f. Fl. Brit. India 2 : 215. 1876; Cooke, Fl. Pres. Bombay 1 : 409. 1958 (Repr. ed.). *Dolichos scarabaeoides* L. Sp. Pl. 726. 1753.

Herbaceous climbers, stems and branches densely ferruginous or grey pubescent. Leaflets $1.8-3.5 \times 1.2-2.0$ cm, elliptic-obovate or elliptic, pubescent, apex mucronate. Flowers 0.8-1.0 cm long, pale yellow, calyx fulvous pubescent, corolla slightly exserted. Pods 1.5-2.0 cm long, oblong, apiculate, softly brownish hairy, oblique, transverse lines between the seeds.

Fls. & Frts. : June-February.

Distrib. : Common in deciduous forest in open situations or as undergrowth in plains; Deogad-Tar-mumbri. Kankavli-Digwal-Karanji jungle. Kudal-Nerur. Malwan-Achre-Kaziwada sada, Adari Road. Sawantwadi-Bhodshi, Dodamarg.

BUTEA Roxb. ex Willd. (*nom. cons.*)

Butea monosperma (Lamk.) Taub. in Engl. & Prantl, Pflanzenfam. 3 (3) : 366. 1894; Sant. in Bull. Bot. Surv. India 3 : 12. 1961. *Erythrina monosperma* Lamk. Encycl. 1 : 391. 1785. *Butea frondosa* Koen. ex Roxb. Asiat. Res. 3 : 469. 1792 & Pl. Cor. 1 : 21. t. 21. 1795, Baker in Hook. f. Fl. Brit. India 2 : 194. 1876; Cooke, Fl. Pres. Bombay 1 : 395. 1958 (Repr. ed.). *Mar.* : 'Palas'.

Deciduous trees, 5-8 m tall, young parts densely tomentose. Leaflets $8-12 \times 7-10$ cm (terminal one as long as broad), rhomboid or ovate, apex obtuse, base rounded, nerves raised beneath. Flowers 5.5-6.5 cm long, orange-scarlet, clothed with silky-silvery hairs outside, calyx 1.0-1.8 cm long, densely velvety outside, green. Pods 8.0-12.5 cm long stalked, silky-white hairy.

Fls. & Frts. : February-June.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 409. fig. 231. 1909.

Distrib. : Scattered, in deciduous forest in plains; Kankavli-Naradave. Kudal-Bhadgaon, Hanumanghat Rai. Sawantwadi-Ramghat.

CANAVALIA DC. (*nom. cons.*)

Canavalia virosa (Roxb.) Wight & Arn. Prodr. 253. 1834; Saur in Brittonia 16 : 152. 1964. *Dolichos virosus* Roxb. Fl. Ind. 3 : 301. 1832 (*excl. syn.*). *Canavalia ensiformis* Baker (*non* DC. 1825) var. *virosa* Baker in Hook. f. Fl. Brit. India 1 : 196. 1876; Cooke, Fl. Pres. Bombay 1 : 398. 1958 (Repr. ed.).

Perennial climbers, 3-5 m tall. Leaflets $3.0-10.5 \times 1.5-8.0$ cm, broadly ovate, apex acuminate to a short blunt tip, base rounded, sparsely to densely pubescent on both surfaces. Flowers 2.5-3.0 cm long, mauve with white veins, green towards base, calyx sparsely pubescent upper lip as long as tube. Pods 10-15 cm long, linear-oblong, compressed, each valve with sutural rib and an extra rib just below, oblong-ellipsoid. Seeds reddish brown.

Fls. & Frts. : September-February.

Distrib. : Scattered, in dry deciduous forest in coastal areas, sometimes planted; Malwan-Achre, Sindhudurg. Vengurla-Coastal side.

CROTALARIA L.

1. Leaves compound :

2. Leaflets - 3	..	<i>C. pallida</i>
2. Leaflets 3 - 5 or sometimes 7	..	<i>C. quinquefolia</i>

1. Leaves simple :

3. Flowers blue with white centre	..	<i>C. verrucosa</i>

3. Flowers yellow :

4. Pods glabrous :

5. Stipules absent :

6. Corolla exerted or much longer than calyx :

7. Prostrate herbs; flowers in leaf-opposed or extra-axillary racemes	..	<i>C. filipes</i>

7. Erect herbs; flowers in terminal or axillary racemes :

8. Stems silky hairy; leaves pubescent on lower surface :		

9. Pods distinctly exerted out of calyx, pale brown	..	<i>C. albidia</i>

9. Pods included in calyx or slightly exerted, black	..	<i>C. linifolia</i>

8. Stems and leaves glabrous	..	<i>C. lutescens</i>

6. Corolla slightly exerted, shorter than calyx :

10. Racemes capitate; upper calyx teeth connate	..	<i>C. nana</i>

10. Racemes not capitate; upper calyx teeth not connate :

11. Leaves oblique at base; bracts subulate	..	<i>C. prostrata</i>

11. Leaves equal sided at base; bracts lanceolate	..	<i>C. vestita</i>

5. Stipules present :

12. Stems and branches glabrous or white pubescent; corolla much exserted from calyx .. *C. retusa*

12. Stems and branches clothed with long spreading hairs; corolla not or slightly exserted from calyx .. *C. mysorensis*

4. Pods hairy, silky or velvety :

13. Stems and branches acutely triquetrous .. *C. triquetra*

13. Stems and branches terete :

14. Flowers in paniculate racemes; pods included in calyx .. *C. berteriana*

14. Flowers in few flowered racemes; pods not included in calyx .. *C. bifaria*

Crotalaria albida Heyne ex Roth, Nov. Sp. Pl. 333. 1821; Baker in Hook. f. Fl. Brit. India 2 : 71. 1876; Cooke, Fl. Pres. Bombay 1 : 315. 1958 (Repr. ed.); de Munk in Reinwardtia 6 : 200. 1961.

Erect, much branched herbs, branches slender, appressed silky hairy. Leaves 2.0—3.5 × 0.3—0.5 cm, oblong-lanceolate to obovate, subsessile, apex obtuse or mucronate, appressed hairy beneath. Flowers 0.8-0.9 cm long; in 2-10 cm long, terminal racemes, bracts and bracteoles present; calyx hairy. Pods 1.2-1.5 cm long, oblong, sessile, 6-10 seeded.

Fls. & Frts. : February-March.

Distrib. : Frequent in deciduous forest in plains also on ghat top in open situations and on field edges; Kudal-Chapheli-Pulas jungle, Ghotge. Sawantwadi-Akeri-Mangaon forest, Amboli-Mahadeogad, Khanale.

C. berteriana DC. Prodr. 2 : 127. 1825 ('*berteriana*'); Gandhi in Saldanha & Nicolson, Fl. Hassan Distt. 241. 1976. *C. fulva* Roxb. Fl. Ind. 3 : 266. 1832; Baker in Hook. f. Fl. Brit. India 2 : 180. 1876; Cooke, Fl. Pres. Bombay 1 : 321. 1958 (Repr. ed.).

Undershrubs, 1.0-1.5 m tall, branches densely brownish-silky hairy. Leaves 3.5—8.0 × 1.5—3.0 cm, oblong-obovate, yellowish-silky hairy on both surfaces, base cuneate. Flowers 1.8-2.0 cm long; bracts 0.8 cm long; calyx silky hairy, standard lobe of corolla hairy on back. Pods 0.8 cm or less long, included in calyx, 2-seeded.

Fls. & Frts. : November-February.

Distrib. : This species is reported by Cooke (*l. c.*) from 'S. M. country; Ramghat (Sawantwadi taluka), based on collections by Dalzell and Law; hence it is included here.

C. bifaria L. f. Suppl. 322. 1781; Baker in Hook. f. Fl. Brit. India 2 : 69. 1876; Cooke, Fl. Pres. Bombay 1 : 313. 1958 (Repr. ed.).

Trailing, much branched herbs, branches sparsely pubescent. Leaves 1.5—3.5 × 0.8—1.5 cm, ovate to oblong, apex rounded or mucronulate, pubescent on both surfaces. Flowers 1.3 cm long, yellow with purple wings; in a few flowered racemes; calyx hairy outside, corolla slightly exserted. Pods 1.5-3.0 cm long, at first pubescent, glabrous before splitting.

Fls. & Frts. : September-December.

Illus. : Wight, Icon. t. 30. 1838.

Distrib. : This species is included here on the authority of Cooke (*l. c.*) who cites 'S. M. country-Ramghat' (Sawantwadi taluka), based on collections by Law and Ritchie.

C. filipes Benth. in Hook. Lond. J. Bot. 2 : 475. 1843; Baker in Hook. f. Fl. Brit. India 2 : 66. 1876; Cooke, Fl. Pres. Bombay 1 : 312. 1958 (Repr. ed.).

Prostrate herbs, branches hairy. Leaves 0.5-1.6 × 0.3—0.8 cm, ovate to ovate-oblong, subsessile, sparsely silky hairy on both surfaces, apex obtuse or acute, base rounded. Flowers 0.6-0.8 cm long; in few flowered racemes; calyx teeth lanceolate, standard of corolla orbicular. Pods 0.5-0.8 cm long, shortly stalked.

Fls. & Frts. : September-February.

Distrib. : Frequent in deciduous forest in plains, in open situations among grasses; Kankavli-Achre Road, Phondaghat (Cooke, *l. c.*). Kudal-Varad. Malwan-Adari. Sawantwadi-Akeri-Mangaon forest.

C. linifolia L. f. Suppl. 322. 1781; Baker in Hook. f. Fl. Brit. India 2 : 72. 1876; Cooke, Fl. Pres. Bombay 1 : 317. 1958 (Repr. ed.).

Erect, suffruticose herbs, 20-100 cm tall. Leaves 2.0—4.5 × 0.8—1.5 cm, obovate-oblong or oblanceolate, subsessile, appressed hairy beneath, apex obtuse or emarginate, sometimes mucronate. Flowers 0.5-0.8 cm long, included in calyx; in terminal, 8-20 cm long racemes; calyx silky. Pods 0.4-0.8 cm. long, ovoid-oblong.

Fls. & Frts. : September-November.

Distrib. : Frequent in plains and on hill slopes in open situations; Kankavli-Digwal Road, Nandgaon, Phonda river side. Kudal-Varad.

C. lutescens Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 34. 1850; Baker in Hook. f. Fl. Brit. India 2 : 74. 1876; Cooke, Fl. Pres. Bombay 1 : 318. 1958 (Repr. ed.).

Undershrubs, 50-100 cm tall, branches glabrous. Leaves 3.5—6.5 × 0.8—1.8 cm, elliptic-lanceolate, membranous, subsessile, apex apiculate. Flowers 2.5 cm long; in lax racemes; calyx glabrous. Pods 2.0-3.5 cm long, oblong, many seeded.

Fls. & Frts. : September-October.

Distrib. : Scattered in plains in open situations; Malwan-Adari Road, Deobag. Sawantwadi-Kolgaon, Ramghat. Vengurla (Cooke, l. c.).

C. mysorensis Roth, Nov. Pl. Sp. 338. 1821; Baker in Hook. f. Fl. Brit. India 2 : 70. 1876; Cooke, Fl. Pres. Bombay 1 : 314. 1958 (Repr. ed.).

Erect herbs, 30-50 cm tall, branches silky-brown hairy. Leaves 2.0—5.5 × 0.4—1.2 cm, linear-oblong, subsessile, apex apiculate, hairy on both surfaces. Flowers 1.2-1.6 cm long; in terminal, 5-8 cm long, lax racemes; calyx hairy. Pods 1.5-2.0 cm long, oblong, pale brown.

Fls. & Frts. : October-November.

Distrib. : Scarce, along the slopes of the ghat, in open situations; Kankavli-Phondaghat.

C. nana Burm. f. Fl. Ind. 156. t. 48. f. 2. 1768; Baker in Hook. f. Fl. Brit. India 2 : 71. 1876; Cooke, Fl. Pres. Bombay 1 : 315. 1958 (Repr. ed.).

Annual herbs, 20-30 cm tall, branches hairy. Leaves 1.5-4.0 × 0.3-0.8 cm, oblong or oblanceolate, silky hairy on both surfaces, punctate. Flowers 0.4-0.5 cm. long; in capitate racemes or solitary in upper leaf axils; calyx densely hairy. Pods 0.5 cm long, included, globose-ovoid, black.

Fls. & Frts. : September-October.

Distrib. : Sparingly, in open situations from ghat slopes to coastal areas; Kankavli-Phondaghat. Malwan (Cooke, l. c.). Sawantwadi-Ramghat. Vengurla (Cooke, l. c.).

C. pallida Aiton, Hort. Kew 3 : 20. 1789; Gandhi in Saldanha & Nicolson, Fl. Hassan Dist. 254. 1976. *C. striata* DC. Prodr. 2 : 131. 1825; Baker in Hook. f. Fl. Brit. India 2 : 84. 1876; Cooke, Fl. Pres. Bombay 1 : 323. 1958 (Repr. ed.).

Undershrubs, up to 1 m. tall. Leaflets $4.0-7.5 \times 2.0-3.5$ cm, elliptic, apex acute or mucronate, pubescent and glaucous beneath. Flowers 2.5 cm long; in 10-20 cm long, terminal racemes; calyx slightly pubescent. Pods 2.5-4.0 cm long, oblong, deflexed, shortly stalked.

Fls. & Frts. : November-March.

Distrib. : Scattered, along the ghats and at base in open situations; Sawantwadi-Amboli-Mahadeogad, Bhedshi-Karnyachi Rai.

C. prostrata Rottl. ex Willd. Enum. Hort. Berol. 2 : 747. 1809; Baker in Hook. f. Fl. Brit. India 2 : 67. 1876; Cooke, Fl. Pres. Bombay 1 : 312. 1958 (Repr. ed.); de Munk in Reinwardtia 6 : 211. 1961

Decumbent-ascending herbs, branches pubescent. Leaves $1.5-3.0 \times 0.6-1.0$ cm, ovate-oblong or obovate, subsessile, apex obtuse or mucronate, hairy on both surfaces. Flowers 0.3-0.5 cm long; in few flowered racemes; calyx densely hairy, corolla not or scarcely exerted. Pods 1.2-1.5 cm long, glabrous, 10-20 seeded.

Fls. & Frts. : October-April.

Distrib. : Frequent in open situations in plains; Kankavli-Nandgaon. Kudal-Ghotge, Nerur. Malwan-Adari. Sawantwadi-Danoli-Madkholverbed. Vengurla-Math forest.

C. quinquefolia L. Sp. Pl. 716. 1753; Baker in Hook. f. Fl. Brit. India 2 : 84. 1876; Cooke, Fl. Pres. Bombay 1 : 324. 1958 (Repr. ed.); de Munk in Reinwardtia 6 : 212. 1962.

Erect herbs, 40-80 cm tall, branches glabrous, young ones appressed pubescent. Leaflets 3-5, $3.0-8.5 \times 0.8-1.2$ cm, oblong-lanceolate or elliptic-oblong, sessile, apex subacute, base acute, glabrous above. Flowers 2.4 cm long; in terminal, lax racemes; calyx campanulate, teeth triangular. Pods oblong, slightly tapering at base.

Fls. & Frts. : November-February.

Illus. : Wight, Icon. t. 15. 1838.

Distrib. : Cooke (*l. c.*) reports this species from Wari country (Sawantwadi) based on collection by Stocks. hence it is included here.

C. retusa L. Sp. Pl. 715. 1753; Baker in Hook. f. Fl. Brit. India 2 : 75. 1876; Cooke, Fl. Pres. Bombay 1 : 318. 1958 (Repr. ed.); de Munk in Reinwardtia 6 : 212. 1962.

Shrubs, 1-3 m tall. Leaves $3-10 \times 0.9-2.2$ cm, oblanceolate or oblong-obovate, apex acute or emarginate, grey pubescent beneath. Flowers 2.5 cm long, showy, yellow; in terminal, 12-15 flowered racemes; calyx glabrous, teeth triangular, corolla much exerted. Pods 3-5 cm long, 15-20 seeded, rattles when dry.

Fls. & Frts. : October-April.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 378. fig. 215. 1909.

Distrib. : Common, from ghats to hilly areas in plains upto coast in open areas and in scrub jungles; Deogad-Tar-mumbri. Kankavli-Naradave. Malwan-Kalawli creek. Sawantwadi-Amboli R. F., Chaukul-Soliya jungle, Ramghat.

C. triquetra Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 34. 1850; Baker in Hook. f. Fl. Brit. India. 2 : 71. 1876; Cooke, Fl. Pres. Bombay 1 : 314. 1958 (Repr. ed.).

Herbs, 30-50 cm tall, woody at base, branches angled. Leaves $2.0-3.5 \times 0.8-1.5$ cm, elliptic-oblong, subsessile, glabrous above, scattered hairy beneath. Flowers 1.2-1.5 cm long; in few flowered racemes; calyx silky hairy, teeth subequal, corolla slightly longer than calyx. Pods 1.5-3.0 cm long, oblong, appressed silky, 12-20 seeded.

Fls. & Frts. : November-April.

Distrib. : Frequent, along slopes of the ghats and hilly areas in plains among grasses; Kankavli-Phonda-Bhairi pathar. Kudal-Chapheli-Pulas jungle. Malwan (Cooke, *l. c.*). Sawantwadi-Ramghat. Vengurla (Cooke, *l. c.*).

C. verrucosa L. Sp. Pl. 715. 1753; Baker in Hook. f. Fl. Brit. India 2:77. 1876; Cooke, Fl. Pres. Bombay 1 : 319. 1958 (Repr. ed.).

Erect herbs, 25-100 cm tall, branches angled. Leaves $3.0-10.5 \times 2.0-7.5$ cm, ovate-deltoid, apex obtuse to acute, tapering at base, pubescent beneath, stipules leafy. Flowers 2.5 cm long; in 15-20 flowered racemes; calyx membranous, corolla 2 cm long. Pods 2.4-3.5 cm long, oblong-cylindric, softly pubescent, 10-12 seeded.

Fls. & Frts. : February-August.

Illus. : Wight, Icon. t. 200. 1839.

Distrib. : Frequent in plains along roadsides, in waste places and on sandy coastal areas; Deogad-Tar-mumbri. Malwan-Achre, Kalawli creek. Sawantwadi-Ajgaon, Akeri-Man-gaon forest, Banda. Vengurla (Cooke, *l. c.*).

C. vestita Baker in Hook. f. Fl. Brit. India 2 : 67. 1876; Cooke, Fl. Pres. Bombay 1 : 313. 1958 (Repr. ed.).

Erect, much branched herbs, 15-25 cm tall, branches silky hairy. Leaves 1.5—4.0 × 0.5—1.2 cm, oblong or obovate-oblong, subsessile, apex subacute or obtuse, hairy on both sides. Flowers 0.6-0.9 cm long; in 4-5-flowered racemes; calyx equalling the corolla, hairy. Pods 0.8-1.5 cm long, oblong, 10-16 seeded.

Fls. & Frts. : October-February.

Distrib. : Sparingly, on red gravelly soil along the slopes of the ghats; Kankavli-Phondaghat. Sawantwadi-Amboli, Ambolighat-Temple point.

DALBERGIA L. f. (*nom. cons.*)

1. Trees :

2. Leaflets 3-5, suborbicular, apex acuminate	..	<i>D. sissoo</i>
2. Leaflets 5-13, broadly ovate or suborbicular, apex obtuse or emarginate :		
3. Leaf rachis prolonged beyond insertion of uppermost pair of leaflets; stamens monadelphous	..	<i>D. latifolia</i>
3. Leaf rachis not prolonged; stamens diadelphous	..	<i>D. paniculata</i>

1. Climbing shrubs :

4. Ultimate branches hooked; unarmed :		
5. Leaflets 5-7; pods crescent shaped	..	<i>D. candenatensis</i>
5. Leaflets 11-15; pods not crescent shaped	..	<i>D. horrida</i>
4. Ultimate branches not hooked; armed	..	<i>D. volubilis</i>

Dalbergia candenatensis (Dennst.) Prain in J. Asiat. Soc. Bengal 70 : 46. 1901; Thothathri et Nair in Taxon 30 : 45. 1981. *Cassia candenatensis* Dennst. Schl. Hort. Ind. Malab. 12. 1818. *Dalbergia monosperma* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 36. 1850; Baker in Hook. f. Fl. Brit. India 2 : 237. 1876. *D. torta* Grah. ex Gray, Bot. Wilkes Exped. 1 : 458. 1854; Cooke, Fl. Pres. Bombay 1 : 423. 1958 (Repr. ed.).

Climbing shrubs, bark purplish-black. Leaves 4.0-7.5 cm long, leaflets 1.5—2.4 × 1.0—1.5 cm, elliptic-oblong, apex obtuse or emarginate, glabrous above, puberulous beneath. Flowers 0.6-0.8 cm long, white; in axillary, panicles, shorter than leaves; calyx glabrous. Pods 2.4 cm long, brown, polished, shortly stalked.

Fls. & Frts. : June-August.

Distrib. : This species is reported by Cooke (*l. c.*) from Malwan based on collection by Dalzell, Woodrow and Vengurla, collection by Dalzell; so this species is included here.

D. horrida (Dennst.) Mabber. in Taxon 26 : 538. 1977; Thothathri et Nair, *ibid.* 30 : 46. 1981. *Amerimnon horridum* Dennst. Schl. Hort. Ind. Malab. 34.1818. *D. sympathetica* Nimmo in Grah. Cat. Pl. Bombay 55. 1839; Baker in Hook. f. Fl. Brit. India 2 : 236. 1876; Cooke, Fl. Pres. Bombay 1 : 424. 1958 (Repr. ed.).

Large, climbing shrubs, trunk often armed with strong, blunt, curved spines, branches twisted. Leaves 8-10 cm long, leaflets 1.2—2.8 × 0.6—1.5 cm, oblong, apex obtuse or emarginate, pubescent on both surfaces. Flowers 0.6-0.8 cm long, white; in axillary, cymose-panicles; calyx pubescent. Pods 4.5-6.0 cm long, 1-2 seeded.

Fls. & Frts. : November-May.

Illus. : Talb. For. Fl. Bombay Pres. Sind 1 : 426. fig. 240. 1909.

Distrib. : Frequent in deciduous forest along the slopes of ghats and in hilly areas in plains; Kudal-Bhadgaon, Nileli jungle. Malwan-Achre-Kaziwadasada. Sawantwadi-Akeri-Mangan forest, Ambolighat-Nanapani, Hewale, Tirali.

D. latifolia Roxb. Pl. Cor. 2 : 7. t. 113. 1799; Baker in Hook. f. Fl. Brit. India 2 : 231. 1876; Cooke, Fl. Press. Bombay 1 : 422. 1958 (Repr. ed.).

Trees, 8-10 m tall, bark ash or grey coloured. Leaves 8-16 cm long, leaflets 5-7 (sometimes 9), 3.0—5.5 × 2.5—4.5 cm, glabrous on both sides, pale beneath. Flowers 0.6-0.8 cm long, creamy-white; in lax, axillary panicles; calyx glabrous. Pods, 3.0-5.5 cm long, strap shaped, narrow at both ends, 1-3-seeded.

Fls. & Frts. : February-November.

Distrib. : Scattered, in deciduous forest from lower slopes of the ghats to hilly areas in plains; Kankavli- Phondaghat. Kudal-Kerude jungle. Sawantwadi-Konal R. F., Ramghat.

D. paniculata Roxb. Pl. Cor. 2 : 8. t. 114. 1799; Baker in Hook. f. Fl. Brit. India 2 : 236. 1876; Cooke, Fl. Pres. Bombay 1 : 426. 1958 (Repr. ed.).

Medium-sized trees, 10-15 m tall, bark grey. Leaves 10-15 cm long, leaflets 9-13, $1.5-2.4 \times 0.8-1.5$ cm, glabrous, subcoriaceous. Flowers 0.8-1.0 cm long, bluish-white, subsessile; in terminal, subcorymbose-panicles; calyx densely silky. Pods 3.5-7.5 cm long, oblong-lanceolate, glabrous.

Fls. & Frts. : February-April.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 429. fig. 102. 1909-

Distrib. : Occasional in coastal dry deciduous forest; Deogad-Nadan-Vir.

D. sissoo Roxb. Fl. Ind. 3 : 223. 1832. Baker in Hook. f. Fl. Brit. India 2 : 231. 1876; Cooke, Fl. Pres. Bombay 1 : 421. 1958 (Repr. ed.).

Moderate-sized trees, 8-10 m tall, branches spreading. Leaves 6-10 cm long, leaf-rachis zigzag, leaflets $2.5-8.7 \times 1.5-3.0$ cm, terminal ones largest, pale green. Flowers 0.6-0.8 cm long, yellowish-white, sessile or subsessile; in axillary, short panicles; calyx hairy, teeth ciliate. Pods 2.5-6.0 cm long, thin, strap shaped.

Fls. & Frts. : February-October.

Illus. : Bedd. Fl. Sylv. t. 25. 1869.

Distrib. : One tree only was seen, probably planted, along roadside; Kankavli-Nandgaon.

D. volubilis Roxb. Pl. Cor. t. 191. 1805; Baker in Hook. f. Fl. Brit. India 2 : 235. 1876; Cooke, Fl. Pres. Bombay 1 : 426. 1958 (Repr. ed.).

Large, shrubby climbers, branches thickened, glabrescent. Leaves 8-10 cm long, leaflets 7-13, $2.0-3.5 \times 1.5-2.4$ cm, oblong or obovate-oblong, apex obtuse or truncate, sometimes emarginate, pale green beneath, glabrous. Flowers 0.6-0.8 cm long, lilac or pale bluish; in axillary or terminal panicles; calyx puberulous. Pods 3.0-5.5 cm long, linear-oblong, glabrous.

Fls. & Frts. : February-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 429. fig. 241. 1909.

Distrib. : Frequent in deciduous forest from lower slopes of the ghats to plains; Kankavli-Bhironde. Kudal-Ghotgo, Kerude. Sawantwadi-Khanale, Konal R. F., Ramghat.

DERRIS LOUR. (*nom. cons.*)

1. Pods winged on upper suture only :

2. Leaflets 3-7; pods 1.5-2.0 cm broad, glabrous .. *D. trifoliata*2. Leaflets 7-15; pods 0.18-1.4 cm broad, appressedly pubescent .. *D. scandens*

1. Pods winged on both the sutures :

3. Leaflets 5-7; upper wings of the pods broader than lower .. *D. heyneana*3. Leaflets 15-21; both the wings of pods narrow, equal .. *D. canarensis*

Derris canarensis (Dalz.) Baker in Hook. f. Fl. Brit. India 2 : 246. 1878; Cooke, Fl. Pres. Bombay 1 : 433. 1958 (Repr. ed.); Thothathri in Bull. Bot. Surv. India 3 : 190. 1962 et Fasc. Fl. India 8 : 12. 1982. *Pongamia canarensis* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 37. 1850.

Climbing shrubs. Leaves 10-20 cm long, leaflets 4.5-6.0 × 1.5 cm, oblong, glabrous above, hairy beneath, obtuse at both ends. Flowers pale pink to white; in terminal, rusty tomentose racemes, nodes 3-flowered; calyx cup-shaped, stamens monadelphous. Pods 2.5-5.0 cm long, obliquely elliptic, pointed at both ends, glabrous.

Fls. & Frts. : April-September.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 437. fig. 246. 1909.

Distrib. : Scattered, in deciduous forest along the slopes and at base of the ghats; Kudal-Shivapur paz, Wasuli Rai. Sawantwadi-Ainode.

D. heyneana (Wight & Arn.) Benth. in Miq. Pl. Jungh. 1:252. 1852 et J. Linn. Soc. 4 (Suppl.) : 110. 1860; Cooke, Fl. Pres. Bombay 1 : 432. 1958 (Repr. ed.); Bennet in Indian J. Forestry 1 (1) : 23. 1978; Thothathri, Fasc. Fl. India 8 : 19. 1982. *Pongamia heyneana* Wight & Arn. Prodr. 263. 1834 (excl. cit. Wall. Cat. 5916, non Grah. 1831-32). *Derris heyneana* Benth. var. *paniculata* Baker in Hook. f. Fl. Brit. India 2 : 244. 1878.

Large climbers. Leaves 10-18 cm long, leaflets 6-8 × 2.5-4.0 cm, elliptic-oblong or obovate-oblong, subcoriaceous, apex acuminate, base rounded or acute, glabrous on both sides. Flowers rose-red or white with rosy tinge; in axillary, rufous pubescent panicles, arranged in 5-8 flowered clusters; calyx reddish-brown pubescent, mouth ciliate. Pods 4-8 cm long, strap-shaped or obovoid, brownish, shining.

Fls. & Frts. : April-October.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 436. f. 245. 1909.

Distrib. : Occasional, in semi-evergreen forest along higher slopes of the ghats; Sawantwadi-Ambolighat-Temple point. Ambolighat, Gammie 15055, April 1902 (BLAT et BSI).

D. scandens (Roxb.) Benth. in J. Linn. Soc. 4 (Suppl.) : 103. 1860; Baker in Hook. f. Fl. Brit. India 2 : 240. 1876; Cooke, Fl. Pres. Bombay 1 : 430. 1958 (Repr. ed.); Thothathri in Fasc. Fl. India 8 : 27. 1982. *Dulbergia scandens* Roxb. Pl. Cor. 2 : t. 192. 1805 et Fl. Ind. 3 : 232. 1832.

Extensive climbers, young parts pubescent. Leaves 5-12 cm long, leaflets 2.5—6.0 × 1.5—2.0 cm, elliptic-oblong, subcoriaceous, apex acute to acuminate. Flowers 0.8-1.2 cm long, white with pinkish tinge; in 10-20 cm long racemes; calyx greyish silky. Pods 2.5-6.0 cm long, oblong-lanceolate.

Fls. & Frts. : May-September.

Illus. : Wight, Icon. t. 275. 1840.

Distrib. : Frequent in deciduous forest along the slopes of the ghats to plains; Kudal-Shivapur paz. Malwan-Dhamapur, Kunkavle, Sawantwadi-Akeri-Mangaon forest, Banda, Bhedshi, Danoli. Vengurla-Harbour Road, Math forest.

D. trifoliata Lour Fl. Cochinch. 433. 1790; Thothathri in Bull. Bot. Surv. India 3 : 183. 1962 et Fasc. Fl. India 8 : 30. 1982. *D. uliginosa* (Willd.) Benth. in Miq. Pl. Jungh. 1 : 252. 1852. et J. Linn. Soc. 4 (Suppl.) : 107. 1860; Baker in Hook. f. Fl. Brit. India 2 : 241. 1878; Cooke, Fl. Pres. Bombay 1 : 431. 1958 (Repr. ed.).

Extensive climbers, bark covered with lenticles, branches glabrous. Leaves 10-15 cm long, leaflets 5—10 × 2.5—4.5 cm, ovate or ovate-oblong, apex acuminate, sometimes emarginate, glabrous on both sides. Flowers 1.2 cm long, white; in axillary racemes; calyx truncate, minutely toothed, glabrous. Pods 2.0-3.5 cm long, oblong, straw-coloured, glabrous.

Fls. & Frts. : February-March.

Distrib. : Frequent along the sea coast and creeks; Deogad-Nadan-Vir. Kudal-Kochre. Malwan-Achre.

DESMODIUM Desv. (nom. cons.)

1. Leaves uni- or trifoliate :

2. Leaves unifoliate :

3. Petioles winged; joints of pods broader than long ... *D. triquetrum*

3. Petioles not winged; joints of pods longer than broad ... *D. gangeticum*

2. Leaves trifoliate :

4. Erect herbs, undershrubs or shrubs :

5. Flowers in short umbels; pods curved ... *D. triangulare*
var. *congestum*

5. Flowers in racemes; pods not curved :
6. Bracts leafy, concealing flowers .. *D. pulchellum*
6. Bracts not leafy, nor concealing flowers :
7. Pods dehiscent, joints as long as broad, simply hairy .. *D. heterocarpon*
7. Pods indehiscent, joints longer than broad, hooked hairy .. *D. laxiflorum*
4. Prostrate herbs .. *D. triflorum*
1. Leaves uni- or trifoliate intermixed .. *D. alysicarpoides*

Desmodium alysicarpoides var *Meeuwen* in *Reinwardtia* 6 : 246, 1962.
D. parviflorum (Dalz.) Baker in Hook. f. *Fl. Brit. India* 2 : 172, 1876; Cooke, *Fl. Pres. Bombay* 1 : 381, 1958 (Repr. ed., *non* Mart. 1843).

Erect, much branched, 25-40 cm tall herbs, upper parts fulvous hairy. Leaflets 1.5—4.5 × 0.6—2.0 cm, elliptic-oblong, apex obtuse or acute, appressed hairy beneath. Flowers pale purple; in lax racemes; calyx 0.4 cm long, hairy, corolla slightly exerted. Pods 0.9-1.2 cm long, falcate, both sutures slightly indented, glabrous.

Fls. & Frts. : December.

Distrib. : This species is recorded by Cooke (*l. c.*) from 'Phonda ghat' (Kankavli taluka) based on collection by Dalzell, hence it is included here.

D. gangeticum (L.) DC. *Prodr.* 2 : 327, 1825; Baker in Hook. f. *Fl. Brit. India* 2 : 163, 1876; Cooke, *Fl. Pres. Bombay* 1 : 379, 1958 (Repr. ed.); van Meeuwen in *Reinwardtia* 6 : 250, 1962. *Hedysarum gangeticum* L. *Sp. Pl.* 746, 1753.

Herbs, 20-50 cm tall, branches angular. Leaflets 5.0-10.5 × 2.8—6.5 cm, ovate-oblong, membranous, apex acute, hairy beneath. Flowers pale purple; in axillary or terminal racemes. Pods 1.5-2.0 cm long, slightly indented, sparsely hooked hairy.

Fls. & Frts. : September-November.

Illus. : Wight, *Icon.* t. 271, 1840.

Distrib. : Scattered in deciduous forest in plains in the undergrowth; Kudal-Nerur. Vengurla-Vagiri forest.

D. heterocarpon (L.) DC. *Prodr.* 2 : 337, 1825; van Meeuwen in *Reinwardtia* 6 : 95, 1961 et 6 : 251, 1962. *Hedysarum heterocarpon* L. *Sp. Pl.* 747, 1753. *Desmodium polycarpum* (Poir.) DC. *Prodr.* 2 : 334, 1825; Baker in Hook. f. *Fl. Brit. India* 2 : 171, 1876; Cooke, *Fl. Pres. Bombay* 1 : 377, 1958 (Repr. ed.).

Undershrubs, up to 1.5 m tall, branches woody, grey pubescent. Leaflets 2.0—4.5 × 1.8—2.4 cm, obovate or elliptic-oblong, apex retuse, thinly hairy beneath. Flowers violet-bluish; in 4-10 cm long racemes; calyx glabrescent, corolla 0.5-0.6 cm long. Pods 1.2-2.0 cm long, glabrescent or hairy, 6-8 joints, dehiscent.

Fls. & Frts. : September-November.

Illus. : Wight, Icon. t. 406. 1840.

Distrib. : Scarce, in deciduous forest as undergrowth and in open areas in plains and along lower slopes of the ghats; Kankavli-Digwal Road, Nandgaon, Phonda-Bhairy Pathar and Devichi Rai. Malwan-Dhamapur. Sawantwadi-Akeri Road, Ramghat (Cooke, l. c.).

D. laxiflorum DC. in Ann. Sci. Nat. Paris 4 : 100. 1825 et Prodr. 2 : 335. 1825; Baker in Hook. f. Fl. Brit. India 2 : 164. 1876; Cooke, Fl. Pres. Bombay 1 : 376. 1958 (Repr. ed.); van Meeuwen in Reinwardtia 6 : 252. 1962.

Decumbent-ascending herbs. stems slender, young branches appressedly hairy. Leaflets 4.5—10.0 × 2.5—6.0 cm, ovate-elliptic or oblong, membranous, apex acute, appressed hairy beneath. Flowers pale purple; in lax, 10-15 cm long racemes; calyx patent hairy, corolla 0.6 cm long, standard white. Pods 2.0-3.5 cm long, narrow, falcate.

Fls. & Frts. : September-November.

Illus. : Wight, Icon. t. 374. 1840.

Distrib. : Common, in the undergrowth in semi-evergreen forest along ghats and in deciduous forest in plains, also in open situations; Kankavli-Phondaghat. Kudal-Chapheli. Malwan-Adari-Nandruk, Dhamapur. Sawantwadi-Akeri-Mangaon forest, Amboli-Nangartas, Ambolighat-Nanapani, Chaukul, Ramghat. Vengurla-Math forest, Vagiri forest.

D. pulchellum (L.) Benth. Fl. Hongk. 83. 1861; Baker in Hook. f. Fl. Brit. India 2 : 163. 1876; Cooke, Fl. Pres. Bombay 1 : 376. 1958 (Repr. ed.); van Meeuwen in Reinwardtia 6 : 256. 1962. *Hedysarum pulchellum* L. Sp. Pl. 747. 1753.

Erect undershrubs, branches slender, grey hairy. Leaflets 4.5—10 × 2.4—5.0 cm, elliptic-ovate, apex obtuse or subacute, tomentose beneath. Flowers yellow; in 8-20 cm long racemes, hidden by orbicular bracts; calyx puberulous, corolla 0.5 cm long. Pods 0.4-0.7 cm long, indented, pubescent.

Fls. & Frts. : August-September.

Illus. : Wight, Icon. L. 418. 1841.

Distrib. : Occasional, in the undergrowth of deciduous forest; Sawantwadi-Akeri-Nemle.

D. triangulare (Retz.) Merr. J. Arnold. Arb. 23 : 170. 1942. *Hedysarum triangulare* Retz. Obs. Bot. 3 : 40. 1783.

var *congestum* (Wight & Arn.) Sant. in Kew Bull. 1948. : 276. 1948. *Desmodium congestum* Wight & Arn. Prodr. 224. 1834. *D. cephalotes* (Roxb.) Wight & Arn. var. *congestum* (Wight & Arn.) Prain in J. Asiat. Soc. Bengal 66 : 389. 1888; Cooke, Fl. Pres. Bombay 1 : 375. 1958 (Repr. ed.). Mar. : 'Ranchitki'.

Shrubs or undershrubs, 1-3 m tall, branches triquetrous, white pubescent. Leaflets 3.0—8.5 × 2.2—4.0 cm, elliptic-ovate, apex acute, acuminate or mucronate, glabrous above, appressed hairy beneath. Flowers white; in many flowered, pedunculate umbels; calyx densely silky, corolla 0.8-1.0 cm long. Pods 1.5-2.4 cm long, oblong, indented on both the sutures, white appressed hairy.

Fls. & Frts. : August-February.

Illus. : Wight, Icon. t. 209. 1839.

Distrib. : Common in deciduous forest along the slopes of the ghats and in hilly areas in plains; Deogad-Naringre. Kankavli-Nandgaon-Belachi Rai, Naradave, Phonda-Bhairy pathar and Devichi Rai. Kudal-Kerude jungle, Varad. Malwan-Dhamapur. Sawantwadi-Akeri-Mangaon forest, Amboli-ghat, Khanale. Vengurla-Math forest.

D. triflorum (L.) DC. Prodr. 2 : 334. 1825 (excl. syn. cit. *D. biflorum*); Baker in Hook. f. Fl. Brit. India 2 : 173. 1876; Cooke, Fl. Pres. Bombay 1 : 378. 1958 (Repr. ed.); van Meeuwen in Reinwardia 6 : 261. 1962 *Hedysarum triflorum* L. Sp. Pl. 749. 1753.

Spreading herbs, branches wiry, rooting at nodes. Leaflets 0.4—0.6 × 0.4 cm, obovate, membranous, apex truncate-emarginate, base cuneate. Flowers pinkish-purple or occasionally white; in 2-5 flowered fascicles; calyx long, white hairy, corolla 0.4 m long. Pods 1.0-1.5 cm long, thin, indented.

Fls. & Frts. : September-November.

Illus. : Wight, Icon. t. 292. 1840.

Distrib. : Frequent, in wet areas in open situations from ghat top to plains; Kankavli-Digwal Road, Nandgaon-Belachi Rai. Kudal-Kadaval. Sawantwadi-Amboli R. F., Madkhol.

D. triquetrum (L.) DC. Prodr. 2 : 326. 1825; Baker in Hook. f. Fl. Brit. India 2 : 163. 1876; Cooke, Fl. Pres. Bombay 1 : 378. 1958 (Repr. ed.).
Hedysarum triquetrum L. Sp. Pl. 746. 1753.

Erect herbs, 30-50 cm tall. Leaves unifoliate, 5—10 × 2—5 cm, oblong-lanceolate, hairy on nerves below. Flowers purple; in 15-20 cm long racemes; calyx slightly hairy, corolla 0.8 cm long. Pods 2.5-5.0 cm long, linear-oblong, strigose, joints 4-8.

Fls. & Frts. : August-February.

Distrib. : Frequent, in open situations from ghats to plains; Kudal-Chapheli-Sawantwadi-Akeri-Nemle forest, Amboli R. F., Banda, Bhedshi, jungle near Sawantwadi. Vengurla-Harbour road.

DUNBARIA Wight & Arn.

1. Pods glandular hairy	..	<i>D. glandulosa</i>
1. Pod not glandular hairy	..	<i>D. heyne</i>

Dunbaria glandulosa (Dalz. & Gibs.) Prain in J. Asiat. Soc. Bengal 66 : 433, 1898; Cooke, Fl. Pres. Bombay 1 : 411. 1958 (Repr. ed.). *Atylosia glandulosa* Dalz. in J. Linn. Soc. 13 : 185. 1873. *A. rostrata* Baker in Hook. f. Fl. Brit. India 2 : 216. 1876.

Extensive woody twiners, young parts yellowish or grey tomentose. Leaflets 3.5—7.5 × 2.5 × 8.0 cm, ovate or rhomboidal-ovate, broader than long, subcoriaceous, hairy beneath, terminal one equal sided, laterals unequal sided. Flowers bright yellow; in lax racemes; calyx sparingly bulbous based hairy, corolla 2.4 cm long. Pods 4.0-7.5 cm long, faintly depressed between the seeds.

Fls. & Frts. : August-October.

Distrib. : Cooke (*l. c.*) has reported this species from 'Malwan and Wagotan' (S. Konkan), based on collection by Dalzell, so it is included here.

D. heynei Wight & Arn. Prodr. 258. 1834; Baker in Hook. f. Fl. Brit. India 2 : 217. 1876; Cooke, Fl. Pres. Bombay 1 : 411. 1958 (Repr. ed.).

Woody twiners, young parts clothed with spreading, strigose hairs. Leaflets 4.5—7.5 × 3.5—5.0 cm, rhomboid-obovate, membranous, hairy on

both surfaces. Flowers canary yellow; in lax racemes; calyx roughly puberulous, corolla, 1.5-2.4 cm long. Pods 4-5 cm long, slightly lineate between the seeds, clothed with weak, spreading hairs.

Fls. & Frts. : December-March.

Distrib. : Cooke (l.c.) records this species from 'Kulnawari-Wari country' (Sawantwadi taluka) based on collection by Dalzell and Woodrow; so it is included here.

ERYTHRINA L.

Erythrina orientalis L. Herb. Amboin. 10. 1754; Krokoff in J. Arnold Arb. 53:132 1972. *E. variegata* L. var. *orientalis* (L.) Merr. Interp. Herb. Amb. 276. 1917 et Sp. Blanc. 187. 1918; Maheshwari in Bull. Bot. Surv. India 3.46. 1961. *E. indica* Lamk. Encycl. 2 : 391 1786; Baker in Hook. f. Fl. Brit. India 2 : 188. 1876; Cooke, Fl. Pres. Bombay 1 : 390, 1958 (Repr. ed.). *Mar.* : 'Pangara'.

Medium sized trees, 8-10 m tall, armed with prickles. Leaves 15-20 cm long, leaflets 10-15 × 7-12 cm, broadly rhomboid-ovate, membranous, apex acute or acuminate, base truncate. Flowers bright red; in dense racemes, arranged in clusters of 1-3 on puberulous rhachis; calyx tubular, 5-toothed, splitting up to base, corolla 5-7 cm long. Pods 15-25 cm long, subcylindric, black when mature. Seeds brown.

Fls. & Frts. : February-June.

Illus. : Wight, Icon. t. 58. 1838.

Distrib. : Scattered in deciduous forest from lower slopes of the ghats to coastal areas; Kankavli-Phondaghat. Malwan-Achre. Sawantwadi-Ramghat

FLEMINGIA Roxb. ex Aiton (nom. cons.)

1. Leaves simple; bracts concealing flowers	..	<i>F. strobilifera</i>
1. Leaves trifoliolate compound; bracts not concealing flowers :		
2. Erect undershrubs	..	<i>F. macrophylla</i>
2. Trailing or twining herbs :		
3. Flowers in terminal heads	..	<i>F. nilgherensis</i>
3. Flowers in lax, racemose-cymes	..	<i>F. tuberosa</i>

Flemingia macrophylla (Willd.) Prain ex Merr. Philipp. J. Sci. Bot. 5 : 130. 1910; Gandhi in Saldanha & Nicolson, Fl. Hassan Distt. 254. 1976. *Crotalaria macrophylla* Willd. Sp. Pl. 3 : 982. 1802. *Flemingia congesta* Aiton in Hort. Kew. ed. 2, 4 : 349. 1812; Baker in Hook. f. Fl. Brit. India 2 : 228. 1876 (p. p. excl. vars.); Cooke, Fl. Pres. Bombay 1 : 418. 1958 (Repr. ed.). *F. congesta* Ait. var. *viridis* Prain in J. Asiat. Soc. Bengal 66 : 440. 1898; Cooke, l. c.

Undershrubs, 1.0-1.5 m tall, young branches angular, pubescent. Leaflets 10—15 × 4—6 cm, elliptic-ovate, subcoriaceous, lateral ones oblique at base, apex acute, silky on nerves beneath. Flowers purplish-yellow; in dense, axillary racemes, shorter than leaves; calyx softly pilose, gland dotted, corolla 1.2 cm long. Pods 0.6-1.2 cm long, oblong, pubescent.

Fls. & Frts. : January-February.

Distrib. : Scattered in deciduous forest in plains; Kudal-Chapheli-Pulas jungle. Matwan-Kunkavle. Sawantwadi-Khanale. Vengurla (Cooke, l. c.).

F. nilgheriensis (Baker) Wight ex Cooke, Fl. Pres. Bombay 1 : 393. 1902 et 1 : 419. 1958 (Repr. ed.) ('*nilgiriensis*'). *F. vestita* Benth. ex Baker var. *nilgheriensis* Benth. ex Baker in Hook. f. Fl. Brit. India 2 : 230. 1876.

Diffuse herbs, branches clothed with spreading hairs. Leaflets 1.2—2.5 × 0.8—1.2 cm, elliptic-ovate, hairy on both surfaces, apex acute or acuminate, venation subpalmate. Flowers dark purple; 6-15 in each head; calyx densely fulvous hairy, corolla 0.9—1.2 cm long, equal to or slightly longer than calyx. Pods 0.4 cm long, ovoid or subglobose, glabrous, smooth, 1-seeded.

Fls. & Frts. : September-November.

Illus. : Wight, Icon. t. 987. 1845.

Distrib. : Cooke, (l. c.) reports this species from 'Phundeghat (Phondaghat in Kankavli taluka) based on collection by Dalzell. Hence it is included here.

F. strobilifera (L.) R. Br. in Aiton, Hort. Kew. ed. 2, 4 : 350. 1812; Baker in Hook. f. Fl. Brit. India 2 : 227. 1876; Cooke, Fl. Pres. Bombay 1 : 416. 1958 (Repr. ed.). *Hedysarum strobiliferum* L. Sp. Pl. 746. 1753. *Flemingia bracteata* (Roxb.) Wight, Icon. t. 268. 1840; Cooke, l. c. *F. strobilifera* (L.) Ait. var. *bracteata* (Roxb.) Baker in Hook. f. l. c.

Shrubs or undershrubs, 1.0-1.5 m tall, branches slender, pubescent. Leaflets 5.5—10.0 × 3.5—4.5 cm, ovate-oblong, subcoriaceous, pubescent beneath, apex acute. Flowers white; in axillary or terminal, simple

or branched racemes in persistent, membranous, ovate-orbicular bracts; calyx pubescent, corolla 0.6-0.9 cm long. Pods 0.8-1.0 cm long, oblong, pubescent, 2-seeded.

Fls. & Frts. : December-May.

Illus. : Wight, *l. c.*

Distrib. : Common in open situations and in hilly areas in deciduous forest from higher slopes of the ghats to plains; Kankavli-Naradave, Phonda-Ghonsari Rai, Kudal-Ghotge, Kerude jungle. Sawantwadi-Akeri-Mangaon forest, Amboli-Lingasakhal, Ambolighat-Kumbheshwar, Konal R. F., Ramghat, Tirali.

F. tuberosa Dalz. in Hook. J. Bot. & Kew Gard, Misc. 2 : 34. 1850; Baker in Hook. f. Fl. Brit. India 2 : 230. 1876; Cooke, Fl. Pres. Bombay 1 : 420. 1958 (Repr. ed.).

Perennial, tuberous herbs, up to 1 m long. Leaflets 2.5—4.0 × 0.8—1.2 cm, oblong-elliptic, hairy on both surfaces, apex acute. Flowers purple; in 2-4-flowered, lax, racemose-cymes, longer than leaves; calyx densely hairy, corolla 0.9-1.2 cm, slightly longer than calyx. Pods 1 cm long, oblong, glabrous, transversely reticulate, 1-2 seeded.

Fls. & Frts. : September-November.

Distrib. : Cooke (*l. c.*) cites Malwan as locality on the authority of Dalzell & Gibson, Bombay Fl. 75.1861. So this species is included here.

Galactia P. Browne

Galactia tenuiflora (Willd.) Wight & Arn. var. *minor* Baker in Hook. f. Fl. Brit. India 2 : 192. 1876; Cooke, Fl. Pres. Bombay 1 : 393.1958 (Repr. ed.).

Herbaceous twiners, stems filiform. Leaflets 1.2—2.4 × 0.6—1.2 cm, oblong-elliptic, membranous, glabrous above, grey-silky beneath, apex obtuse or apiculate. Flowers purple; in axillary, short peduncled racemes; calyx slightly hairy, corolla 0.6-0.8 cm long. Pods 2.2-3.0 cm long, obliquely constricted between the seeds, glabrous or hairy.

Fls. & Frts. : October-December.

Distrib. : This variety is reported by Cooke (*l. c.*) from 'Malwan based on record by Dalzell & Gibson, Bombay Fl. 73. 1861; hence it is included here.

GEISSASPIS Wight & Arn.

1. Inflorescence much shorter than bracts; bracts orbicular .. *G. cristata*
 1. Inflorescence equalling or longer than bracts; bracts ovate or obliquely oblong .. *G. tenuella*

Geissaspis cristata Wight & Arn. Prodr. 218. 1834; Baker in Hook. f. Fl. Brit. India 2 : 141. 1876; Cooke, Fl. Pres. Bombay 1 : 353. 1958 (Repr. ed.).

Diffuse, spreading herbs, stems and branches glabrous. Leaflets 0.6—1.2 × 0.3—0.6 cm, obovate, glabrous on both sides, apex obtuse or emarginate. Flowers yellow with reddish-purple streaks; in 2-4 cm or slightly longer, capitate racemes, peducels curved, bracts 1.2 cm or more in breadth, with stiff yellow bristles; calyx glabrous, corolla 0.5 cm long. Pods 0.4 cm long, 1-jointed, long beaked.

Fls. & Frts. : September-November.

Distrib. : Frequent in open, moist situations or in paddy fields in plains and also along ghats; Kankavli-Nandgaon, Osargaon. Sawantwadi-Amboli.

G. tenuella Benth. Flora 32 : 559. 1849; Baker in Hook. f. Fl. Brit. India 2 : 141. 1876; Cooke, Fl. Pres. Bombay 1 : 354. 1958 (Repr. ed.).

Weak, trailing herbs with thick root stock. Leaflets 0.4—0.6 × 0.2—0.3 cm, obovate, glabrous on both sides, apex rounded or truncate. Flowers yellow; in 4 cm long, capitate racemes, bracts 0.3—0.4 cm broad, short, stiff hairy along margins; calyx glabrous, corolla 0.4-0.8 cm long. Pods 0.3-0.6 cm long, 1-2 jointed.

Fls. & Frts. : September-December.

Distrib. : Occasional in open, moist situations in plains and also along ghats; Kankavli-Phonda. Sawantwadi-Ramghat.

GLYCINE Willd.

Glycine pentaphylla Dalz. in Hook. J. Bot. & Kew Gard. Misc. 4 : 344. 1852; Baker in Hook. f. Fl. Brit. India 2 : 184. 1876; Cooke, Fl. Pres. Bombay 1 : 386. 1958 (Repr. ed.).

Twining herbs, stems slender, appressed silky hairy. Leaves 10-15 cm long, leaflets 5-7, 2.5-8.0 × 0.9—3.0 cm, oblong-lanceolate, terminal one larger, apex acute or mucronate, glabrous above, hairy beneath. Flowers reddish; in

axillary, lax racemes; calyx densely silky, corolla 0.6 cm long. Pods 3-5 cm long, flat, silky hairy, 4-5 seeded.

Fls. & Frts. : August-November.

Distrib. : This species is reported by Cooke (*l. c.*) from 'Wari country' (Sawantwadi) based on collection by Dalzell, hence included here.

GONIOGYNA DC.

Goniogyna hirta (Willd.) Ali in Taxon 16 : 463. 1967. *Hallia hirta* Willd. Sp. Pl. 3 (2) : 1169. 1803. *Heylandia latebrosa* DC. in Mem. Leg. 6 : 201. 1825; Baker in Hook. f. Fl. Brit. India 2 : 65. 1876; Cooke, Fl. Presa. Bombay 1 : 310. 1958 (Repr. ed.).

Prostrate herbs, dichotomously branched, white hairy. Leaves 0.6-1.5 x 0.4-0.6 cm, ovate, sessile, hairy on both sides, apex subacute. Flowers subsessile, calyx hairy, upper 2-lobes connate, corolla 0.4-0.6 cm long. Pods 0.3-0.4 cm long, oblong, silky hairy, 1-2 seeded.

Fls. & Frts. : February-May.

Distrib. : Scarce, once only collected in open areas in plains; Sawantwadi-Akeri.

INDIGOFERA L.

1. Leaves simple :

2. Pods 1-seeded :

3. Pods sickle shaped, compressed, hooked bristles on central suture	..	<i>I. nummularifolia</i>
3. Pods globose, turgid, smooth	..	<i>I. linifolia</i>

2. Pods 2 or more seeded :

4. Branches triquetrous; pods tetragonous, glabrous, 4-6 seeded	..	<i>I. dalzellii</i>
4. Branches terete; pods cylindric, pubescent, 2-seeded	..	<i>I. cordifolia</i>

1. Leaves compound :

5. Racemes shorter than leaves; pods cylindric, glabrous	..	<i>I. tinctoria</i>
5. Racemes longer than leaves; pods obtusely tetragonous, densely soft hairy	..	<i>I. astragalina</i>

Indigofera astragalina DC. Prodr. 2 : 228. 1825; Gillett in Kew Bull. 14 : 290. 1960; Nair & Koshy in J. Bombay nat. Hist. Soc. 60 : 330. 1963. *I. hirsuta* auct. pl. (non L. 1753); Baker in Hook. f. Fl. Brit. India 2 : 98. 1876. p. p.; Cooke, Fl. Pres. Bombay 1 : 339. 1958 (Repr. ed.).

Erect, much branched herbs, stems and branches copper-brown hairy. Leaves 8-12 cm long, leaflets 7-9, 2.4—3.5 × 0.9 cm, obovate to oblong-elliptic, membranous, hairy on both surfaces. Flowers pale pink to rosy-purple; in 5-15 cm long, brownish hairy racemes; calyx densely hairy, corolla 0.6 cm long. Pods 1.3-1.9 cm long, straight, deflexed.

Fls. & Frts. : September-November.

Illus. : Maheshwari, Illus. Fl. Delhi, f. 59. 1966.

Distrib. : Common in open areas in deciduous forest in plains; Deogad-Naringre. Kankavli-Nandgaon-Belachi Rai, Phonda Rai. Kudal-Nijeli, Varad. Malwan-Sindhudurg. Sawantwadi-Bhedshi-Karnyachi Rai, Madkhod. Vengurla—Math forest.

I. cordifolia Heyne ex Roth, Nov. Pl. Sp. 357. 1821; Baker in Hook. f. Fl. Brit. India 2 : 93. 1876; Cooke, Fl. Pres. Bombay 1 : 331. 1958 (Repr. ed.).

Prostrate, much branched herbs, white hairy. Leaves 0.6-2.0 × 0.4-1.2 cm, broadly ovate-cordate, subsessile, hairy on both surfaces, apex obtuse or mucronate. Flowers red; in axillary heads or solitary; calyx hairy, corolla 0.3 cm long. Pods 0.3-0.4 cm long, oblong, minutely beaked.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 333. 1840.

Distrib. : Scarce, in open, moist situations on coastal sandy soil; Malwan-Deobag.

I. dalzellii Cooke, Fl. Pres. Bombay 1 : 311. 1902 et 1 : 331. 1958 (Repr. ed.). *I. triquetra* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 36. 1850; Baker in Hook. f. Fl. Brit. India 2 : 93. 1876. (non Meyer, 1836).

Prostrate herbs, branches ascending from woody root stock. Leaves 1.0—1.8 × 0.4—0.8 cm, elliptic-oblong, apex acute or mucronate, glabrous above, appressed hairy below. Flowers purple; in axillary racemes, longer than leaves; calyx hairy, corolla 0.4-0.6 cm long. Pods 1.2-2.0 cm long, linear, glabrous, beaked.

Fls. & Frts. : October-November.

Distrib. : Malwan (Cooke, l. c.). Sawantwadi-Amboli-Ramghat Road, Banda-Ajgaon, Ramghat.

I. linifolia (L. f.) Retz. Obs. Bot. 4 : 29. 1786; Baker in Hook. f. Fl. Brit. India 2 : 92. 1876; Cooke, Fl. Pres. Bombay 1 : 330. 1958 (Repr. ed.).
Hedysarum linifolium L. f. Suppl. 331. 1781.

Erect herbs, much branched, branches silvery, appressed hairy. Leaves 1.2—2.4 × 0.1—0.4 cm, lanceolate, subsessile, greyish-green, appressed hairy. Flowers red; in racemes; calyx silvery hairy, corolla 0.4-0.9 cm long. Pods 0.2-0.3 cm across, globose, silvery, apiculate.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 313. 1840.

Distrib. : Scarce, once only collected in open situations, in deciduous forest in plains; Kankavli-Nandgaon.

I. nummularifolia (L.) Alston in Trim. Handb. Fl. Ceylon 6 : (Suppl.) : 72. 1931; Gillett, Polhill & Verdecourt in Milne-Redhead and Polhill, Fl. Trop. E. Africa, Leguminosae pt. 3, subfamily Papilionoideae (1) : 217. 1971.
Hedysarum nummularifolium L. Sp. Pl. 746. 1753 ('nummularifolium').
Indigofera echinata Willd. Sp. Pl. 3 : 1222. 1800; Baker in Hook. f. Fl. Brit. India 2 : 92. 1876; Cooke Fl. Pres. Bombay 1 : 336. 1958 (Repr. ed.).

Diffuse herbs, branches spreading. Leaves 1.5—2.5 × 0.8—1.9 cm, broadly ovate or elliptic, glabrous or sparsely hairy on both sides, apex obtuse and apiculate. Flowers pink; in 10-15-flowered racemes; calyx hairy, corolla 0.2-0.3 cm long. Pods 0.6 cm long, falcate, triquetrous, 1-seeded (rarely 2).

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 316. 1840.

Distrib. : Scarce, on sandy or gravelly soil in open places in coastal areas; Malwan-Adari. Kuperighati.

I. tinctoria L. Sp. Pl. 751. 1753; Baker in Hook. f. Fl. Brit. India 2 : 92. 1876; Cooke, Fl. Pres. Bombay 1 : 339. 1958 (Repr. ed.).

Erect herbs, 20-50 cm tall, branches grey pubescent. Leaves 2.5-7.0 cm long, leaflets 7-11, 1.2—2.0 × 0.6—0.9 cm, obovate-oblong, membranous, green, drying greyish-brown, appressed hairy beneath and glabrous or sparsely hairy above, apex rounded and apiculate. Flowers pink; in 2-4 cm long racemes; calyx hairy, corolla 0.4 cm long. Pods 1.8-2.5 cm long, linear, slightly curved, sparsely hairy, 8-10 seeded.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 365. 1840.

Distrib. : Frequent along the slopes of the ghats and in hilly areas in plains in open situations; Kankavli-Humbrat. Malwan-Adari-Nandruk. Sawantwadi-Ambolighat-Nanapani, Danoli.

MUCUNA Adanson (*nom. cons.*)

1. Perennial climbers; pods suborbicular, obliquely ribbed on both sides .. *M. monosperma*
 1. Annual climbers; pods not ribbed .. *M. pruriens*

Mucuna monosperma DC. ex Wight in Bot. Misc. 2 : 346. Suppl. t. 12 1830; Baker in Hook. f. Fl. Brit. India 2 : 185. 1876; Cooke, Fl. Pres. Bombay 1 : 388. 1958 (Repr. ed.); Gandhi in Saldanha & Nicolson, Fl. Hassan Distt. 259. 1976. *Mar.* : 'Songyra'.

Large, woody climbers, young branches rusty pubescent. Leaflets 5—10 × 4.0—7.0 cm, ovate-oblong or elliptic, lateral leaflets oblique, glabrous above, pubescent beneath, apex shortly acuminate. Flowers purple; in 8-15 cm or more long racemes; calyx irritant bristly, corolla 3.5 cm long. Pods 4-6 cm long, thick, brown hairy, 1-seeded.

Fls. & Frts. : November-March.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 398. fig. 224. 1909.

Distrib. : Scattered on the outskirts of deciduous forest along the slopes of the ghats and at base; Kudal-Chapheli-Pulas jungle. Sawantwadi-Ramghat.

M. pruriens (L.) DC. Prodr. 2 : 405. 1825; Baker in Hook. f. Fl. Brit. India 2 : 187. 1876; Cooke, Fl. Pres. Bombay 1 : 389. 1958 (Repr. ed.). *Dolichos pruriens* L. in Stickman, Diss. Herb. Amb. 23. 1754. *Mar.* : 'Khaj-Kulle'.

Herbaceous twiners, young parts pubescent. Leaflets 5—10 × 3.5—6.0 cm, rhomboid-ovate, lateral leaflets oblique, apex acute to acuminate, pubescent above, silky hairy beneath. Flowers purple; in 10-15 cm long racemes; calyx silky and slightly bristly, corolla 2.5-3.2 cm long. Pods 4-6 cm long, turgid, oblong, falcately curved at both ends, clothed with irritant bristles, 4-6-seeded.

Fls. & Frts. : November-January.

Illus. : Maheshwari, Illus. Fl. Delhi, fig. 73. 1966.

Distrib. : Scattered, in deciduous forest along the slopes of the ghats and in plains; Sawantwadi-Akeri-Mangaon forest, Ramghat.

PARACALYX Ali

Paracalyx scariosa (Roxb.) Ali, Univ. Studies, Karachi 5 (3) : 95. 1968; Gandhi in Saldanha & Nicolson, Fl. Hassan Distt. 260. 1976. *Cylista scariosa*

Roxb. Pl. Cor. t. 92. 1795; Baker in Hook. f. Fl. Brit. India 2 : 219. 1876; Cooke, Fl. Pres. Bombay 1 : 412. 1958 (Repr. ed.).

Extensive climbers, branches finely hairy. Leaflets 4—6 × 3.0—4.5 cm, broadly ovate, softly hairy above, densely hairy and prominently nerved beneath, apex acute or acuminate. Flowers yellow; in axillary, 10-20 cm long, panicle racemes; calyx 3 cm long, tube hairy, lobes scarious, accrescent in fruits, corolla included in calyx. Pods 1.2 cm long, oblique, villose, enclosed in calyx, 1-seeded.

Fls. & Frts. : January-March.

Illus. : Wight, Icon. t. 1597. 1850.

Distrib. : Occasional, in deciduous forest along the slopes of the ghats and at the base; Kudal-Ghotge, Kerude jungle. Sawantwadi-Ramghat.

PONGAMIA Vent.

Pongamia pinnata (L.) Pierre, Fl. For. Cochinch. t. 385. 1899; Thothathri in Bull. Bot. Surv. India 3 : 418. 1962. *Cytisus pinnatus* L. Sp. Pl. 741. 1753. *Pongamia glabra* Vent. Jard. Ma'm. t. 28. 1803; Baker in Hook. f. Fl. Brit. India 2 : 240. 1876; Cooke, Fl. Pres. Bombay 1 : 429. 1958 (Repr. ed.). *Man.* : 'Karanj'.

Trees, 8-10 m tall, bark smooth. Leaves 10-15 cm long, leaflets 5-7, 5—10 × 3—6 cm, elliptic or ovate-oblong, glabrous, apex acuminate. Flowers 1.5 cm. long, pinkish-white; in axillary racemes; calyx brownish pubescent truncate, in corolla standard auricled. Pods 2-4 cm long, obovoid or oblong-elliptic, oblique, woody, compressed, 1-seeded.

Fls. & Frts. : February-April

Illus. : Wight, Icon. t. 59. 1838.

Distrib. : Scattered in deciduous forest along the lower slopes of the ghats and at base; Kankavli-Bhironde. Kudal-Ghotge, Kerude jungle.

PSEUDARTHRIA Wight & Arn.

Pseudarthria viscida (L.) Wight & Arn. Prodr. 209. 1834; Baker in Hook. f. Fl. Brit. India 2 : 154. 1876; Cooke, Fl. Pres. Bombay 1 : 366. 1958 (Repr. ed.). *Hedysarum viscidum* L. Sp. Pl. 747. 1753.

Undershrubs, up to 1.2 m tall, branches weak, trailing or climbing, sticky. Leaflets 3—8 × 2.3—5.0 cm, terminal leaflet bigger than lateral leaflets, broadly ovate, hairy on both surfaces, apex acute. Flowers red; in axillary or terminal racemes, distant and in fascicles along rhachis; calyx hairy, corolla 0.3 cm long. Pods 1.5-2.0 cm long, linear-oblong, compressed, viscous hairy, 4-6 seeded.

Fls. & Frts. : August-November.

Illus. : Wight, Icon. t. 286. 1840.

Distrib. : Frequent in the undergrowth in deciduous forest in plains; Kankavli-Phonda-Bhairi pathar. Kudal-Nerur. Maiwan-Adari. Sawantwadi-Akeri-Nemle forest. Vengurla (Cooke, l. c.).

PTEROCARPUS Jacq. (*nom. cons.*)

Pterocarpus marsupium Roxb. Pl. Cor. 2 : 9. t. 116. 1799; Baker in Hook. f. Fl. Brit. India 2 : 239. 1876; Cooke, Fl. Pres. Bombay 1 : 427. 1958 (Repr. ed.). *Mar.* : *Asan*.

Trees, 10-15 m tall, bark thick, grey. Leaves 10-15 cm long, leaflets 5-7, 6—10 × 3.5-2 cm elliptic-ovate, coriaceous, glabrous on both sides, apex obtuse, rounded or retuse. Flowers yellow; in 10-15 cm long, terminal, brownish pubescent panicles; calyx brown pubescent, teeth very short, corolla 1.0-1.2 cm long. Pods 4 cm across, orbicular, glabrous, winged, 1-seeded.

Fls. & Frts. : December-March.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 431, fig. 242. 1909.

Distrib. : Scattered, in dry deciduous forest in plains; Kankavli Phonda.

PUERARIA DC.

Pueraria tuberosa (Roxb. ex Willd.) DC. Mem. Leg. 6 : 97. 1825 et Prodr. 2 : 240. 1825; Baker in Hook f. Fl. Brit. India 2 : 197. 1876; Cooke, Fl. Pres. Bombay 1 : 399. 1958 (Repr. ed.). *Hedysarum tuberosum* Roxb. ex Willd. Sp. Pl. 3 : 1197. 1802.

Extensive climbers, roots tuberous. Leaflets 8—20 × 6—15 cm, broadly ovate, subcoriaceous, silky hairy beneath, apex acuminate. Flowers bluish-violet; fasciculate, in 15-25 cm long paniced racemes; calyx densely silky, corolla 1.3 cm long. Pods 6-8 cm long, flat, covered with brown hairs, 4-6 seeded.

Fls. & Frts. : February-May.

Illus. : Wight, Icon. t. 412. 1840.

Distrib. : Cooke (*l. c.*) cites Vingorla' (Vengurla) as its locality based on collection by Nairne; so this species is included here.

PYCNOSPORA R. Br. ex Wight & Arn.

Pycnospora lutescens (Poir) Schindl. in J. Bot. 64 : 145. 1926; van Steenis in Reinwardtia 5 : 437. 1961. *Hedysarum lutescens* Poir. in Lamk. Encycl. 6 417. 1805. *Pycnospora hedysaroides* R. Br. ex Baker in Hook. f. Fl. Brit. India 2 : 153. 1876; Cooke Fl. Pres. Bombay 1 : 365. 1958 (Repr. ed.).

Weak, suberect herbs, 20-30 cm tall, branches hairy. Leaflets 1.5—2.5 × 0.8—2.4 cm, obovate, finely pubescent on both sides, apex obtuse, rounded or emarginate. Flowers purple; in 4-6 cm long, lax racemes; calyx pubescent, corolla 0.2 cm long. Pods 0.9-1.2 cm long, oblong-ellipsoid, turgid, pubescent, 6-10 seeded.

Fls. & Frts. : September-October.

Illus. : Gillet, Polhill & Verdcourt in Milne-Redhead & Polhill. Fl. Trop. E. Afr. Leguminosae, subfam. Papilionoideae pl. 3, 1 : 482. fig. 68. 1971.

Distrib Occasional in open, moist situations in plains; Kankavli Nandgaon. Vengurla (Cooke, *l. c.*).

SESBANIA Adanson. (*nom. cons.*)

1. Leaflets 20-35 pairs; pods 10-20 cm long .. *S. bispinosa*

1. Leaflets 10-15 pairs; pods 6-15 cm long .. *S. procumbens*

Sesbania bispinosa (Jacq.) W. F. Wight, U. S. Dept. Agr. Bur. Pl. Ind. Bull. 137 : 15. 1909; Gillett in Kew Bull. 17 : 129. 1963. *Aeschynomene bispinosa* Jacq. Ic. Pl. Rar. 3 : 13. t. 564. 1793. *Sesbania aculeata* (Willd.) Poir. in Lamk. Encycl. 7 : 128. 1806 (as *Sesban aculeatus*); Baker in Hook. f. Fl. Brit. India 2 : 114. 1876 (excl. vars.); Cooke, Fl. Pres. Bombay 1 : 350. 1958 (Repr. ed.). Mar. : *Ran-Shevari* ?

Erect herbs, 40-100 cm tall, sparingly branched, branchlets and leaf-rachis beset with scattered, minute prickles. Leaflets $0.8-1.5 \times 0.3$ cm, oblong-lanceolate, glabrous on both sides, apex obtuse-mucronate, base oblique. Flowers yellow with brown blotches; in short, 2-6-flowered racemes; calyx glabrous, corolla 1.0-1.5 cm long. Pods slightly falcate, beaked.

Fls. & Frts. : August-October.

Distrib. : Scattered in open, moist places along coast and lower slopes of the ghats as weed; Malwan-Padmagad. Sawantwadi-Ramghat.

S. procumbens (Roxb.) Wight & Arn. Prodr. 215. 1834. Baker in Hook. f. Fl. Brit. India 2 : 115. 1876; Cooke, Fl. Pres. Bombay 1 : 350. 1958 (Repr. ed.). *Aeschynomene procumbens* Roxb. Fl. Ind. 3 : 337. 1832.

Diffuse herbs, 30-40 cm tall, branches armed with inoffensive prickles. Leaflets 0.6×0.3 cm, linear-oblong, glabrous on both surfaces, apex obtuse-apiculate, base rounded. Flowers yellow; in 2-4-flowered racemes; calyx glabrous, membranous, corolla 0.6-0.8 cm long. Pods straight, erect, beaked.

Fls. & Frts. : February-March.

Distrib. : Scarce once only collected, in moist place along field edges; Sawantwadi-Bhedshi.

SMITHIA Aiton (*nom. cons.*)

1. Flowers solitary or in pairs in axils of crowded leaves ..	<i>S. conferta</i>
1. Flowers in terminal racemes or in corymbose panicles :	
2. Main stems glabrous, branches glabrous or sparsely hairy :	
3. Calyx parallel veined; joints of the pods less than 0.2 cm across ..	<i>S. sensitiva</i>
3. Calyx distinctly anastomosing veined; joints of the pods 0.25 cm or more across ..	<i>S. agharkarii</i>
2. Main stems as well as branches shortly and sparsely bristly :	
4. Flowers in racemes; upper calyx lip bigger than the lower :	
5. Bristles on calyx-lip with black bulbous bases; lower lip of calyx entire ..	<i>S. hirsuta</i>
5. Bristles on calyx-lip colourless or white bulbous bases; lower lip of calyx 3-lobed ..	<i>S. bigemina</i>
4. Flowers in dichotomously branched, few flowered, lax, corymbose panicles; upper lip of calyx smaller than the lower one ..	<i>S. subsurgens</i>

Smithia agharkarli Hemadri in Indian For. 97 (1) : 67-69. 1971.

Erect herbs, 9-15 cm tall, stems dichotomously branched, bristly in upper portion. Leaflets 0.5—1.2 × 0.2—0.4 cm, obovate, glabrous above, sparsely strigose beneath, apex obtuse and bristle-tipped. Flowers yellow; in 2-4 flowered racemes, calyx bristly, corolla 0.6-0.8 cm long. Pods 0.25 cm long, glabrous, 3-5 jointed, joints folded and orbicular.

Fls. & Frts. : September-October.

Illus. : Hemadri, *l. c.* 66. fig. 4-8.

Distrib. : Scattered in open, wet areas on ghat top; Sawantwadi-Amboli-Ramghat Road.

S. bigemina Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 208. 1851; Baker in Hook. f. Fl. Brit. India 2 : 149. 1876; Cooke, Fl. Pres. Bombay 1 : 360. 1958 (Repr. ed.).

Diffuse herbs, 10-20 cm tall, branches slender. Leaflets 0.8—1.2 × 0.4—0.8 cm, obovate to oblanceolate, glabrous above, sparsely hairy beneath, apex obtuse and bristle-tipped. Flowers yellow; 2-8 flowered racemes, crowded at the ends of peduncles; calyx bristly along margins, corolla 0.6-0.8 cm long. Pods 0.4 cm long, 6-8 jointed, joints 0.1-0.12 cm across, tubercled.

Fls. & Frts. : September-November.

Distrib. : Infrequent along the slopes of the ghats in open, moist situations; Kankavli-Phondaghat. Sawantwadi-Amboli-Nangartas, Danoli.

S. conferta J. E. Smith in Rees, Cycl. 33 : n. 2. 1819; Cooke, Fl. Pres. Bombay 1 : 358. 1958 (Repr. ed.); van Meeuwen in Reinwardtia 5 : 445. 1961. *S. geminiflora* Roth var. *conferta* Baker in Hook. f. Fl. Brit. India 1 : 149. 1876.

Diffuse, ascending herbs, stems glabrous. Leaflets 4-6 pairs, 0.6—0.9 × 0.15—0.3 cm, linear-oblong, apex obtuse or subacute, bristle-tipped, bristly along the margins and on midrib beneath. Flowers yellow, calyx bristly at apex, corolla 0.8-1.0 cm long. Pods 0.4 cm long, 3-6 jointed, joints 0.15 cm across, turgid, papillose.

Fls. & Frts. : August-November.

Distrib. : Common in open, moist situations in plains and in fields; Kankavli-Phonda-Devichi Rai. Malwan-Adari Road. Sawantwadi-Ajgaon. Vengurla-Math forest, Vagiri forest.

S. hirsuta Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 135. 1851; Cooke, Fl. Pres. Bombay 1 : 361. 1958 (Repr. ed.). *S. blanda* Wall. ex Wight & Arn. var. *racemosa* Baker in Hook f. Fl. Brit. India 2 : 151. 1876, *p. p.*

Erect, 15-20 cm tall herbs, stems and branches sparsely bristly. Leaflets 3-4 pairs, 0.9—1.5×0.6—1.2 cm, obovate to oblanceolate, apex rounded, bristle tipped, margins ciliate. Flowers yellow; in 4-10 flowered, capitate-racemes; calyx bristly, corolla 1.5 cm long. Pods 0.4 cm long, 4-6 jointed, joints 0.2 cm across, orbicular, reticulate.

Fls. & Frts. : September-October.

Distrib. : Scattered in open, rocky plain on ghat top; Sawantwadi-Amboli-Nangartas and Ramghat Road.

S. salsuginea Hance in J. Bot. 7 : 164. 1869; Cooke, Fl. Pres. Bombay 1 : 362. 1958 (Repr. ed.). *S. dichotoma* Dalz. ex Baker in Hook. f. Fl. Brit. India 2 : 150. 1876.

Annual herbs, 15-30 cm tall, branches reddish-brown, glabrous. Leaflets 2-4 pairs, 0.6-1.2×0.3-0.4 cm, oblanceolate, drying brownish, glabrous on both sides, margins ciliate, apex obtuse, mucronate. Flowers yellow; in few flowered, lax corymbose-panicles; calyx almost glabrous, margins ciliate, corolla 0.8-1.0 cm long. Pods 0.6-0.7 cm long, 8-12 jointed, joints 0.3 cm across, papillose.

Fls. & Frts. : September-October.

Distrib. : Frequent, in open, moist places from lowers lopes of the ghats to coastal hilly areas; Kankavli-Digwal Road, Nandgaon, Osargaon, Phonda-Bhairi pathar and Devichi Rai. Malwan-Adari Road. Sawantwadi-Ajgaon, Akeri-Mangaon forest, Ambolighat-Nanapani.

S. sensitiva Aiton. in Hort. Kew. 3 : 496. 1789; Baker in Hook. f. Fl. Brit. India 2 : 148. 1876; Cooke, Fl. Pres. Bombay 1 : 357. 1958 (Repr. ed.).

Procumbent herbs, much branched, branches glabrous, ascending. Leaflets 4-10 pairs, 0.6—1.2×0.3—0.4 cm, linear-oblong, glabrous on both surfaces except on nerves, nerves long hairy on both sides, apex obtuse, bristle tipped. Flowers yellow; in 2-5 flowered racemes; calyx sparsely long hairy on back, corolla 0.9-1.5 cm long. Pods 0.5-0.6 cm long, 4-6 jointed, joints 0.15-0.2 cm across, suborbicular, papillose.

Fls. & Frts. : August-November.

Distrib. : Frequent in open grassy areas and in paddy fields in plains; Kudal-Ghotge, Kadaval. Sawantwadi-Akeri-Mangaon forest. Vengurla-Math forest.

TEPHROSIA Pers. (*nom. cons*)

Tephrosia tinctoria (L.) Pers. Syn. Pl. 2 : 329. 1807; Baker in Hook. f. Fl. Brit. India 2 : 111. 1876; Cooke, Fl. Pres. Bombay 1 : 345. 1958 (Repr. ed.). *Galega tinctoria* L. Syst. Nat. ed. 10, 1172. 1759.

Woody herbs or undershrubs, 20-150 cm tall, branches grey pubescent. Leaflets 3-11, 1-7 × 0.6-3.0 cm, elliptic-oblong or oblanceolate, terminal one largest, subcoriaceous, glabrous above, densely silky beneath, apex acute, obtuse or emarginate. Flowers pale scarlet to bright pink; in short, 2-8 flowered racemes; calyx grey hairy, corolla 0.8-1.0 cm long. Pods 4-6 cm long, oblong, flat, hairy, 8-12 seeded.

Fls. & Frts. : September-November.

Illus. : Wight, Icon. 388. 1840.

Distrib. : Frequent, in shady places or in open situations on slopes of the ghats and in hilly areas in plains; Kankavli-Kudal Road, Nandgaon-Belachi Rai, Naradave. Malwan-Adari Road. Sawantwadi-Ambolighat-Nanapani, Danoli-Kesari R. F., Ramghat.

TERAMNUS P. Browne

Teramnus labialis (L. f.) Spreng. Syst. 3 : 235. 1826; Baker in Hook. f. Fl. Brit. India 2 : 184. 1876.; Cooke, Fl. Pres. Bombay 1 : 387. 1958 (Repr. ed.). *Glycine labialis* L. f. Suppl. 325. 1781. *Mur.* : 'Ran-udld'.

Twining herbs, branches appressed hairy. Leaflets 2.5-6.5 × 1.5-3.0 cm, ovate-oblong or elliptic-oblong, glabrous above, pubescent beneath, apex acute. Flowers reddish-purple; in 4-10 cm long, lax racemes; calyx silky, corolla 0.4-0.6 cm long. Pods 2.5-5.0 cm long, linear, straight, glabrous when mature, with upwards bent beak, 8-10 seeded.

Fls. & Frts. : October-November.

Illus. : Wight, Icon. t. 168. 1839.

Distrib. : Frequent in the undergrowth in deciduous forest along the slopes of the ghats and in plains; Kankavli-Phonda. Kudal-Ghotge. Sawantwadi-Akeri-Mangaon forest, Amboli R. F., Ambolighat-Nanapani, Khanate, Ramghat. Vengurla-Math forest.

URARIA Desv.

Uraria rufescens (DC) Schindl. in Fedde, Repert. 21 : 14. 1925; van Meeuwen in Reinwardtia 5 : 453. 1961. *Desmodium rufescens* DC. in Ann. Sci. Nat. 4 : 101. 1825. *Uraria hamosa* Wall. ex Wight & Arn. Prodr. 222. 1834; Baker in Hook. f. Fl. Brit. India 2 : 156. 1876; Sant. in J. Bombay nat. Hist. Soc. 53 : 214. 1955.

Woody undershrubs, 1 m tall, branches pubescent. Leaflets $2.5-6.5 \times 2.0-4.5$ cm, oblong-elliptic or ovate, hairy below and on the nerves above, apex acute or mucronate. Flowers purple; in 10-20 cm long, paniculate-racemes; calyx long hairy, corolla 0.6-0.8 cm long. Pods 0.8-1.0 cm long, joints folded one above the another, 0.2 cm across, pubescent.

Fls. & Frts. : October-February.

Illus. : Wight, Icon. t. 284. 1840.

Distrib. : Occasional, in shady, moist places in deciduous forest in plains; Kankavli-Digwal Road. Sawantwadi-Khanale.

VIGNA Savi

This genus is distinguished from *Phaseolus* L. on the basis of characters such as stipule prolonged below the point of insertion, keel erect, incurved; style ending beyond stigma, as against stipule not prolonged below the insertion point, keel spiral and style not ending beyond stigma (in *Phaseolus* L.). This interpretation still needs monographic research for final solution. It is followed here after the recent work by B. Verdcourt (Kew Bull. 24(3) : 507-569. 1970).

1. Roots fusiform; flowers 3.5-4.0 cm broad	..	<i>V. vexillata</i>
1. Roots not fusiform; flowers less than 3.5 cm broad :		
2. Flowers reddish	..	<i>V. pilosa</i>
2. Flowers yellow :		
3. Plants glabrous or puberulous; pods glabrous	..	<i>V. dalzelliana</i>
3. Plants brownish hairy; pods hairy	..	<i>V. radiata</i> var. <i>sublobata</i>

Vigna dalzelliana (Kuntze) Verdcourt in Kew Bull. 24 : 558. 1970. *Phaseolus dalzellianus* Kuntze, Rev. Gen. pl. 1 : 202. 1891. *P. dalzellii* Cooke, Fl. Pres. Bombay 1 : 376. 1902 et 1 : 401. 1958 (Repr. ed.). *P. pauciflorus* Daiz. Hook. J. Bot. & Kew Gard. Misc. 3 : 209. 1852; Baker in Hook. f. Fl. Brit. India 2 : 202. 1876.

Herbaceous twiners, stems and branches wiry, glabrous or hairy. Leaflets 1.5—3.0 × 1—2 cm, ovate-elliptic, tendency to become lobate, thin, hairy on both sides. Flowers in 2-4 flowered, short racemes; calyx hairy, corolla 0.6-0.8 cm long. Pods 3-4 cm long, cylindric, glabrous, 6-8 seeded.

Fls. & Frts. : October-November.

Distrib. : Scattered along the ghats in open situations; Sawantwadi-Amboli-Hiranyakeshi, Ambolighat-Nanapani, Chaukul, Ramghat.

V. pilosa (Willd.) Baker in Hook. f. Fl. Brit. India 2 : 207. 1876; Verdcourt in Kew Bull. 24 : 561. 1970. *Dolichos pilosus* Willd. Sp. Pl. 3 : 1043. 1802.

Slender climbers, branches grey hairy. Leaflets 8—15 × 4—7 cm, ovate-elliptic, thin, hairy on both sides, apex acute. Flowers in 6-10 flowered racemes; calyx silky hairy, corolla 0.6-0.8 cm long. Pods 5-8 cm long, compressed, densely brownish hairy, with long beak, 6-8-seeded.

Fls. & Frts. : January-March.

Illus. : Icon. Roxb. Fasc. 6 : t. 291. 1973 (Repr. ed.).

Distrib. : Occasional, in shady, moist places in deciduous forest; Sawantwadi-Khanale.

V. radata (L.) Wilczek var. *sublobata* (Roxb.) Verdcourt in Kew Bull. 24 : 559. 1970. *Phaseolus sublobatus* Roxb. Fl. Ind. 3 : 288. 1832; Cooke, Fl. Pres. Bombay 1 : 402. 1958 (Repr. ed.). *P. trinervius* Heyne ex Wight & Arn. Prodr. 245. 1834; Baker in Hook. f. Fl. Brit. India 2 : 203. 1876.

Erect or twining herbs. Leaflets 2—7 × 2.4—5.0 cm, ovate-elliptic, or ovate-rhomboid, appressed hairy on both sides. Flowers in 2-6 flowered, short racemes; calyx hairy along margins, corolla 1.0-1.5 cm long. Pods 3-4 cm long, cylindric, hairy, 6-8-seeded.

Fls. & Frts. : September-November.

Distrib. : Frequent along the slopes of the ghats and in plains in deciduous forest or in open situations; Kankavli-Nandgaon, Phondaghat. Malwan-Sindhudurg. Sawantwadi-Danoli.

V. vexillata (L.) A. Rich. in Sagra, Hist. Fis. Polit. Nat. 1, 11 : 191. 1845; Baker in Hook. f. Fl. Brit. India 2 : 206. 1876; Verdcourt in Kew Bull. 24 : 533. 1970. *Phaseolus vexillatus* L. Sp. Pl. 724. 1753. *Vigna capensis* Walp. in

Linnaea 13 : 533. 1839; Cooke, Fl. Pres. Bombay 1 : 404. 1958 (Repr. ed.).
Mar. : ' *Bhurmul* '.

Twiners, stems sparsely pubescent. Leaflets $2.5-7.5 \times 1.8-3.5$ cm, elliptic-ovate, apex acuminate, hairy when young, glabrous later. Flowers pale pink; in 1-4-flowered, short racemes; calyx glabrous. Pods 6-8 cm long, oblong, glabrous with age, compressed.

Fls. & Frts. : September-November.

Distrib. : Frequent in deciduous forest from the higher slopes of the ghats to plains; Kankavli-Phondaghat. Kudal-Shivapur paz. Malwan-Adari. Sawantwadi-Amboli, Ramghat, Terwan.

ZORNIA J. F. Gmelin

Zornia gibbosa Spanoghe in Linnaea 15 : 192. 1841; Dandy & Milne-Redhead in Kew Bull. 17 : 73-74. 1963; Wagh in J. Bombay nat. Hist. Soc. 61 : 214. 1964. *Z. diphylla* auct. non (L.) Pers. Baker in Hook. f. Fl. Brit. India 2 : 147. 1876; Cooke, Fl. Pres. Bombay 1 : 355. 1958 (Repr. ed.). *Mar.* : *Landgu* '.

Spreading herbs, branches sparsely pubescent, sometimes glabrous. Leaflets $0.8-2.5 \times 0.4-0.8$ cm, lanceolate, glabrous, gland-dotted. Flowers yellow; in lax racemes enclosed by foliaceous, gland-dotted bracts; calyx ciliate, corolla 0.6 cm long. Pods 1-2 cm long, 2-6 jointed, joints echinate, compressed, indehiscent.

Fls. & Frts. : August-October.

Illus. : Maheshwari, Illus. Fl. Delhi, fig. 64. 1966.

Distrib. : Frequent in grassy, open, moist situations in plains; Kankavli-Nandgaon. Kudal-Ghotge. Sawantwadi-Akeri-Nemie forest, Danoli.

CAESALPINIACEAE

Leaves simple, bilobed; calyx spathaceous	..	<i>Bauhinia</i>
Leaves compound; calyx not spathaceous :		
2. Leaves pinnate		
3. Calyx petaloid, petals absent	..	<i>Soraea</i>

3. Calyx not petaloid, petals present :
4. Petals 5 .. *Cassia*
4. Petals 3 .. *Tamarindus*
2. Leaves bipinnate :
5. Flowers and fruits sessile or subsessile .. *Wagatea*
5. Flowers and fruits distinctly pedicelled .. *Caesalpinia*

BAUHINIA L.

1. Flowers solitary or paired, 6-8 cm across *B. tomentosa*
- Flowers in racemes, 3 cm across .. *B. racemosa*

Bauhinia racemosa Lamk. Encycl. 1 : 390. 1785; Baker in Hook. f. Fl. Brit. India 2 : 276. 1878; Cooke, Fl. Pres. Bombay 1 : 459. 1958 (Repr. ed.).
Mar. : 'Apta'.

Small trees, 5-8 m tall, branches drooping. Leaves 3—5 × 4—6 cm, sub-orbicular, broader than long, bilobed, glabrous above, hairy beneath, base cordate. Flowers white or faintly yellowish-white; in terminal or leaf-opposed, 4-7 cm long racemes; calyx pubescent, petals oblanceolate. Pods 15-20 cm long, linear-oblong, turgid, glabrous.

Fls. & Frts. : September-March.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 462. figs. 262 & 263. 1909.

Distrib. : Frequent in deciduous forest along the slopes of the ghats to plains; Kankavli-Bhironde. Kudal-Ghotge, Shivapur paz. Sawantwadi-Ambolighat-Nanapani, Ramghat.

B. tomentosa L. Sp. Pl. 375. 1753; Baker in Hook. f. Fl. Brit. India 2 : 275. 1878; Cooke, Fl. Pres. Bombay 1 : 459. 1958 (Repr. ed.).

Shrubs, 5 m tall, young parts tomentose. Leaves 2—4 × 4—7 cm, broader than long, base truncate, glabrous above, pubescent beneath. Flowers yellow; 1-3 in axillary or leaf-opposed; calyx pubescent, petals ovate. Pods 10-15 cm long, flat, oblong, puberulous.

Fls. & Frts. : September-October.

Distrib. : Probably cultivated, found as an escape in deciduous forest; Deogad-Naringre. Kankavli-Osargaon.

CAESALPINIA L.

1. Pods flat, woody, smooth, 1-seeded	..	<i>C. crista</i>
1. Pods turgid, not woody, bristly or prickly, 1-3 seeded :		
2. Pinnae 6-8 pairs; pods prickly	..	<i>C. bonduc</i>
2. Pinnae 10-12 pairs; pods bristly	..	<i>C. mimosoides</i>

Caesalpinia bonduc (L.) Roxb. Fl. Ind. 2 : 362. 1832, *emend.* Dandy & Exell in J. Bot. 76 : 175. 1938; Baker in Hook. f. Fl. Brit. India 2 : 255. 1878; Hattink in Reinwardtia 9 : 17. 1974. *Guilandina bonduc* L. Sp. Pl. 381. 1753. *Caesalpinia bonducella* (L.) Fleming in Asiat. Res. 11 : 159. 1810; Baker in Hook. f. l. c. : 254; Cooke. Fl. Pres. Bombay 1 : 437. 1958 (Repr. ed.). *Mar.* : 'Sugargota'.

Prickly, extensive climbers, branches grey pubescent. Leaflets 1.5—3.0 × 1—2 cm, elliptic-oblong, membranous, glabrous above, puberulous beneath, apex obtuse with mucro. Flowers yellow; in terminal or axillary racemes; calyx hairy, petals oblanceolate. Pods 4-8 cm long, ovoid-oblong. Seeds oblong, shining, grey coloured.

Fls. & Frts. : September-February.

Distrib. : Scattered, along coastal area, in hedges; Deogad-Tar-mumbri. Malwan-Achre.

C. crista L. Sp. Pl. 380. 1753; Hattink in Reinwardtia 9 : 20. 1974. *C. nuga* (L.) Aiton in Hort. Kew. ed. 2, 3 : 32. 1811; Baker in Hook. f. Fl. Brit. India 2 : 255. 1878; Cooke, Fl. Pres. Bombay 1 : 438. 1958 (Repr. ed.).

Armed, extensive climbers, branches glabrous. Leaflets 2-3 pairs, 2.5—4.5 × 1.5—2.5 cm, ovate or elliptic, glaucous beneath, glabrous above, apex acute. Flowers 1.5—2.0 cm across, yellow; in terminal racemes; calyx glabrous. Pods 5 × 3 cm, obliquely ellipsoid, 1-seeded.

Fls. & Frts. : October-February.

Distrib. : Frequent, along back water areas in salty, sandy soil; Deogad-Port Road. Kudal-Kochre coast. Malwan-Achre creek, Kalawli creek.

C. mimosoides Lamk. Encycl. 1 : 452. 1785; Baker in Hook. f. Fl. Brit. India 2 : 256. 1878; Cooke, Fl. Pres. Bombay 1 : 439. 1958 (Repr. ed.).

Armed, scandent shrubs, prickles straight, young branches yellowish. Leaflets 10-20 pairs, 0.8—1.0 × 0.2—0.25 cm, oblong, subsessile, apex rounded,

apiculate, glabrous on both sides. Flowers 2.0-2.5 cm across; in racemes; calyx pubescent, corolla black dotted. Pods 4-5 cm long, obliquely oblong, 1-3 seeded.

Fls. & Frts. : November-February.

Illus. : Wight, Icon. t. 392, 1840.

Distrib. : Scattered, in deciduous forest in plains, once only collected; Sawantwadi-Tirali jungle, Ramghat (Cooke, l. c.).

CASSIA L.

1. Trees or shrubs :

2. Leaflets 4-8 pairs; pods cylindric	..	<i>C. fistula</i>
2. Leaflets more than 8 pairs; pods flat	..	<i>C. timorensis</i>

1. Undershrubs or herbs :

3. Leaflets more than 20 pairs, sessile	..	<i>C. mimosoides</i>
3. Leaflets 3-6 pairs, petiolulate :		
4. Petiole with a gland above the middle	..	<i>C. occidentalis</i>
4. Petiole eglandular, rhachis with glands between leaflets :		
5. Plants viscous; pods flat	..	<i>C. absus</i>
5. Plants not viscous; pods subtrigonous	..	<i>C. tora</i>

Cassia absus L. Sp. Pl. 376, 1753; Baker in Hook. f. Fl. Brit. India 2 : 265, 1878; Cooke, Fl. Pres. Bombay 1 : 451, 1958 (Repr. ed.).

Undershrubs, 40-60 cm tall, branches glandular hairy. Leaflets 2 pairs, 1—3 × 1.0—2.5 cm, elliptic-oblong, glabrous on both sides with age, thin, apex acute with mucro, base oblique. Flowers 0.6-1.0 cm across, yellow; in 3-4 cm long racemes, calyx hairy. Pods 3.0-3.5 cm long, obliquely oblong, compressed, 4-6 seeded.

Fls. & Frts. : August-November.

Distrib. : Frequent in deciduous forest in plains, in open situations and along roadsides; Deogad-Naringre. Kankavli-Nandgaon-Belachi Rai, Malwan-Adari Road. Sawantwadi-Bhedshi-Karnyachi Rai, Danoli-Kesari R. F. Vengurla (Cooke, l. c.).

C. fistula L. Sp. Pl. 377, 1753; Baker in Hook. f. Fl. Brit. India 2 : 261, 1878; Cooke, Fl. Pres. Bombay 1 : 444, 1958 (Repr. ed.).

Small trees, 5-8 m tall, young branches pale grey. Leaves 15-40 cm long, leaflets 10—16 × 4—6 cm, ovate to lanceolate, coriaceous, glabrous above, glaucous beneath, apex acute. Flowers 3.0-3.5 cm across, bright yellow; in drooping, 15-30 cm long racemes; calyx pubescent. Pods 25-40 cm long, smooth, brownish-black, many seeded.

Fls. & Frts. : April-August.

Illus. : Wight, Icon. t. 269. 1840.

Distrib. : Frequent in deciduous forest along the slopes of the ghats and at tops; Kankavli-Kumbhavde. Kudal-Ghotge. Sawantwadi-Amboli-Nangartas, Ramghat.

C. mimosoides L. Sp. Pl. 379. 1753; Baker in Hook. f. Fl. Brit. India 2 : 266. 1878; Cooke, F. Pres. Bombay 1 : 453. 1958. (Repr. ed.).

Spreading herbs, branches sometimes ascending. Leaflets 0.8—1.0 × 0.2 cm, oblong, apex mucronate, base oblique, margins hairy. Flowers yellow, 1 cm across; solitary or 2-3 together, axillary; calyx hairy. Pods 3-4 cm long, linear, flat, hairy, dehiscent, 15-20 seeded.

Fls. & Frts. : July-December.

Distrib. : Common in open situations and along roadsides in plains; Deogad-Naringre. Kankavli-Nandgaon. Sawantwadi-Akeri-Forest Rest House Campus, Banda.

C. occidentalis L. Sp. Pl. 377. 1753; Baker in Hook. f. Fl. Brit. India 2 : 262. 1878; Cooke, Fl. Pres. Bombay 1 : 445. 1958 (Repr. ed.).

Undershrubs, branches sparsely hairy. Leaflets 3-6 pairs, 3.5—9.5 × 2.0—3.5 cm, lanceolate, thin, glabrous on both sides or sometimes pubescent beneath, margins ciliate, apex acute with mucro. Flowers bright yellow, 1.5-2.0 cm across; in 5-8 cm long racemes; calyx hairy. Pods 9-11 cm long, linear-oblong, compressed, transversely septate, pale yellow along the margins and pale brown in the centre.

Fls. & Frts. : September-October.

Distrib. : Scattered, in open situations and along road sides in plains; Kankavli-Kudal Road. Malwan-Sindhudurg.

C. timorensis DC. Prodr. 2 : 499. 1825; Baker in Hook. f. Fl. Brit. India 2 : 265. 1878; Cooke, Fl. Prés. Bombay 1 : 451. 1958 (Repr. ed.).

Shrubs or small trees, 3-5 m tall, young parts fulvous hairy. Leaflets 10-20 pairs, 2—3 × 0.6—1.0 cm, oblong, thin, hairy on both sides, apex mucro-

nate, base rounded. Flowers 1.0-1.5 cm across, bright yellow; in corymbose-racemes, pedicels fulvous pubescent; calyx hairy. Pods 10-15 cm long, oblong, shining, black when dry.

Fls. & Frts. : October-May.

Distrib. : Scarce, once only collected in deciduous forest; Sawantwadi-Hewale on Bhedshi-Ramghat Road.

C. tora L. Sp. Pl. 376. 1753; Baker in Hook. f. Fl. Brit. India 2 : 263. 1878, *p. p.*; Cooke, Fl. Pres. Bombay 1 : 447. 1958 (Repr. ed.).

Erect herbs, 0.5-1.0 m tall. Leaflets 2-3 pairs, 2.5 × 1—3 cm, obovate, thin, glabrous on both sides, margins ciliate, apex obtuse with mucro. Flowers 1 cm across, yellow; in axillary pairs; calyx glabrous. Pods 8-12 cm long, obliquely septate, hairy, 20-30 seeded.

Fls. & Frts. : September-November.

Distrib. : Frequent, in open areas, on sandy river bank and in waste places; Deogad-Naringre. Kankayli-Janoli river bank. Kudal-Varad. Malwan-Sindhudurg.

SARACA L.

Saraca asoca (Roxb.) de Wilde in Blumea 15 : 393. 1968; Zuiderhoudt in Blumea 15 : 422. 1968. *Jonesia asoca* Roxb. in Asiat. Res. 4 : 365. 1795. *Saraca indica* auct. non L. (1753); Bedd. Fl. Sylv. t. 57. 1870; Baker in Hook. f. Fl. Brit. India 2 : 271. 1878; Cooke, Fl. Pres. Bombay 1 : 456. 1958 (Repr. ed.). *Mar.* : *Ashok*.

Small trees, 8-10 m tall, branches glabrous. Leaflets 4 pairs, 6-16 × 3-4 cm, oblong-elliptic, glabrous on both sides, apex acute to acuminate. Flowers orange-yellow; in corymbose-panicles; calyx tube 2 cm long, 2 cm across. Pods 11—18 × 3.5—4.5 cm, oblong, compressed, slightly turgid, apiculate.

Fls. & Frts. : March-May.

Illus. : Wight, Icon. t. 206. 1839; Bedd. *l. c.*

Distrib. : Occasional, on the outskirts of semi-evergreen forest and near streams along slopes of the ghats and in sacred groves; Kudal-Narur Rai. Sawantwadi-Hewale, Ramghat.

TAMARINDUS L.

Tamarindus indica L. Sp. Pl. 34. 1753; Baker in Hook. f. Fl. Brit. India 2 : 273. 1878; Cooke, Fl. Pres. Bombay 1 : 457. 1958 (Repr. ed.). Mar. : 'Chinch'.

Trees, 10-15 m tall. Leaves pinnately compound, leaflets 10-15 pairs, 0.9—1.5 × 0.4—0.5 cm, oblong, glabrous on both sides, apex obtuse or emarginate with mucro. Flowers yellow with red stripes; in 3-6 cm long racemes; calyx ciliate along margins, 0.5-1.0 cm long, petals equalling the sepals. Pods 8—15 × 2.5—3.0 cm, oblong, usually curved, beaded.

Fls. & Frts. : April-November.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 459. fig. 260. 1909*

Distrib. : Infrequent, along roads in plains, usually planted; Kankavli-Phonda Rai.

WAGATEA Dalz.

Wagatea spicata Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 90. 1851; Baker in Hook. f. Fl. Brit. India 2 : 261. 1878; Cooke, Fl. Pres. Bombay 1 : 443. 1958 (Repr. ed.). Mar. : 'Vakeri'.

Armed, scandent shrubs. Leaflets 5-7 pairs, 2—6 × 1—3 cm, elliptic-oblong, glabrous above, pubescent beneath, apex acute, obtuse or rounded. Flowers 1.8-2.5 cm long and 1 cm across, yellowish-red; in terminal 35-45 cm long racemes; calyx puberulous, red, corolla yellow. Pods 5-10 × 2 cm, linear-oblong, red, constricted between seeds.

Fls. & Frts. : November-April.

Illus. : Wight, Icon. t. 1995. 1853.

Distrib. : Frequent in moist deciduous forest along the ghats and occasionally in plains; Deogad-Naringre. Sawantwadi-Ambolighat-Temple point, Chaukul, Ramghat.

MIMOSACEAE

1. Inflorescence spikes :

2. Tendrillar, unarmed climbers; pods woody	..	Euradea
2. Erect trees or shrubs, armed; pods not woody	..	

1. Inflorescence capitate :
3. Pods jointed, joints of mature pods separate from persistent sutures .. *Mimosa*
3. Pods not jointed, joints of mature pods do not separate :
4. Pods woody, falcate .. *Xylia*
4. Pods not woody, straight :
5. Plants armed .. *Acacia*
5. Plants unarmed .. *Albizia*

ACACIA Mill.

1. Erect trees or shrubs, armed with stipular spines :
 2. Pods cylindric, turgid .. *A. farnesiana*
 2. Pods flat .. *A. chundra*
1. Climbing shrubs, armed with prickles :
 3. Pods thick, fleshy, indehiscent .. *A. sinuata*
 3. Pods thin, not fleshy, dehiscent :
 4. Pinnae 6-9 pairs; flowers sessile .. *A. tortu*
 4. Pinnae 12-15 pairs; flowers pedicellate .. *A. pennata*

Acacia chundra (Rottl.) Willd. Sp. Pl. 4 : 1078. 1806; Chatterjee in Sci. & Cult. 14 (7) : 290. 1949. *Mimosa chundra* Roxb. ex Rottl. Ges. Naturf. Freunde Berlin Neue Schriften 4:207.1803; Roxb. Pl. Cor. t. 225. 1811 (*sundra*). *Acacia sundra* (Roxb.) DC. Prodr. 2 : 458. 1825; Baker in Hook. f. Fl. Brit. India 2 : 295. 1878. *A. catechu* Willd. var. *sundra* (Roxb.) Prain in J. Asiat. Soc. Bengal 66 : 508-510. 1898; Cooke, Fl. Pres. Bombay 1 : 477. 1958 (Repr. ed.). Mar. : *Khair*¹.

Small trees, 3-6 m tall. Leaves with 8-16 pairs of pinnae, leaflets 25-35 pairs, 0.6—0.8 × 0.1 cm, oblong, glabrous on both sides, apex obtuse or acute, base oblique. Flowers white; in 6-9 cm long spikes; calyx and corolla glabrous. Pods 6-9 × 1.5—2.0 cm, flat, oblong, brown, with beak, base tapering.

Fls. & Frts. : June-October.

Illus. : Bedd. Fl. Sylv. t. 50. 1870.

Distrib. : Frequent in deciduous forest in plains; Kankavli-Phonda, Phondaghat. Kudal-Bhadgaon, Kadaval. Sawantwadi-Kudasa. Vengurla-Muth forest.

A. farnesiana (L.) Willd. Sp. Pl. 4 : 1083. 1806; Baker in Hook. f. Fl. Brit. India 2 : 293. 1878; Cooke, Fl. Pres. Bombay 1 : 473. 1958 (Repr. ed.). *Mimosa farnesiana* L. Sp. Pl. 521. 1753. Mar. : 'Dev-babhal', 'Shengati'.

Shrubs, 2-3 m tall. Leaves with 3-4 pairs of pinnae, leaflets 10-20 pairs, 0.3—0.4 × 0.1 cm, linear-oblong, greyish-green, glabrous on both sides, apex acute. Flowers yellow; in 1 cm across heads; calyx and corolla glabrous. Pods 4-5 cm long, obliquely subcylindric.

Fls. & Frts. : January-February.

Illus. : Wight, Icon. t. 300. 1840.

Distrib. : Scarce, in coastal areas along roadsides; Deogad-Vada-tar.

A. pennata (L.) Willd. Sp. Pl. 4 : 1090. 1806; Baker in Hook. f. Fl. Brit. India 2 : 297. 1878; Cooke, Fl. Pres. Bombay 1 : 480. 1958 (Repr. ed.) *Mimosa pennata* L. Sp. Pl. 522. 1753. Mar. : 'Shembi'.

Scandent shrubs, prickly, young branches pubescent. Leaflets 40-50 pairs, 0.4—0.6 × 0.05 cm, oblong, glabrous on both sides, apex obtuse. Flowers white; in heads, 1 cm across; calyx and corolla glabrous, margins of the lobes ciliate. Pods 9-15 cm long, oblong, flat, tapering at both ends, brown when mature.

Fls. & Frts. : April-October.

Distrib. : Frequent, on the outskirts of deciduous forest and in open situations along the ghats; Kankavli-Phondaghat. Sawantwadi-Ambolighat-Nanapani, Danoli, Gavata.

A. sinuata (Lamk.) Merr. in Trans. Amer. Philos. Soc. 24 : 186. 1935; Sant. Fl. Khandala ed. 3, 84. 1967. *Mimosa sinuata* Lour. Fl. Cochinch. 653. 1790. *Acacia concina* (Willd.) DC. Prodr. 2 : 464. 1825; Baker in Hook. f. Fl. Brit. India 2 : 296. 1878; Cooke, Fl. Pres. Bombay 1 : 479. 1968 (Repr. ed.). Mar. : 'Shikekai'.

Prickly, climbing shrubs, young branches brown. Leaves with 6-8 pairs of pinnae, leaflets 15-20 pairs, 0.6—0.8 × 0.1—0.14 cm, oblong, glabrous on both sides, apex acute, base oblique. Flowers white; in 1.0-1.2 cm across heads; petals ciliate along the margins. Pods 8—12 × 2 cm, oblong reddish-brown when mature, wrinkled.

Fls. & Frts. : March-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 491. fig. 271. 1909.

Distrib. : Frequent in deciduous forest from ghat top to coastal hilly areas; Deogad-Naringre. Kankavli-Phondaghat. Sawantwadi-Amboli, Ramghat.

A. torta (Roxb.) Craib, Bull. Misc. Inform. 410. 1915; Sant. in J. Bombay nat. Hist. Soc. 50 : 312. 1951. *Mimosa torta* Roxb. Fl. Ind. 2 : 566 1832. *Acacia caesia* Wight & Arn. Prodr. 278. 1834 (*non* Willd. 1806); Cooke, Fl. Pres. Bombay 1 : 480. 1958 (Repr. ed.). *Acacia justia* Willd. var. *caesia* Baker in Hook. f. F. Brit. India. 2 : 297. 1878.

Scandent shrubs, hooked prickly. Leaflets 20-35 pairs, $0.6-0.9 \times 0.15-0.2$ cm, obliquely oblong, glabrous above, glaucous-brown beneath, apex acute, margins ciliate. Flowers white; in 1 cm across heads; calyx and corolla brown pubescent, corolla twice as long as calyx. Pods $8-11 \times 2.4-3.2$ cm, oblong, with mucro at tip, brown.

Fls. & Frts : April-September.

Distrib. : Frequent in deciduous forest along the slopes of the ghats and in plains; Kankavli-Phondaghat, Sangwe. Sawantwadi-Ambolighat, Kudasa.

ALBIZIA DURAZZ.

1. Pinnae 2-6 pairs; leaflets more than 1 cm long :	
2. Flowers pedicelled; heads not in panicles	.. <i>A. lebbek</i>
2. Flowers sessile; heads in panicles	.. <i>A. odoratissima</i>
1. Pinnae more than 6 pairs; leaflets less than 1 cm long	.. <i>A. chinensis</i>

Albizia chinensis (Osbeck) Merr. in Amer. J. Bot. 3 : 575 1916. *Mimosa chinensis* Osbeck. Dag. Ostind. Resa 233. 1757. *Albizia stipulata* (Roxb.) Boivin, Encycl. 19. Siecle 2 : 33. 1838; Baker in Hook. f. Fl. Brit. India 2 : 300. 1878; Cooke, Fl. Pres. Bombay 1 : 483. 1958 (Repr. ed.).

Trees, 10-15 m tall, young branches, rachis and inflorescence yellow pubescent. Leaves with 7-15 pairs of pinnae, leaflets 25-40 pairs, $0.4-0.8 \times 0.1$ cm, oblong-lanceolate, glabrous on both sides, margins ciliate, apex acute. Flowers pinkish-white; in 1.5-2.0 cm across heads; calyx and corolla lobe-tips hairy. Pods $20 \times 2.5-3.0$ cm, oblong, pale brown, flat.

Fls. & Frts. : April-August.

Illus. : Bedd. Fl. Sylv. t. 55. 1870.

Distrib. : Scattered; in moist deciduous forest along the ghats; Kankavli-Phondaghat. Sawantwadi-Amboli, Ramghat

A. lebbeck (L.) Benth. in Hook. London J. Bot. 3 : 87. 1844; Baker in Hook. f. Fl. Brit. India 2 : 298. 1878; Cooke, Fl. Pres. Bombay 1 : 481. 1958 (Repr. ed.). *Mimosa lebbeck* L. Sp. 516. 1753.

Trees, 10-15 m tall, young parts pubescent. Leaflets 3-4 pairs, 2.5-4.5 × 1.2-2.5 cm, obliquely oblong, glabrous on both sides, apex obtuse or emarginate. Flowers yellowish-white; in 2.5-3.0 cm across heads; calyx pubescent, corolla glabrous. Pods 15-30 × 4.5-5.0 cm, oblong, flat, pale yellow.

Fls. & Frts. : April-October.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 1 : 496. figs. 280-282. 1909.

Distrib. : Scattered, in deciduous forest at ghat base and in plains; Kankayli-Bhironde. Sawantwadi-Ramghat.

A. odoratissima (L. f.) Benth. in Hook. London J. Bot. 3 : 88. 1844; Baker in Hook. f. Fl. Brit. India 2 : 299. 1878; Cooke, Fl. Pres. Bombay 1 : 482. 1958 (Repr. ed.). *Mimosa odoratissima* L. f. Suppl. 437. 1781.

Moderate-sized trees, 8-15 m tall, young parts pubescent. Leaflets 10-15 pairs, 1.2-2.5 × 0.4-1.0 cm, obliquely oblong, glabrous above, hairy beneath, apex obtuse with mucro. Flowers white; in 1.5 cm across heads; calyx and corolla hairy. Pods 10-15 × 2-3 cm, oblong, tapering at both ends, flat, brown.

Fls. & Frts. : December-May.

Illus. : Bedd. Fl. Sylv. 1. 54. 1870.

Distrib. : Infrequent in deciduous forest along the lower slopes of the ghats and in plains; Kudal-Kerado jungle. Sawantwadi-Ambolighat-Kumbheshwar, Bhedshi, Ramghat.

ENTADA Adanson (*nom. cons.*)

Entada puruatha DC. Prodr. 2 : 425. 1825; Brennan in Kew Bull. 20 : 383. 1966 et Fl. Zambes. 3 (pt. 1) : 15. 1970. *E. scandens* auct. non Benth. (1841); Baker in Hook. f. Fl. Brit. India 1 : 287. 1878; Cooke, Fl. Pres. Bombay 1 : 465. 1958 (Repr. ed.). *Mar.* : Garbi'.

Large climbing shrubs, branches glabrous. Leaves with 2-4 pairs of pinnae, leaflets 2.5-5.0 × 2.5 cm, elliptic-oblong, glabrous on both sides, apex obtuse or acute. Flowers yellowish, 0.4-0.5 cm across; in 15-30 cm long spikes; calyx and corolla hairy. Pods 25-49 × 9 cm, oblong, compressed, sutures thick, indented between seeds.

Fls. & Frts. : March-November.

Distrib. : Scattered, in deciduous forest along lower slopes of the ghats and at base; Kudal-Nileli jungle, Wasuli Rai. Sawantwadi-Ramghat.

MIMOSA L.

Mimosa pudica L. Sp. Pl. 518. 1753; Baker in Hook. f. Fl. Brit. India 2 : 291. 1878; Cooke, Fl. Pres. Bombay 1 : 470. 1958 (Repr. ed.). *Mar.* : 'Lajari'.

Prickly, spreading undershrubs, branches bristly. Pinnae 1-2 pairs, leaflets 12-20 pairs, 0.5—0.5 × 0.05 cm, oblong-elliptic, glabrous above, hairy below, apex acute. Flowers pink; in 0.8-1.0 cm across heads. Pods 1.5 cm long flat, curved, 2-5 jointed, sutures bristly.

Fls. & Frts. : September-January.

Distrib. : Common in shady, moist places and also in open situations in plains; Malwan-Dhamapur. Sawantwadi-Akeri-Mangaon forest, Bandz, Bhedshi-Karnyachi Rai. Vengurla-Math forest.

XYLIA Benth.

Xylia xylocarpa (Roxb.) Taub. in Bot. Centralbl. 47 : 395. 1891. *Mimosa xylocarpa* Roxb. Pl. Cor. t. 100. 1798. *Xylia dolabriformis* Benth. in Hook. J. Bot. 4 : 417. 1842; Baker in Hook. f. Fl. Brit. India 2 : 286. 1878; Cooke, Fl. Pres. Bombay 1 : 465. 1958 (Repr. ed.). *Mar.* : 'Janibha', 'Jabla'.

Trees, 10-15 m tall, young parts tomentose. Leaves bipinnately compound, pinnae 2, leaflets 3-5 pairs, 6—11 × 2.5—4.0 cm, oblong-elliptic or lanceolate, subcoriaceous, glabrous on both sides, apex acute. Flowers creamy-white; in 1.8-2.0 cm across heads; calyx and corolla pubescent. Pods 10—15 × 4 cm, oblong, falcate, woody, rusty tomentose, dehiscent.

Fls. & Frts. : March-November.

Illus. : Beda. Fl. Sylv. t. 186. 1872.

Distrib. : Scattered in moist deciduous forest along the lower slopes of the ghats and at base; Kudal-Ghotge. Sawantwadi-Bhedshi-Karnyachi Rai, Ramghat.

Cultivated species :

LEUCAENA Benth.

Leucaena leucocephala (Lamk.) de Wit in Taxon 10 : 54. 1961. *Mimosa leucocephala* Lamk. Encycl. 1 : 12. 1785. *Leucaena glauca* Benth. in Hook. London J. Bot. 4 : 416. 1842; Baker in Hook. f. Fl. Brit. India 2 : 290. 1878; Cooke, Fl. Pres. Bombay 1 : 469. 1958 (Repr. ed.).

Small trees, 3-5 m tall, young parts appressed hairy. Pinnæ 3-8 pairs, leaflets 10-20 pairs, 0.9—1.4 × 0.1—0.15 cm, oblong, glabrous above, sparsely hairy beneath, membranous, apex acute, base oblique, margins ciliate. Flowers white; in 1.4-1.6 cm across heads. Pods 12-15 × 1—2 cm, linear-oblong, glabrous, brown.

Fls. & Frts. : September-October.

Distrib. : Cultivated along roadsides in plains once only collected at Sawantwadi.

ROSACEAE

PRUNUS L.

Prunus ceylanica (Wight) Miq. Fl. Ind. Bat. 1, 1 : 366. 1855; Kalkman in Blumea 13 : 52. 1965. *Polydonta ceylanica* Wight, Illus. 1 : 203. 1840. *Pygeum gardneri* Hook. f. Fl. Brit. India 2 : 321. 1878; Cooke, Fl. Pres. Bombay 1 : 488. 1958 (Repr. ed.). *Mar. :* 'Uwala'.

Trees, 15-20 m tall, branchlets lenticellate. Leaves 12—20 × 4—8 cm, elliptic-ovate or oblong-lanceolate, subcoriaceous, glabrous on both sides, apex acuminate or acute, base unequal sided. Flowers white; in 5-7 cm long racemes; calyx and corolla inseparable, hairy, 0.4 cm long. Drupes 1.5 × 2.0 cm, transversely oblong, 2-lobed, smooth.

Fls. & Frts. : October-February.

Illus. : Wight, Icon. t. 933. 1845; Bedd. Fl. Sylv. t. 59. 1870.

Distrib. : Scattered in semi-evergreen forest along the higher slopes of the ghats; Kankavli-Phondaghat. Kudal-Shivapur paz. Sawantwadi-Ambolighat-Nanapani, Ramghat (Cooke, l.c.).

VAHLIACEAE

VAHLIA Thunb. (*nom. cons.*)

Vahlia digyna (Retz.) Kuntze Rev. Gen. Pl. 227. 1891; Bridson in Kew Bull. 30 : 177. 1975. *Oldenlandia digyna* Retz. Obs. Bot. 4 : 23. 1786. *Vahlia viscosa* Roxb. Fl. Ind. 2 : 89. 1832; Clarke in Hook. f. Fl. Brit. India 2 : 399. 1878; Cooke, Fl. Pres. Bombay 1 : 493. 1958 (Repr. ed.).

Erect herbs, 15-30 cm tall, branches and stems glandular hairy. Leaves 0.8—2.4 × 0.2—0.6 cm, ovate to ovate-lanceolate, sessile, glabrous on both sides, rarely pubescent, apex acute. Flowers 0.2 cm long, yellow; in axillary, sessile or subsessile fascicles; calyx hairy, petals usually shorter than sepals. Capsules 0.15-0.2 cm across, ovoid, glandular hairy.

Fls. & Frts. : October-April.

Illus. : Wight, Icon. t. 563. 1842.

Distrib. : Infrequent as weed in plains in fallow fields and in open areas; Kankavli-Naradave, Phonda-Dindyache pan Rai.

CRASSULACEAE

KALANCHOE Adanson

Kalanchoe pinnata (Lamk.) Pers. Syn. 446. 1805; Sant. & Wagh in Bull. Bot. Surv. India 5 : 107. 1963. *Cotyledon pinnata* Lamk. Encycl. 2 : 141. 1786. *Bryophyllum calycinum* Salisb. Parad. Lond. t. 3. 1805; Clarke in Hook. f. Fl. Brit. India 2 : 413. 1878; Cooke, Fl. Pres. Bombay 1 : 494. 1958 (Repr. ed.). *Mar.* : 'Pan-phuti', 'Ghalmari'.

Erect, succulent, glabrous herbs, 0.5-1.5 m tall. Leaves simple to trifoliate, 5—9 × 2.5—5.0 cm, ovate or elliptic-oblong, thick, glabrous on both sides, apex obtuse or rounded, margins crenate-dentate. Flowers 3.5-4.0 m long, reddish-purple; in terminal panicles; calyx greenish, tubular. Fruits 1.5 × 1.0 cm, ovoid, enclosed in calyx.

Fls. & Frts. : January-May.

Distrib. : Frequent in deciduous forest along the ghats and in plains in moist places; Kankavli-Natal jungle. Sawantwadi-Amboli-Mahadeogad, Khanale, Ramghat.

DROSERACEAE

DROSEREA L.

1. Leaves radical, rosette	..	<i>D. burmannii</i>
1. Leaves cauline, alternate	..	<i>D. indica</i>

Drosera burmannii Vahl. Symb. 3 : 50. 1794; Clarke in Hook. f. Fl. Brit. India 2 : 424. 1878; Cooke, Fl. Pres. Bombay 1 : 499. 1958 (Repr. ed.).

Acaulescent herbs. scapes. 6-12 cm tall. Leaves 0.6—1.0 × 0.3—0.8 cm. obovate, pale purple, glandular hairy, stipulate. Flowers white, 0.3-0.5 cm across ; in terminal racemes; calyx pink, papillose, petals obovate. Capsules 0.2 cm across, globose, 5-valved.

Fls. & Frts. : January-March.

Illus. : Wight, Icon. t. 944. 1845.

Distrib. : Uncommon in moist fallow fields and in open situations in plains; Kudal-Bhadgaon, Sawantwadi Road. Sawantwadi-Akeri.

D. indica L. Sp. Pl. 282. 1753; Clarke in Hook. f. Fl. Brit. India 2 : 424. 1878; Cooke, Fl. Pres. Bombay 1 : 499. 1958 (Repr. ed.).

Slender, caulescent herbs, 6-11 cm tall. stems glandular hairy. Leaves 1.5-4.0 cm long, linear, narrow, glandular hairy, exstipulate. Flowers white, 0.3 cm across; in leaf-opposed racemes; calyx purple, glandular pubescent, petals narrow. Capsules 0.3 cm across, globose, 3-valved.

Fls. & Frts. : August-October.

Distrib. : Frequent, in moist, open, grassy areas and in fallow fields in plains; Deogad-Naringre. Kankavli-Nandgaon, Phonda-Devichi Rai, Malwan-Adari. Sawantwadi-Akeri-Nemle forest. Vengurla (Cooke, l. c.).

RHIZOPHORACEAE

1. Plants of inland habitat	..	<i>Cerallia</i>
1. Plants of saline, swampy habitat :		
2. Calyx 7-14 lobed, bracteoles absent	..	<i>Bruguiera</i>

2. Calyx 4-6 lobed; bracteoles present :

3. Stilt roots spreading and branched; flowers 4-merous ..	<i>Rhizophora</i>
3. Stilt roots when present appressed to stem or absent; flowers not 4-merous:	
4. Petals with 3-appendages at apex; stamens 10-12 ..	<i>Ceriops</i>
4. Petals bifid, lobes divided into capillary segments; stamens indefinite ..	<i>Kandelia</i>

BRUGUIERA Lamk.

1. Calyx lobes erect in fruits ..	<i>B. gymnorhiza</i>
1. Calyx lobes recurved in fruits ..	<i>B. cylindrica</i>

Bruguiera cylindrica (L.) Bl. En. Pl. Jav. 1 : 92. 1827; Ding Hou in van Steenis, Fl. Males. Ser. 1, 5 : 457. 1958; Mukerjee in Bull. Bot. Surv. India 2 : 174. 1960; Mitra & Banerjee ibid. 21 (1-4) : 149. 1981. *Rhizophora cylindrica* L. Sp. Pl. 443. 1753. *Bruguiera caryophylloides* Bl. En. Pl. Jav. 1 : 93. 1827; Henslow in Hook. f. Fl. Brit. India 2 : 438. 1878; Cooke, Fl. Pres. Bombay 1 : 505. 1958 (Repr. ed.).

Shrubs, 2-3 m tall, much branched. Leaves 5—9 × 2.2—3.5 cm, elliptic-oblong, coriaceous, glabrous on both sides, apex acute. Flowers 0.8-1.0 cm across, white; in axillary, 2-3-flowered cymes; petals hairy outside, shorter than calyx lobes. Fruits 1.0 × 0.6 cm, ovoid, radicles 6-8 cm long, terete.

Fls. & Frts. : April-May.

Distrib. : Uncommon in tidal swamps; Kudal-Kochre creek.

B. gymnorhiza (L.) Lamk. Encycl. Meth. Bot. 4 : 696. 1796; Henslow in Hook. f. Fl. Brit. India 2 : 437. 1878; Cooke, Fl. Pres. Bombay 1 : 504. 1958 (Repr. ed.); Mukerjee in Bull. Surv. India 2 : 173. 1960; Mitra & Banerjee ibid. 21 (1-4) : 143. 1981. *Rhizophora gymnorhiza* L. Sp. Pl. 443. 1753.

Shrubs, 3-6 m tall. Leaves 8—12 × 3.0—5.2 cm, ovate-elliptic, coriaceous, glabrous on both sides, apex acute or acuminate. Flowers 2.5 cm across; axillary, solitary; calyx lobes pinkish-green to reddish-brown, petals white, pubescent below. Fruits top-shaped, turbinate, 1 × 2 cm, radicles 10 cm long, angled.

Fls. & Frts. : February-June.

Illus. : Lewis in Turrill & Milne-Redhead, Fl. Trop. E. Africa, Rhizophoraceae 7. fig. 3, 1-4. 1956.

Distrib. : Occasional, in tidal swamps; Deogad-Nandan-Vir.

CARALLIA Roxb. (*nom. cons.*)

Carallia branchiata (Lour.) Merr. in Philipp. J. Sci. Bot. 15 : 249. 1919; Ding Hou in van Steenis, Fl. Males. Ser. 1, 5 : 485. 1958. *Diatoma branchiata* Lour. Fl. Cochinch. 296. 1790. *Carallia integerrima* DC. Prodr. 3 : 33. 1828; Henslow in Hook. f. Fl. Brit. India 2 : 439. 1878; Cooke, Fl. Pres. Bombay 1 : 506. 1958 (Repr. ed.).

Trees, 10-20 m tall, branches glabrous. Leaves 5—10 × 3.0—5.5 cm, obovate or elliptic-oblong, glabrous on both sides, shining above, coriaceous, apex obtuse or emarginate or acute. Flowers 0.4 cm across, greenish-white; in di- or trichotomous cymes; calyx campanulate, petals obovate, 2-fid, lacerate. Fruits 0.7 × 0.5 cm, ovoid.

Fls. & Frts. : October-February.

Illus. : Wight, Icon. t. 505. 1842.

Distrib. : Frequent in semi-evergreen and deciduous forests; Kankavli-Nandgaon-Belachi Rai, Natal jungle. Kudal-Dhaddgaon. Sawantwadi-Khanale, Ramghat, Tirali.

CERIOPS Arn.

Ceriops tagal (Perr.) Rob. in Philipp. J. Sci. Bot. 3 : 306. 1908; Ding. Hou in van Steenis, Fl. Males. Ser. 1, 5 : 469. 1958. *Rhizophora tagal* PERR. Mem. Soc. Linn. Paris 3 : 138. 1824. *Ceriops candolleau* Arn. in Ann. Mag. Nat. Hist. 1 : 364. 1838; Henslow in Hook. f. Fl. Brit. India 2 : 436. 1878; Cooke, Fl. Pres. Bombay 1 : 503. 1958 (Repr. ed.).

Shrubs, 2-3 m tall, bark grey, smooth. Leaves 3—5 × 1.8—2.6 cm, obovate or elliptic, glabrous on both sides, apex obtuse to emarginate. Flowers 0.5-0.8 cm across, white; in compact cymes; calyx cup-shaped; anthers red. Fruits 2 × 1 cm, ovoid, protruded radicles 10-20 cm long, cylindric.

Fls. & Frts. : February-May.

Illus. : Ding Hou in van Steenis *l. c.* 469. fig. 24 a-o.

Distrib. : Scattered, in tidal swamps and creeks; Deogad-Nadan-Vir. Kudal-Kochre creek.

KANDELIA Wight & Arn.

Kandelia candel (L.) Druce, Rep. Bot. Exch. Club Br. Isles. 193. 3 : 420. 1914; Ding Hou in van Steenis, Fl. Males. Ser. 1, 5 : 473. 1958. *Rhizophora*

candel L. Sp. Pl. 443. 1753. *Kandelia rheedei* Wight & Arn. Prodr. 310. 1834; Henslow in Hook. f. Fl. Brit. India 2 : 437. 1878; Cooke, Fl. Pres. Bombay 1 : 504. 1958 (Repr. ed.).

Shrubs, 3-4 m tall. Leaves 8—11 × 2.6—3.6 cm, elliptic-oblong, glabrous on both sides, brownish beneath, apex obtuse or rounded, base tapering. Flowers 2.5 cm across, white; in cymes; sepals 1.5 cm long, petals 1.4 cm long, frilled. Fruits 2 × 1.2 cm, ovoid, radicles 10-20 cm long.

Fls. & Frts. : February-April.

Illus. : Ding Hou in van Steenis, *l. c.* 472. fig. 26.

Distrib. : Occasional, in a creek; Malwan-Kalawli.

RHIZOPHORA L.

1. Petals thick, fleshy, villous	..	<i>R. mucronata</i>
1. Petals thin, glabrous	..	<i>R. conjugata</i>

Rhizophora conjugata L. Sp. Pl. 443. 1753; Henslow in Hook. f. Fl. Brit. India 2 : 436. 1878; Cooke, Fl. Pres. Bombay 1 : 502. 1958 (Repr. ed.).

Small trees, 5-8 m tall, young branches marked with scars of fallen leaves. Leaves 7—14 × 3.5—5.5 cm, elliptic-oblong, thick, glabrous on both sides, apex mucronate. Flowers 2 cm across, white or yellowish-green; in 2-flowered cymes; sessile, calyx rugose, glabrous. Fruits 2.5 cm long, ovoid, rugose, radicles cylindric, 15-20 cm long.

Fls. & Frts. : April-May.

Distrib. : Occasional along coastal saline swamps; Kudal-Kochre creek.

R. mucronata Lamk. Encycl. 6 : 189. 1804; Henslow in Hook. f. Fl. Brit. India 2 : 435. 1878; Cooke, Fl. Pres. Bombay 1 : 501. 1958 (Repr. ed.). *Mar.* : 'Kandal'.

Shrubs or small trees, 3-6 m tall. Leaves 6—12 × 3.5—8.0 cm, elliptic-oblong, glabrous on both sides, pale green or brownish and dotted beneath, apex mucronate. Flowers 1.5-2.0 cm across, white; in axillary, 2-4-flowered cymes; pedicellate, calyx glabrous. Fruits 3 × 2 cm, ovoid-conical, radicles 5-30 cm long.

Fls. & Frts. : February-May.

Illus. : Wight, Icon. 1. 238. 1839.

Distrib. : Frequent in coastal swamps; Deogad-Nadan-Vir. Kudal-Kochre creek. Malwan-Achre creek, Deobag, Kolamb. Vengurla-Near Harbour.

COMBRETACEAE

1. Erect trees or shrubs :

2. Plants growing in salt marshes; petals present	..	<i>Lumnitzera</i>
2. Plants of inland habitat; petals absent	..	<i>Terminalia</i>

1. Climbing or scandent shrubs :

3. Young parts softly, densely pubescent; petals absent	..	<i>Calycopteris</i>
3. Young parts glabrous, covered with yellow scales; petals present	..	<i>Combretum</i>

CALYCOPTERIS Lamk.

Calycopteris floribunda (Roxb.) Poir. in Lamk. Encycl. Suppl. 2 : 41. 1811; Clarke in Hook. f. Fl. Brit. India 2 : 449. 1878; Cooke, Fl. Pres. Bombay 1 : 512. 1958 (Repr. ed.). *Getonia floribunda* Roxb. Pl. Cor. 1. 87. 1798. *Mar.* : 'Ukshi'.

Extensive climbers young parts brownish pubescent. Leaves 4—9 × 2—4 cm, elliptic-lanceolate, hairy on both sides, punctate on lower side, apex acute, or acuminate. Flowers 1 cm across, yellowish-green; in terminal panicles, bracts 1 cm long, leafy; calyx densely hairy, persistent, accrescent in fruits. Fruits 0.8-1.0 cm long, ellipsoid, 5-ribbed, hairy.

Fls. & Frts. : February-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 21. fig. 300. 1911.

Distrib. : Common, in deciduous forest in plains; Deogad-Port Road. Kankavli-Bhironde, Phonda-Harkool forest. Kudal-Chapheli-Pulas jungle, Ghotge. Malwan-Achre-Kaziwadasada, Kunkavle. Sawantwadi-Kudasa. Vengurla (Cooke, l. c.).

COMBRETUM Loebl. (*nom. cons.*)

1. Flowers in panicle spikes; calyx-tube campanulate .. *C. ovalifolium*
 1. Flowers in simple spikes, rarely panicle; calyx-tube funnel shaped .. *C. latifolium*

Combretum latifolium Bl. Bijdr. 641. 1825; Excell in van Steenis, Fl. Males. Ser. 1, 4 : 542. 1954. *C. extensum* Roxb. ex D. Don in Trans. Linn. Soc. London 15 : 414. 1827; Clarke in Hook. f. Fl. Brit. India 2 : 458. 1878; Cooke, Fl. Pres. Bombay 1 : 515. 1958 (Repr. ed.).

Large climbing shrubs, young branches, rachis and calyx covered with yellow scales. Leaves 5—15 × 4—8 cm, ovate-elliptic or elliptic, glabrous on both sides, apex acute or acuminate. Flowers 0.4 cm across, greenish-white, 4-merous, subsessile, calyx puberulous, petals suborbicular. Fruits 4 × 3 cm, suborbicular, yellowish, shining, 5-winged.

Fls. & Frts. : February-May.

Illus. : Wight, Icon. t. 227. 1839.

Distrib. : Frequent in deciduous forest along the ghats and at base; Kankavli-Naradave-Girichi Rai, Phonda-Mhatardeo Rai, Kudal-Kerude jungle. Sawantwadi-Akeri-Mangaon forest, Ambolighat-Temple point, Hewale, Ramghat. Vengurla (Cooke, *l. c.*).

C. ovalifolium Roxb. Fl. Ind. 2 : 226. 1832; Clarke in Hook. f. Fl. Brit. India 2 : 458. 1878; Cooke, Fl. Pres. Bombay 1 : 515. 1958 (Repr. ed.).

Scandent shrubs, young parts glabrous. Leaves 4—10 × 3.5—5.5 cm, elliptic or ovate, glabrous on both sides, pale beneath, apex acute or obtuse. Flowers 0.3-0.4 cm across, greenish-white, subsessile, calyx glabrous outside, covered with yellow scales, petals oblong. Fruits 2.5 × 1.5 cm, ovoid, 5-winged.

Fls. & Frts. : February-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 26. fig. 303. 1911.

Distrib. : Scattered in deciduous forest in plains; Deogad-Nadan-Vir. Kankavli-Kumbhavde, Phonda-Ghonsari Rai.

LUMNITZERA Willd.

Lumnitzera racemosa Willd. Ges. Naturf. Fr. Berlin Neue Schr. 4 : 187. 1803; Clarke in Hook. f. Fl. Brit. India 2 : 452. 1878; Cooke, Fl. Pres. Bombay 1 : 514. 1958 (Repr. ed.); Excell in van Steenis, Fl. Males. Ser. 1, 4 : 588. 1954.

Shrubs, upto 2 m tall. Leaves 3—5 × 1—2 cm, oblanceolate to elliptic, sessile, fleshy, glabrous on both sides, apex rounded to emarginate. Flowers whitishgreen; in 0.8-1.2 cm long spikes; calyx glabrous, petals oblong. Fruits 1 cm long, ovoid, angled, crowned by persistent calyx.

Fls. & Frts. : February-March.

Illus. : Talb. For. Fl. Bombay Pres & Sind 2 : 24. fig. 302. 1911.

Distrib. : Occasional, in coastal salty marsh; Deogad-Tar-mumbri.

TERMINALIA L.

1. Leaves clustered at the apices of branches, eglandular; flowers in apical portion of inflorescence mostly staminate *T. bellirica*
1. Leaves not clustered at the apices of branches, frequently glandular on petiole or at the base of midrib; flowers bisexual :
 2. Fruits not winged; spikes simple or sparsely branched *T. chebula*
 2. Fruits winged: spikes paniced :
 3. Fruits unequally 3-winged, rusty puberulous *T. paniculata*
 3. Fruits equally 5-winged, glabrous :
 4. Bark ash coloured, smooth; wings of the fruits short, hard, lines on wings curved upwards *T. arjuna*
 4. Bark dark coloured, cracked; wings of the fruits papery, lines on wings straight *T. crenulata*

Terminalia arjuna (Roxb. ex DC.) Wight & Arn. Prodr. 314. 1834.; Clarke in Hook. f. Fl. Brit. India 2 : 447. 1878; Cooke, Fl. Pres. Bombay 1 : 509. 1958 (Repr. ed.). *Pentaptera arjuna* Roxb. ex DC. Prodr. 3 : 14. 1828, *cum descr.*

Trees, 10-15 m tall. Leaves 6—14 × 3—6 cm, oblong or elliptic-oblong, glabrous on both sides, pale brown beneath, apex obtuse or acute, margins shallowly crenate-serrate, 1-2 glands at the base of midrib. Flowers 0.3-0.4 cm across, yellow; in paniced spikes; calyx hairy inside, teeth triangular. Fruits 3.5-4.0 cm long, ovoid or obovoid, glabrous.

Fls. & Frts. : February-November.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 16. fig. 296. 1911.

Distrib. : Scattered in deciduous forest in plains; Deogad-Near Rest House. Kudal-Chapheli-Pulas Jungle, Kerude Jungle.

T. bellirica (Gaertn.) Roxb. Pl. Cor. 2 : 54. t. 198. 1805; Clarke in Hook. f. Fl. Brit. India 2 : 445. 1878; Cooke, Fl. Pres. Bombay 1 : 508. 1958 (Repr. ed.); Exell in van Steenis, Fl. Males. Ser. 1, 4 : 569. 1954. *Myrobalanus bellirica* Gaertn. Fruct. 2 : 90. t. 97. f. a-d. 1791. *Mar.* : 'Hela', 'Beheda'.

Large trees, 15-20 m tall, young parts rufous pubescent. Leaves 8—15 × 6—10 cm, obovate or broadly elliptic, coriaceous, hairy on both sides when young, apex obtuse or acute. Flowers 0.4-0.5 cm across, yellowish-brown, sessile, calyx hairy, recurved, lobes deltoid. Fruits 3.0 × 2.2 cm, subglobose, brownish-grey pubescent.

Fls. & Frts. : March-November.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 13. fig. 294. 1911.

Distrib. : Frequent, in deciduous forest in plains; Kankavli-Bhironde, Phonda-Pawandevi Rai. Sawantwadi-Bhedshi-Karnyachi Rai.

T. chebula Retz. Obs. Bot. 5 : 31. 1798; Clarke in Hook. f. Fl. Brit. India 2 : 446. 1878; Cooke, Fl. Pres. Bombay 1 : 509. 1958 (Repr. ed.). *Mar.* : 'Hirda'.

Small to moderate sized trees, 5-10 m tall. Leaves 6—14 × 3—7 cm, elliptic-ovate or elliptic-oblong, subcoriaceous, glabrous on both sides or sparsely hairy on nerves below, 2-stalked glands at base, apex acute or rounded. Flowers 0.3-0.4 cm across, yellow, calyx glabrous, teeth acute. Fruits 3 × 2 cm, ellipsoid or ovoid, 5-ribbed, when dry.

Fls. & Frts. : February-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 14. fig. 295. 1911.

Distrib. : Scattered, along the ghats in moist deciduous forest; Kudal-Ghotge. Sawantwadi-Amboli, Ramghat.

T. crenulata Roth, Nov. Pl. Sp. 380. 1821; Sant. in J. Bombay nat. Hist. Soc. 50 : 306. 1951. *T. tomentosa* var. *crenulata* Clarke in Hook. f. Fl. Brit. India 2 : 448. 1878. *T. tomentosa* Cooke, Fl. Pres. Bombay 1 : 479. 1902 et 1 : 510. 1958 (Repr. ed., non Wight & Arn. 1834). *Mar.* : 'Ain'.

Trees, 10-15 m tall. Leaves 6—15 × 6.2—3.5 cm, oblong-elliptic, coriaceous, glabrous on both sides, apex obtuse, acute or emarginate, 2-stalked glands at the base on lowerside. Flowers 0.4-0.5 cm across, yellow, calyx hairy inside, teeth triangular. Fruits 5 × 4 cm, ovoid, reddish, glabrous.

Fls. & Frts. : April-August.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 18. fig. 294. 1911.

Distrib. : Common, along the ghats and in plains in moist deciduous and dry deciduous forests; Kankavli-Natal jungle, Phonda-Harkool forest, Phondaghat, Kudal-Chapheli-Pulas jungle, Ghotge, Kerude jungle, Shivapur Rai. Sawantwadi-Akeri-Mangaon forest and Nemle forest, Ambolighat-Nanapani, Banda, Danoli, Ramghat. Vengurla-Math forest.

T. paniculata Roth, Nov. Pl. Sp. 383. 1821; Clarke in Hook. f. Fl. Brit. India 2 : 448. 1878; Cooke, Fl. Pres. Bombay 1 : 510. 1958 (Repr. ed.). *Mar.* : 'Kindal', 'Kinjal'.

Trees, 10-15 m tall, young parts rusty pubescent. Leaves 7—15 × 3.0—6.5 cm, oblong-elliptic, subcoriaceous, dark and glabrous above, pale beneath and hairy when young, apex rounded to acuminate, 2-sessile glands at base. Flowers 0.3 cm across, greenish-white, inflorescence rhachis grey pubescent, calyx hairy. Fruits 0.8-1.2 cm long, brownish-red, longest wing 1.5-2.0 cm long.

Fls. & Frts. : April-August.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 20. fig. 299. 1911.

Distrib. : Frequent along the ghats in moist deciduous forest; Kankavli-Sangwe jungle. Kudal-Ghotge. Sawantwadi-Ambolighat-Nanapani.

MYRTACEAE

1. Calyx in buds entirely closed, bursting irregularly; fruits many seeded	..	<i>Psidium</i>
1. Calyx lobes open in buds; fruits 1-2 seeded	..	<i>Syzygium</i>

PSIDIUM L.

Psidium guajava L. Sp. Pl. 470. 1753; Duthie in Hook. f. Fl. Brit. India 2 : 468. 1878; Cooke, Fl. Pres. Bombay 1 : 529. 1958 (Repr. ed.). *Mar.* : 'Jamb', 'Peru'.

Shrubs, 3-5 m tall, bark smooth. Leaves 4—10 × 3—6 cm, oblong-elliptic, pubescent on both sides, apex acute, obtuse or rounded. Flowers 1.5-2.0 cm

across, white; axillary, solitary; calyx and corolla pubescent. Berries 3-4 cm across, ovoid, pulpy.

Fls. & Frts. : November-June.

Distrib. : Native of Tropical America, Cultivated and naturalized* along streams near villages; Kankavli-Phonda-Pawnadevi[†] Rai. Kudal-Chapheli-River-bank. Sawantwadi-Chaukul, Ramghat.

SYZYGIUM Gaertn. (*nom. cons.*)

1. Flowers solitary or in pairs, rarely in fascicles .. *S. phillyraeoides*
1. Flowers in di- or trichotomous or panicle cymes :
 2. Flowers large and showy, 2.5-5.0 cm across :
 3. Flowers fragrant, 2.5-3.0 cm across; stamens white .. *S. hemisphericum*
 3. Flowers inodorous, 3-5 cm across; stamens red .. *S. laetum*
 2. Flowers small, less than 1.5 cm across :
 4. Branchlets tetragonous; inflorescence branches stout and angled .. *S. montanum*
 4. Branchlets terete; inflorescence branches slender and terete :
 5. Calyx tube longer than broad, funnel-shaped, warted or tubercled, gland-dotted with white incrustation .. *S. zeylanicum*
 5. Calyx tube broader than long, turbinate, not warted, nor gland-dotted :
 6. Inflorescence terminal, corymbose-cymes (occasionally axillary); berries depressed-globose .. *S. caryophyllatum*
 6. Inflorescence axillary, cymes; berries oblong or ellipsoid :
 7. Large trees; leaves more than 3.5 cm broad .. *S. cumini*
 7. Shrubs or small trees; leaves less than 3.5 cm broad .. *S. heyneanum*

Syzygium caryophyllatum (L.) Alston in Trim. Handb. Fl. Ceylon 6 : 116. 1931. *Myrtus caryophyllatus* L. Sp. Pl. 472. 1753. *Eugenia corymbosa* Lamk. Encycl. 3 : 199. 1789; Cooke, Fl. Pres. Bombay 1 : 522. 1958 (Repr. ed.). *E. caryophyllacea* Wight, Icon. t. 540. 1842; Duthie in Hook. f. Fl. Brit. India 2 : 490. 1878. *Mar.* : 'Bherlas'.

Shrubs or small trees, 2-5 m tall. Leaves 4—10 × 2—5 cm, obovate or elliptic, subcoriaceous, glabrous on both sides, apex acute, obtuse or rounded. Flowers 0.5-0.6 cm across, white, calyx glabrous, cup-shaped, corolla calyptrate. Berries 0.8—1.0 × 0.6—0.8 cm, globose, dark purple turning black.

Fls. & Frts. : March-October.

Illus. : Wight, *l. c.*

Distrib. : Common in deciduous forest along streams; Deogad-Dahibav. Kankavli-Natal jungle, Phonda-Ghonsari Rai, Phondaghat, Sangwe. Kudal-Chapheli, Ghotge, Kerude jungle. Malwan-Achre creek, Kalawli creek. Sawantwadi-Ambolighat-Nanapani, Banda, Bhedshi, Danoli-Kesari R. F.

S. cumini (L.) Skeels, U. S. Dept. Agric. Bur. Pl. Industr. Bull. 248 : 2. 1912; Alston in Trim. Handb. Fl. Ceyl. 6 : 116. 1931. *Myrtus cumini* L. Sp. Pl. 471. 1753. *Eugenia jambolana* Lamk. Encycl. 3 : 198. 1789; Duthie in Hook. f. Fl. Brit. India 2 : 499. 1879; Cooke, Fl. Pres. Bombay 1 : 523. 1958 (Repr. ed.). *Mur.* : 'Jambhal'.

Trees, 10-15 m tall, bark thick, rough. Leaves 6—18 × 3—8 cm, elliptic-oblong or elliptic or ovate, subcoriaceous, glabrous on both sides, close veined, apex acuminate to acute, sometimes subobtuse. Flowers 0.5-0.6 cm across, white, calyx cupular, corolla calyptrate. Berries 1.5—2.2 × 1.0—1.5 cm, purple, oblong or ovoid, fleshy.

Fls. & Frts. : March-June.

Illus. : Wight, Icon. t. 535. 1842.

Distrib. : Common, along the higher slopes of ghats to plains in semi-evergreen and deciduous forests; Kankavli-Bhironde, Phonda-Harkool forest, Phondaghat, Sangwe. Kudal-Ghotge, Shivapur Rai, Wasuli Rai. Sawantwadi-Amboli, Ambolighat, Chaukul, Bhedshi.

S. hemisphericum (Walp.) Alston in Trim. Handb. Fl. Ceylon 6 : 115. 1931. *Jambosa hemispherica* Walp. Rep. 2 : 191. 1843. *Eugenia hemispherica* Wight, Icon. t. 525. 1842; Duthie in Hook. f. Fl. Brit. India 2 : 477. 1878; Cooke, Fl. Pres. Bombay 1 : 519. 1958 (Repr. ed.).

Trees, 10-15 m tall. Leaves 7—12 × 3—6 cm, elliptic-oblong, coriaceous, glabrous on both sides, apex subacuminate. Flowers white; in terminal cymes, few to many flowered; calyx tube funnel-shaped, rugose, petals free, ovate. Berries 1.5-2.0 cm across, hemispherical, purple.

Fls. & Frts. : March-June.

Illus. : Wight, *l. c.*

Distrib. : Frequent along the ghats and at the base of ghat in semi-evergreen and moist deciduous forests; Kankavli-Phondaghat. Kudal-Shivapur paz. Sawantwadi-Chaukul, Danoli, Hewale, Ramghat.

S. heyneanum (Duthie) Walt. ex Gamble, Fl. Pres. Madras 482. 1919 et 1 : 341. 1957 (Repr. ed.). *Eugenia heyneana* Duthie in Hook. f. Fl. Brit. India 2 : 500. 1879; Cooke, Fl. Pres. Bombay 1 : 524. 1958 (Repr. ed.).

Trees, 3-5 m tall. Leaves 6—11 × 2.0—3.2 cm, elliptic-lanceolate, subcoriaceous, glabrous on both sides, punctate, apex acute. Flowers 0.4-0.5 cm across, white; in extra-axillary cymes, subsessile; calyx obscurely lobed, corolla calyptrate. Berries 1.0—1.5 × 0.6—0.8 cm, ellipsoid, pale pink.

Fls. & Frts. : February-June.

Distrib. : Frequent in plains along the streams in deciduous forest; Kankavli-Naradave-Dirbyachi Rai. Kudal-Nileli-Chapheli jungle. Sawantwadi-Bhedshi, Kudasa.

S. laetum (Ham.) Gandhi in Saldanha & Nicolson, Fl. Hassan Distt. 282. 1976. *Eugenia laeta* Ham. Mem. Nat. Hist. Soc. 5 : 338. 1826; Duthie in Hook. f. Fl. Brit. India 2 : 479. 1878; Cooke, Fl. Pres. Bombay 1 : 519. 1958 (Repr. ed.).

Medium sized trees, 8-10 m tall, branches slender. Leaves 5—8 × 2—4 cm, oblong-lanceolate, chartaceous, glabrous on both sides, punctate, apex acuminate. Flowers white; solitary or in few flowered axillary cymes; calyx conical, lobed, petals white, orbicular. Berries 2.5 × 1.6 cm, ovoid to ellipsoid, reddish-brown.

Fls. & Frts. : February-May.

Illus. : Wight, Icon. t. 526. 1842.

Distrib. : Occasional, in a sacred grove along the ghat; Kankavli-Phondaghat.

S. montanum (Wight) Gamble, Fl. Pres. Madras 479. 1919 et 1 : 339. 1957 (Repr. ed.). *Eugenia montana* Wight, Icon. t. 1060. 1842; Duthie in Hook. f. Fl. Brit. India 2 : 488. 1878.

Moderate sized trees, 8-10 m tall. Leaves 6—12 × 3—6 cm, elliptic-oblong or elliptic, coriaceous, glabrous on both sides, nerves distant and prominent, apex acute or emarginate. Flowers 0.35-0.4 cm across, white; in corymbose-cymes; calyx glabrous, funnel-shaped, corolla calyptrate. Berries globose.

Fls. & Frts. : March-June.

Illus. : Wight, l. c.

Distrib. : Occasional, in deciduous forest, in Rai (sacred grove) at ghat base; Kudal-Wasuli Rai.

S. phillyraeoides (Trim.) Sant. in Kew Bull. 1948 : 276. 1948 et Fl. Khandala ed. 3, 92. 1967. *Eugenia phillyraeoides* Trim. in J. Bot. 23 : 207. 1885. *E. mooniana* Wight Icon. t. 551. 1842; Duthie in Hook. f. Fl. Brit. India 2 : 505. 1879; Cooke, Fl. Pres. Bombay 1 : 525. 1958 (Repr. ed.).

Undershrubs or shrubs, 1.5-2.0 m tall. Leaves 3-6 x 1.5-2.2 cm, elliptic or elliptic-lanceolate, glabrous on both sides, apex acuminate, base acute. Flowers 0.5-0.6 cm across, white, pedicels filiform, 1.8 cm long, calyx hairy. corolla free, petals 4, ovate. Berries 0.8 cm across, globose, scarlet.

Fls. & Frts. : October-February.

Illus. : Wight, l. c.

Distrib. : Uncommon along the ghats in semi-evergreen forest in the undergrowth; Kankavli-Naradave, Phondaghat. Kudal-Hanuman ghat. Sawantwadi-Amboli.

S. zeylanicum (L.) DC. Prodr. 3 : 260. 1838. *Myrtus zeylanica* L. Sp. Pl. 472. 1753. *Eugenia zeylanica* (L.) Wight, Illus. 2 : 15. 1850; Duthie in Hook. f. Fl. Brit. India 2 : 485. 1878. *E. spicata* Lamk. Encycl. 3 : 201. 1789; Cooke, Fl. Pres. Bombay 1 : 521. 1958 (Repr. ed.).

Shrubs or small trees, 5-8 m tall, branches slender. Leaves 3-8 x 1-3 cm, ovate-elliptic or lanceolate, coriaceous, glabrous on both sides, apex acuminate, punctate beneath. Flowers 0.4-0.5 cm across, white; in panicle cymes; calyx 0.6 cm long, petals free. Berries 0.5 cm across, globose, white.

Fls. & Frts. : February-June.

Illus. : Wight, Icon. t. 73. 1838.

Distrib. : Infrequent in semi-evergreen forest along higher slopes of the ghats; Kudal-Hanuman ghat. Sawantwadi-Chaukul-Soliya jungle, Ramghat.

BARRINGTONIACEAE

1. Inflorescence pendulous, 20-40 cm long; fruits 1-seeded	..	<i>Barringtonia</i>
1. Inflorescence erect, short, stout, clustered at the ends of branches; fruits many seeded	..	<i>Careya</i>

BARRINGTONIA J. R. & G. Forst.

1. Calyx in buds completely closed; fruits not angled, rarely slightly subtetragonous	..	<i>B. racemosa</i>
1. Calyx in buds with free sepals; fruits angled	..	<i>B. acutangula</i>

Barringtonia acutangula (L.) Gaertn. Fruct. 2 : 97. t. 101. 1791; Clarke in Hook. f. Fl. Brit. India 2 : 508. 1879; Cooke, Fl. Pres. Bombay 1 : 528. 1958 (Repr. ed.); Payson in Blumea 15 : 226. 1967. *Eugenia acutangula* L. Sp. Pl. 471. 1753. *Mar.* : 'Tinur'.

Shrubs or small trees, 5-8 m tall, young branches slender. Leaves 5—9 × 2.5—5.0 cm, elliptic-obovate or obovate, glabrous on both sides, rarely hairy beneath, margins serrate-crenulate, apex acute or sometimes acuminate. Flowers 1.0-1.2 cm across, purplish-red; in pendulous racemes; calyx with free sepals, petals elliptic. Fruits 1.8—2.0 × 1.0 cm, ovoid.

Fls. & Frts. : February-September.

Illus. : Bedd. Fl. Sylv. t. 204. 1869.

Distrib. : Frequent in deciduous forest in plains along the streams, Deogad-Dahibav. Kudal-Kerude jungle. Malwan-Kalawli. Sawantwadi-Ambolighat, Bheshi, Gavata, Kudasa.

B. racemosa (L.) Sprong. Syst. Veg. 3 : 127. 1826; Clarke in Hook. f. Fl. Brit. India 2 : 507. 1879; Cooke, Fl. Pres. Bombay 1 : 527. 1958 (Repr. ed.). *Eugenia racemosa* L. Sp. Pl. 471. 1753.

Trees, 8-10 m tall. Leaves 14—35 × 7—14 cm, lanceolate to oblanceolate, glabrous on both sides, apex acute or acuminate, margins serrate-crenulate, midrib and nerves prominent beneath. Flowers 0.35-0.4 cm across, pale pink; in terminal racemes; calyx equally or unequally lobed, accrescent, petals elliptic, obtuse. Fruits 5—6 × 3—4 cm, ovoid, angular, truncate, tapering at base.

Fls. & Frts. : May-October.

Illus. : Wight, Icon. t. 152. 1839.

Distrib. : Occasional, in coastal sandy soil; Malwan-Deobag.

CAREYA Roxb.

Careya arborea Roxb. Pl. Cor. 3 : 14. t. 218. 1811; Clarke in Hook. f. Fl. Brit. India 2 : 511. 1879; Cooke, Fl. Pres. Bombay 1 : 528. 1958 (Repr. ed.). *Mar.* : 'Kumbha'.

Small trees or shrubs, 3-8 m tall. Leaves often crowded at apices of branchlets, 6—16 × 3.5—8.5 cm, obovate to oblanceolate, glabrous on both sides, apex obtuse, rounded or abruptly acuminate, margins entire to denti-

culate. Flowers 4-5 cm across, white, calyx campanulate, petals linear-oblong. Fruits 6—8 cm across, globose, green, glabrous.

Fls. & Frts. : February-June.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 48. fig. 316. 1911.

Distrib. : Frequent in deciduous forest in plains; Kankavli-Bhironde jungle, Phonda-Harkool forest. Sawantwadi-Gavata.

MELASTOMATACEAE

1. Small herbs :

2. Flowers 3-merous, anther-connectives not produced ..	<i>Sumerila</i>
2. Flowers 4-merous, anther-connectives produced ..	<i>Osbeckia</i>

1. Shrubs or trees :

3. Leaves 1-nerved or pinnately obscurely veined; anther-connectives not produced ..	<i>Memecylon</i>
3. Leaves palmately 3-5-nerved; anther-connectives produced ..	<i>Melastoma</i>

MELASTOMA L.

Melastoma malabathricum L. Sp. Pl. 390. 1753; Clarke in Hook. f. Fl. Brit. India 2 : 523. 1879; Cooke, Fl. Pres. Bombay 1 : 532. 1938 (Repr. ed.).

Shrubs, 2-3 m tall, young branches and petioles appressed paleaceous hairy. Leaves 3.5—9.5 × 1.5—4.5 cm, ovate-lanceolate or ovate-oblong, hairy on both sides, apex acute. Flowers purple; in terminal, corymbose-panicles; calyx scaly hairy, tube campanulate, petals 1.9-2.5 cm long, showy, broadly obovate. Fruits 1.0-1.4 cm across, ovoid, dehiscent irregularly.

Fls. & Frts. : March-October.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 50. fig. 317. 1911

Distrib. : Frequent in deciduous and semi-evergreen forests in plains and also along higher slopes of the ghats; Kudal-Chapheli-Pulas jungle, Kerude jungle, Shivapur paz. Sawantwadi-Akari-Nemale forest, Amboli-Malai jungle, Chaukul, Danoli, Gavata, Satoli. Vengurla (Cooke, l.c.).

MEMECYLON L.

1. Leaves yellow when dry, especially lower surface; flowers sessile .. *M. talbotianum*
 1. Leaves dark green to yellowish-brown when dry; flowers oedipellate .. *M. umbellatum*

Memecylon talbotianum Brand. in Talb. Trees Bomb. ed. 2, Append. 1902; Cooke, Fl. Pres. Bombay 1 : 536, 1958 (Repr. ed.).

Small trees or shrubs, 5-8 m tall. Leaves 4.0-9.5 × 3.0-4.5 cm, ovate to elliptic, coriaceous, glabrous on both sides, apex acuminate, margins revolute. Flowers 0.2-0.3 cm across, bluish-purple; in fascicles; calyx campanulate, obscurely lobed, petals orbicular. Berries 0.5-0.6 cm across, globose, yellow.

Fls. & Frts. : February-July.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 54, fig. 320, 1911.

Distrib. : Scattered in plains and along the ghats in deciduous forest; Kudal-Narur, Shivapur paz, Sawantwadi-Ramghat.

M. umbellatum Burm. Fl. Ind. 87, 1768; Cooke, Fl. Pres. Bombay 1, 535, 1958 (Repr. ed.). *M. edule* Roxb. Pl. Cor. 1 : 59, t. 82, 1798; Clarke in Hook. f. Fl. Brit. India 2 : 583, 1879. *Mar.* : 'Anjan'.

Small trees or shrubs, 3-10 m tall. Leaves 3-8 × 1.6-4.0 cm, elliptic or ovate, glabrous on both sides, coriaceous, dark green and shining above, pale beneath, apex obtuse or bluntly acute. Flowers bluish-purple; in umbellate-cymes, on old wood; calyx campanulate, petals 0.2 cm long, ovate. Fruits 0.5-0.6 cm across, globose, reddish to dark purple.

Fls. & Frts. : February-July.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 53, figs. 318-319, 1911.

Distrib. : Common in deciduous and semi-evergreen forests from ghats to plains; Kankavli-Phonda-Mhatardeo Rai, Kudal-Ghotge, Kerude jungle, Malwan-Achre-Kaziwadasada, Kankavle, Sawantwadi-Amboli-Hemkunj palace, Chaukul, Ramghat.

OSBECKIA L.

Osbeckia truncata D. Don in Wight & Arn. Prodr. 322, 1834; Clarke in Hook. f. Fl. Brit. India 2 : 514, 1879; Cooke, Fl. Pres. Bombay 1 : 530, 1958 (Repr. ed.).

Annual herbs, 10-25 cm tall, stems and branches 4-angled, appressed bristly. Leaves 1.5—3.5 × 0.8—2.2 cm, ovate, 3-nerved, hairy on both sides, apex acute. Flowers 1.5 cm across, purple; in capitate cymes; calyx subglobose, stellate and simple hairy, petals ovate. Fruits 0.4-0.6 cm across, ovoid, 8-ribbed.

Fls. & Frts. : September-December.

Illus. : Wight, Icon. t. 375. 1840.

Distrib. : Common in deciduous forest from ghats to plains as undergrowth and in open situations; Kankavli-Nandgaon, Phonda-Devichi Ral. Malwan-Adari. Sawantwadi-Ambolighat-Nanapani, Danoli-Kesari R. F., Ramghat (Cooke, l. c.), Satarda.

SONERILA Roxb. (*non. cons.*)

Sonerila scapigera Hook. London J. Bot. 7 : 672. t. 23. 1848; Clarke in Hook. f. Fl. Brit. India 2 : 538. 1879; Cooke, Fl. Pres. Bombay 1 : 533. 1958 (Repr. ed.).

Tiny, stemless herbs, 3-6 cm tall. Leaves 1—4 × 1.0—2.5 cm, ovate or orbicular, glabrous and green above, reddish-green to purple and pubescent beneath, apex obtuse, rounded or acute. Flowers reddish; in subumbellate clusters; calyx funnel-shaped, petals 0.6-0.8 cm long. Capsules 0.3-0.4 cm long, ovoid, reddish, 3-gonous.

Fls. & Frts. : August-September.

Distrib. : Scarce, on damp rocks near falls along the ghats; Sawantwadi-Ambolighat (top).

LYTHRACEAE

1. Herbs, usually aquatic :

2. Capsules dehiscent :

3. Capsules dehiscing septically .. *Rotala*

3. Capsules opening firstly with an operculum, later irregularly below .. *Nesaea*

2. Capsules indehiscent or breaking irregular .. *Ammannia*

1. Shrubs or trees :

4. Capsules irregularly dehiscent; seeds not winged .. *Woodfordia*

4. Capsules loculicidal; seeds winged .. *Lagerstroemia*

AMMANNIA L.

Ammannia baccifera ssp. *baccifera* L. Sp. Pl. 120. 1753; Clarke in Hook. f. Fl. Brit. India 2 : 569. 1879; Cooke, Fl. Pres. Bombay 1 : 541. 1958 (Repr. ed.); Koehne in Engl. Pflanzenr. 17 : 54. 1903; Fernandes in Launert, Fl. Zambes. 4 : 308. 1978.

Herbs, 15-40 cm tall, stems tetragonous. Leaves $1.8-4.5 \times 0.3-1.2$ cm, linear-oblong or lanceolate, sessile or subsessile, apex obtuse, base narrow. Flowers reddish; in axillary, subsessile cymes forming whorls; calyx lobes 0.09 cm long, triangular, without appendages. Capsules depressed-globose, red.

Fls. & Frts. : December-March.

Distrib. : Frequent in marshes in plains; Kudal-Ghotge. Sawantwadi-Gavata.

LAGERSTROEMIA L.

1. Petals purple to lilac; seeds 1.8-2.5 cm long	..	<i>L. reginae</i>
1. Petals white; seeds less than 1.6 cm long :		
2. Leaves petiolate; calyx tube without any ring inside	..	<i>L. microcarpa</i>
2. Leaves subsessile; calyx tube with ring inside	..	<i>L. parviflora</i>

Lagerstroemia microcarpa Wight, Icon. t. 109. 1839; Furtado & Srisuko in Gard. Bull. Singapore 24 : 192. fig. 2 & b. 1969. *L. lanceolata* Wall. Cat. 2120. 1828, *nom. nud.* ; Clarke in Hook. f. Fl. Brit. India 2 : 576. 1879; Cooke, Fl. Pres. Bombay 1 : 545. 1958 (Repr. ed.). *Mar.* : *Nana* !.

Trees, 10-15 m tall, bark grey coloured. Leaves $6-10 \times 3.5-6.0$ cm, elliptic or elliptic lanceolate, glabrous above, hairy or sometimes glabrous beneath, apex acute or acuminate. Flowers inodorous; in terminal panicles; calyx campanulate, petals 0.4-0.5 cm long. Capsules $1.5 \times 0.6-0.8$ cm, ellipsoid, brownish-red.

Fls. & Frts. : March-June.

Illus. : Wight, *l. c.*

Distrib. : Frequent in deciduous forest along the slopes of the ghats and at base; Kankavli-Bhironde jungle. Kudal-Bhadgaon. Ghotge, Wasuli. Sawantwadi-Ambolighat-Kumbheshwar, Bhedshi-Karnyachi Rai, Danoli, Ramghat.

L. parviflora Roxb. Pl. Cor. t. 66. 1795; Clarke in Hook. f. Fl. Brit. India 2 : 575. 1879; Cooke, Fl. Pres. Bombay 1 : 545. 1958 (Repr. ed.); Furtado & Srisuko in Gard. Bull. Singapore 24 : 195. fig. 3a, 3b. 1969. *Mar.* : *Nanahondara* ?.

Trees, 8-10 m tall. Leaves 5—9 × 2.5—4.0 cm, elliptic-oblong, glabrous above, greyish, hairy beneath, apex acute or obtuse. Flowers fragrant; in terminal or axillary panicles; calyx cup-shaped, finely pubescent outside, petals 0.35 cm long. Capsules 1.5—3.0 × 1.5 cm, ovoid-oblong, purple.

Fls. & Frts. : March-October.

Illus. : Wight, Icon. 1. 69. 1838.

Distrib. : Frequent in deciduous forest in plains; Kankavli-Kumbhavde, Nandgaon-Belachi Rai, Osargaon, Phonda-Mhatardeo Rai, Phondaghat. Sawantwadi-Akeri, Banda-Tamboli forest.

L. reginae Roxb. Pl. Cor. t. 65. 1795; Furtado & Srisuko in Gard. Singapore 24 : 261. fig. 29B. 1969. *L. flos-reginae* Retz. Obs. Bot. 5 : 25. 1788 *p. p.* ; Cooke, Fl. Pres. Bombay 1 : 546. 1958 (Repr. ed.). *L. flos-reginae* Retz. var. *angusta* (Sphalm. *angust*) Clarke in Hook. f. Fl. Brit. India 2 : 577. 1879.

Trees, 10 m tall. Leaves 8—12 × 3—6 cm, elliptic-oblong, chartaceous, glabrous on both sides, apex obtuse or acute, base narrowed. Flowers 4.5-6.0 cm across; in large panicles; calyx cup-shaped, petals 2.5 cm long, sub-orbicular. Capsules 3.0 × 2.5 cm, subglobose, accrescent calyx ribbed outside.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 413. 1843.

Distrib. : Planted along the bank of lake; Sawantwadi-Near lake. Vengurla (Cooke, *l. c.*).

NESAEA Commers. ex Juss.

Nesaea lanceolata (Heyne ex Clarke) Koehne in Engl. Bot. Jahrb. 3 : 325 1882 et Pflanzenr. 17 : 226. 1903; Panigrahi in Bull. Bot. Surv. India 18 : 186. 1976 (1979). *Ammannia lanceolata* Heyne ex Clarke in Hook. f. Fl. Brit. India 2 : 570. 1879.

Annual, erect herbs, 10-15 cm tall, stems tetragonous. Leaves $1.2-2.0 \times 0.1-0.15$ cm, elliptic-oblong, subsessile, base attenuate, glabrous above, minutely puberulous on lower surface. Flowers shortly pedicellate, calyx campanulate, pubescent, 0.25-0.3 cm long, petals oblong, rose coloured. Capsules 0.5 cm across, subglobose. Seeds subhemispheric.

Fls. & Frts. : September-October.

Illus. : Koehne *l. c.* 227, 43 B.

Distrib. : Occasional, on moist, sandy soil; Malwan-Deobag.

RODALA L.

- 1. Leaves in whorls; petals absent .. *R. occultiflora*
- 1. Leaves not in whorls; petals present :
 - 2. Flowers in close terminal spikes; leaves suborbicular :
 - 3. Styles and stamens shortly included in the calyx tube .. *R. rotundifolia*
 - 3. Styles and stamens much exerted .. *R. macrandra*
 - 2. Flowers in axillary or terminal leafy spikes; leaves not suborbicular :
 - 4. Calyx appendages absent; capsules 2-valved .. *R. indica*
 - 4. Calyx with appendages which alternate with lobes; capsules 3-valved :
 - 5. Petals equalling calyx lobes; capsules exceeding calyx lobes .. *R. roxa*
 - 5. Petals twice as long as calyx lobes; capsules not exceeding calyx lobes .. *R. densiflora*

Rotala densiflora (Roth ex Roem. & Schult.) Koehne in Engl. Bot. Jahrb. 1 : 164. 1880 et Pflanzenr. 17 : 35. 1903.; Cook in Boissiera 29 : 82. fig. 17. 1979. *Ammannia densiflora* Roth ex Roem. & Schult. Syst. Veg. 3 : 304. 1818. *A. pentandra* Clarke in Hook. f. Fl. Brit. India 2 : 568. 1879, *p.p.*; Cooke, Fl. Pres. Bombay 1 : 539. 1958 (Repr. ed.).

Erect herbs, 10-20 cm tall, stems rooting at basal nodes, tetragonous. Leaves $0.8-1.5 \times 0.3-0.5$ cm, linear-lanceolate, opposite decussate, apex obtuse to acute, base cordate or obtuse. Flowers pink; in axils of bracts; sessile or subsessile, calyx campanulate, lobes triangular, appendages linear, petals 0.05-0.1 cm long, obovate. Capsules 0.1-0.15 cm long, globose.

Fls. & Frts. : August-November.

Illus. : Wight, Icon. t. 260/B. 1840.

Distrib. : Common in wet places in open situations from ghats to plains; Deogad-Naringre. Kankavli-Digwai Road, Phonda-Devichi Rajkudal-Bhadgaon, Kadaval, Nileli, Malwan-Kuperighati, Nandos. Sawantwadi-Akeri, Amboli, Danoli, Mangaon, Nangartas, Satarda.

R. indica (Willd.) Koehne in Engl. Bot. Jahrb. 1 : 172. 1880 et Pflanzenr. 17 : 40. 1903; Cook in Boissiera 29 : 108. fig. 24. 1979. *Peplis indica* Willd. Sp. Pl. 2 : 244. 1799. *Ammannia peploides* Spreng. Syst. Veg. 1 : 444. 1825, *nom. illeg.*; Clarke in Hook. f. Fl. Brit. India 2 : 366. 1879; Cooke, Fl. Pres. Bombay 1 : 538. 1958 (Repr. ed.).

Erect, annual herbs, 8-15 cm tall, stems erect or decumbent, rooting at basal nodes. Leaves 0.6—1.8 × 0.4—0.8 cm, obovate or narrowly oblong, sessile or subsessile, apex obtuse or acute, base cuneate or obtuse. Flowers pink or red; in axils of bracts borne either on main axis or on short spikelike lateral inflorescence; calyx narrowly or broadly campanulate, petals linear to narrowly obovate. Capsules 0.2 cm long; ellipsoid.

Fls. & Frts. : December-February.

Distrib. : Occasional in moist, open situations in plains; Malwan-Achre-Kaziwadasada. Sawantwadi-Akeri-Mangaon forest.

R. macrandra Koehne in Engl. Bot. Jahrb. 1 : 176. 1880 et Pflanzenr. 17 : 42. 1903; Cook in Boissiera 29 : 54. 1979.

Procumbent herbs, 20-40 cm long, stems creeping, rooting at basal nodes. Leaves 1.0—2.2 × 1.1—2.2 cm, sessile or subsessile, apex obtuse or acute. Flowers pink; in compact spikes, in bracts 0.3 cm across, orbicular; calyx 0.1 cm long, campanulate, petals 0.2 cm long; anthers 0.4 cm long. Capsules 0.15 cm across, globose.

Fls. & Frts. : October-February.

Illus. : Wight, Icon. t. 258. 1840; Cook l. c. 50. fig. 9 E-H.

Distrib. : Occasional in ponds and on riverbed from ghats to plains; Sawantwadi-Amboli-Nangartas, Bhedshi, Sawantwadi.

R. occultiflora Koehne in Engl. Bot. Jahrb. 1 : 152. 1880 et Pflanzenr. 17 : 30. 1903; Cook in Boissiera 29 : 41. 1979.

Delicate, annual herbs, 8-10 cm tall, stems creeping. Leaves $0.5-1.2 \times 0.1$ cm, basal submerged leaves linear, aerial linear to ovate, apex acute or acuminate. Flowers pink, sessile, axillary, solitary, bracts leafy, 1 cm long; calyx membranous, 0.1 cm long, lobes triangular. Capsules 0.15 cm long, ellipsoid.

Fls. & Frts. : September-October.

Illus. : Koehne *l. c.* 25. fig. 2B.

Distrib. : Occasional in plains in water logged areas along roadsides; Kankavli-Phonda-Devichi Rai.

R. rosea (Poir.) Cook in Boissiera 29 : 86. fig. 18 A-H. 1979. *Ammannia rosea* Poir. in Lamk. Encycl. Suppl. 1 : 329. 1810. *A. pentandra* Roxb. Fl. Ind. 1 : 448. 1820; Clarke in Hook. f. Fl. Brit. India 2 : 568. 1879, *p. p.*; Cooke, Fl. Pres. Bombay 1 : 539. 1958, *p. p.* (Repr. ed.). *Rotala leptopetala* (Bl.) Koehne in Engl. Bot. Jahrb. 1 : 162. 1880 et Pflanzenr. 17 : 34. 1903; Kulkarni & Singh in Bull. Bot. Surv. India 21 (1-4) : 212-213. 1981.

Annual herbs, 10-15 cm tall, stems rooting at base, tetragonous. Leaves $0.5-2.5 \times 0.1-0.8$ cm, linear-lanceolate or ovate-oblong, apex obtuse or acute, base cuneate or obtuse. Flowers pale pink; axillary and solitary; sessile in axils of bracts, forming compact spikes, calyx campanulate, petals 5, rarely 4, 0.025 cm long. Capsules 0.05 cm long, globose, red.

Fls. & Frts. : September-November.

Illus. : Cook, *l. c.*

Distrib. : Sawantwadi-Ambolighat-Nangartas.

R. rotundifolia (Buch.-Ham. ex Roxb.) Koehne in Engl. Bot. Jahrb. 1 : 175. 1880 et Pflanzenr. 17 : 41. 1903; Cook in Boissiera 29 : 49, 50. fig. 9A-D. 1979. *Ammannia rotundifolia* Buch.-Ham. ex Roxb. Fl. Ind. 1 : 446. 1820; Clarke in Hook. f. Fl. Brit. India 2 : 566. 1879; Cooke, Fl. Pres. Bombay : 1 : 540. 1958 (Repr. ed.).

Procumbent herbs, 15-30 cm long, stems branched, creeping or floating. Leaves $1.2-2.0 \times 1.4-2.4$ cm, sessile or subsessile, green above, reddish-green beneath. Flowers rose; in terminal, spicate inflorescence; calyx campanulate, petals 0.15 cm long, obovate. Capsules 0.15 cm across, globose.

Fls. & Frts. : September-December.

Illus. : Cook, *l. c.*

Distrib. : Frequent in marshes in open situations from ghats to plains; Kankavli-Humbrat Road, Nandgaon, Phonda, Malwan (Cooke, *l. c.*). Sawantwadi-Amboli.

WOODFORDIA Salisb.

Woodfordia fruticosa (L.) Kurz in J. Asiat. Soc. Bengal 40 : 56. 1871; Koehne in Engl. Bot. Jahrb. 1 : 333. 1881 et Pflanzenr. 17 : 79. 1903. *Lythrum fruticosum* L. SP. Pl. ed. 2, 641. 1762. *Woodfordia floribunda* Salisb. Parad. Lond.t. 42. 1806; Clarke in Hook. f. Fl. Brit. India 2 : 572. 1879; Cooke, Fl. Pres. Bombay 1 : 543. 1958 (Repr. ed.). Mar. : 'Dhayati'.

Undershrubs or shrubs, 1.5-2.0 m tall, young parts pubescent. Leaves 3.5—8.0 × 1.2—2.5 cm, oblong-lanceolate, shortly petioled, glabrescent above, pubescent and glandular-punctate beneath, apex acute. Flowers red; in racemes in axils of fallen leaves; calyx tubular, 1.2-1.5 cm long, glandular hairy, petals lanceolate. Capsules 0.8-1.0 cm long, ellipsoid.

Fls. & Frts. : May-June.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 58. fig. 322. 1911.

Distrib. : Frequent in deciduous forest in plains and along the lower slopes of ghats; Deogad-Nadan-Vir. Kankavli-Kumbhavde, Naradave-Girachi Rai. Kudal-Ghotge, Pangrad. Sawant-wadi-Ambolighat-Nanapani, Gavata, Ramghat.

Cultivated species :

LAWSONIA L.

Lawsonia inermis L. Sp. Pl. 349. 1753; Koehne in Engl. Bot. Jahrb. 4 : 1883 et Pflanzenr. 17 : 270. 1903; Cooke, Fl. Pres. Bombay 1 : 544. 1958 (Repr. ed.). *L. alba* Lamk. Encycl. 3 : 106. 1789; Clarke in Hook. f. Fl. Brit. India 2 : 573. 1879. Mar. : 'Mehendi'.

Shrubs, 2-3 m tall, much branched. Leaves 1.2—4.0 × 0.6—2.0 cm, elliptic or obovate, glabrous on both sides, apex acute, narrowed at base. Flowers 1.4 cm across, white, scented; in terminal panicles; calyx broadly campanulate, petals suborbicular. Capsules 0.6 cm across, glabose.

Fls. & Frts. : April-June.

Distrib. : Planted along hedges; Kudal-Kerude.

SONNERATIACEAE

SONNERATIA L. f.

1. Petals absent; styles shorter than stamens *S. apetala*
 1. Petals present; styles much longer than stamens *S. caseolaris*

Sonneratia apetala Buch.-Ham. in Symes, Embassy Ava 3 : 477. 1800; Clarke in Hook. f. Fl. Brit. India 2 : 579. 1879; Cooke, Fl. Pres. Bombay 1 : 547. 1958 (Repr. ed.); Backer & van Steenis, Fl. Males. Ser. 1, 4 : 286. 1951.

Trees, 5-8 m tall, branches slender, drooping. Leaves 4—8 × 2—3 cm, oblong-lanceolate, thick, glabrous on both sides, apex obtuse, base attenuate. Flowers greenish-white; inflorescence 1-3 flowered; calyx tube cup-shaped, including lobes 1.5-2.0 cm long. Capsules 2.5 cm across, globose.

Fls. & Frts. : February-March.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 66. fig. 323. 1911.

Distrib. : Scattered, once only collected in salt-marsh; Malwan-Achre creek.

S. caseolaris (L.) Engl. in Engl. & Prantl, Nachtr. 261. 1897; Backer & van Steenis, Fl. Males. Ser. 1, 4 : 283. 1951. *Rhizophora caseolaris* L. (*p. p.*), in Stickman, Herb. Amb. 13. 1754 et Amoen. Acad. 4 : 123. 1759. *Sonneratia acida* L. f. Suppl. 252. 1781; Clarke in Hook. f. Fl. Brit. India 2 : 579. 1879; Cooke, Fl. Pres. Bombay 1 : 547. 1958 (Repr. ed.). *Mar.* : *Kandal*.

Trees, 5-8 m tall, young branches obtusely quadrangular. Leaves 4.5—9.0 × 2—5 cm, elliptic-oblong or obovate, thick, apex obtuse, base cuneate. Flowers rose; terminal, solitary or 3-together; calyx smooth, 3.0-3.5 cm long, petals 1.9-2.5 cm long, linear-lanceolate. Capsules 3-5 cm across, depressed-globose, supported by persistent calyx.

Fls. & Frts. : February-November.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 67. figs. 328 & 329. 1911.

Distrib. : Frequent in salt marsh along coast and in creeks; Deogad-Nadan-Vir. Malwan-Achre creek. Vengurla Near Harbour.

ONAGRACEAE

LUDWIGIA L.

1. Stamens twice as many as petals :
 2. Capsules 6-8-ribbed; seeds free, not dimorphic .. *L. octovalvis* ssp. *sessiliflora*
 2. Capsules subterete, not ribbed; seeds in upper part of capsule embedded in endocarp, those in the lower free, dimorphic .. *L. hyssopifolia*
 1. Stamens as many as petals .. *L. perennis*

Ludwigia hyssopifolia (G. Don) Exell in García de Orta 5 : 471. 1957; Raven in Reinwardtia 6 : 385. 1963; Sreemadhavan in Bull. Bot. Surv. India 8 : 79. 1966. *Jussiaea hyssopifolia* G. Don, Gen. Syst. 2 : 693. 1832.

Annual herbs, 20-40 cm tall, woody at base, pneumatophores arise from submerged roots. Leaves 2-6 × 0.2-2.8 cm, lanceolate, apex acuminate, base cuneate. Flowers yellow, sessile; axillary, solitary, sometimes passing into terminal spikes; sepals 0.2-0.4 cm long, puberulent outside, petals 2.5 cm long, elliptic-ovate. Capsules 1.5-3.0 cm long, glabrous or minutely puberulent, upper inflated portion multiseriate, lower uniseriate.

Fls. & Frts. : August-October.

Distrib. : Frequent in open, marshy places and on river beds in plains; Malwan-Adari Road, Malwan. Sawantwadi-Danoli, Kudasa, Satarda, Sawantwadi.

L. octovalvis (Jacq.) Raven ssp. *sessiliflora* (Mich.) Raven in Kew Bull. 15 : 476. 1962 et Reinwardtia 6 : 362. 1963; Sreemadhavan in Bull. Bot. Surv. India 8 : 79. 1966. *Jussiaea octonervia* var. *sessiliflora* Mich. in Mart. Fl. Bras. 13 (2) : 180. Pl. 75. 1875. *J. suffruticosa* L. Sp. Pl. 388 1753; Clarke in Hook. f. Fl. Brit. India 2 : 587. 1879; Cooke, Fl. Pres. Bombay 1 : 549. 1958 (Repr. ed.). *Mar.* : 'Panlavang'.

Robust herbs, perennial, 0.5-1.5 m tall, branches pubescent. Leaves 3.5-7.0 × 0.8-3.5 cm, lanceolate to ovate-lanceolate, sessile, pubescent to villous on both sides, apex acute or acuminate. Flowers yellow, shortly pedicellate; axillary, solitary; calyx hairy, sepals 0.3-1.2 cm long, petals 0.5-1.5 cm long. Capsules 1.8-4.5 cm long, pubescent.

Fls. & Frts. : September-November.

Distrib. : Frequent in marshy places and on wet river bed in plains; Kankavli-Ghonsari. Kudat-Kerude. Sawantwadi-Akeri. Danoli, Gavata, Mangaon, Ramghat. Venguria (Cooke, l. c.).

L. perennis L. Sp. Pl. 119. 1753; Ravan in Reinwardtia 6 : 367. 1963; Sreemadhavan in Bull. Bot. Surv. India 8 : 79. 1966. *L. parviflora* Roxb. Fl. Ind. 1 : 440. 1820; Clarke in Hook. f. Fl. Brit. India 2 : 588. 1879; Cooke, Fl. Pres. Bombay 1 : 550. 1958 (Repr. ed.).

Annual herbs, 20-50 cm tall, young parts minutely pubescent or glabrous. Leaves 0.5—5.0 × 0.4—2.0 cm; elliptic-oblong or lanceolate, glabrous, apex acute, base narrowed. Flowers yellow, sessile or shortly peduncled; axillary, solitary; sepals 0.2 cm long, petals equalling sepals, elliptic-oblong. Capsules 0.6-1.5 cm long, glabrous, thin walled.

Fls. & Frts. : August-October.

Distrib. : Scattered, in open, moist places along streams and in paddy fields in plains; Malwan-Nandos. Sawantwadi-Danoli. Vengurla-Vagiri forest.

PASSIFLORACEAE

1. Leaves with 2 or more glands at base; flowers unisexual	...	<i>Adenia</i>
1. Leaves without glands at base; flowers bisexual	...	<i>Passiflora</i>

ADENIA Forsk.

Adenia hondala (Gaertn.) de Wilde in Blumea 15 : 265. 1967. *Granadilla hondala* Gaertn. Fruct. 11 : 480. t. 180. f. 10. 1791. *Modecca palmata* Lamk. Encycl. 4 : 209. 1797; Mast. in Hook. f. Fl. Brit. India 2 : 603. 1879; Cooke, Fl. Pres. Bombay 1 : 556. 1958 (Repr. ed.). *Mar.* : 'Koundal'.

Tendrilar climbers, woody at base, young parts greyish-green, nodes swollen. Leaves 8—12 × 10—15 cm, 3—5 palmately lobed, lobes acute to acuminate, base cordate, membranous. Flowers 2 cm across, greenish-yellow; in paniculate cymes; calyx broadly campanulate, petals linear-lanceolate, long fringed. Capsules 6 cm across, globose, red when ripe.

Fls. & Frts. : April-June.

Illus. : Wight, Icon. t. 201. 1839.

Distrib. : Scattered, in shady places on the outskirts of semi-ever-green forest along the ghats and also in plains in deciduous forest; Malwan (Cooke, l. c.). Sawantwadi-Ambolighat-Nanapani, Ramghat.

PASSIFLORA L.

Passiflora foetida L. Sp. Pl. 959. 1753; Cooke, Fl. Pres. Bombay 1 : 557. 1958 (Repr. ed.); Fernandes in Lannert, Fl. Zambes. 4 : 411. 1978.

Tendrilar climbers, stems softly villous. Leaves 5—8 × 5—8 cm, ovate, hairy on both sides, 3-lobed, apex of lobes acute to acuminate, base cordate, stipules dissected into filiform segments. Flowers 2-3 cm across, white, pink below; solitary; sepals oblong, petals oblong-lanceolate, bracts of involucre 2-4-pinnatifid. Fruits 1.5-2.5 cm across, globose, smooth.

Fls. & Frts. : February-March.

Illus. : Fernandes *l. c.* 410. tab. 98.

Distrib. : Occasional, once only collected along road-sides; Deogad-Tar-mumbri.

CUCURBITACEAE

1. Petals fimbriate	..	<i>Trichosanthes</i>
1. Petals not fimbriate :		
2. Anther lobes conduplicate or sigmoid :		
3. Peduncles bracteate; corolla rotate or if campanulate then petals 5 partite or free :		
4. Fruits dry, dehiscent, fibrous inside	..	<i>Luffa</i>
4. Fruits succulent, indehiscent, not fibrous inside	..	<i>Momordica</i>
3. Peduncles not bracteate; corolla campanulate not divided more than 1/2 way down	..	<i>Coccoloba</i>
2. Anther lobes not conduplicate nor sigmoid, usually erect or curved :		
5. Flowers usually monoecious; style with a disc :		
6. Male flowers in raceme like cymes or in subumbellate	..	<i>Zehneria</i>
6. Male flowers in fascicles or in short umbels :		
7. Female flowers sessile; fruits globose, indehiscent		<i>Mukia</i>
7. Female flowers pedunculate; fruits cylindric, dehiscent	..	<i>Solenia</i>
5. Flowers monoecious or dioecious ; stylar disc absent :		
8. Stamens 3 :		
9. Male flowers in racemes or corymbs; fruits pubescent	..	<i>Kedrostis</i>
9. Male flowers in fascicles; fruits glabrous	..	<i>Dicranospermum</i>
8. Stamens 5	..	<i>Zanonia</i>

COCCINIA Wight & Arn.

Coccinia grandis (L.) Voigt, Hort. Suburb. Calc. 59. 1845; Jeffrey in Launert, Fl. Zambes. 4 : 450. 1978; Chakravarty, Fasc. Fl. Ind. 11 : 22. 1982. *Bryonia grandis* L. Mant. 1 : 126. 1767. *Coccinia indica* Wight & Arn. Prodr. 347. 1834; Cooke, Fl. Pres. Bombay 1 : 572. 1958 (Repr. ed.). *Cephalandra indica* Naud. in Ann. Sci. Nat. Ser. 5, 5 : 16. 1866; Clarke in Hook. f. Fl. Brit. India 2 : 621. 1879 (excl. syn.). Mar. : 'Tondali

Slender, twining or spreading herbs, tendrils simple, stems glabrous. Leaves 3-6 cm broad as well as long, 5-angled or lobed, base cordate, glabrous and shining above, glandular hairy and pale beneath. Flowers, male and female, white; axillary, solitary; calyx campanulate, glabrous, corolla 2-3 cm across. Fruits 3—5 × 1.5—3.5 cm, ellipsoid, obtuse, reddish when ripe.

Fls. & Frts. : June-August.

Distrib. : Occasional in open situations in plains, as weed; Malwan-Near Inspection bungalow. Sawantwadi-Danoli.

DICAELOSPERMUM Clarke

Dicaelospermum ritchiei Clarke in Hook. f. Fl. Brit. India 2 : 630. 1879; Cooke, Fl. Pres. Bombay 1 : 580. 1958 (Repr. ed.); Chakravarty, Fasc. Fl. Ind. 11 : 47. 1982.

Climbing herbs, tendrils simple, stems grooved, scabrous. Leaves 3-6 cm broad as well as long, ovate-cordate, 5-angled or 3-lobed, membranous, sparsely hairy above, hirsute to scabrid beneath. Flowers white; male flowers in fascicles and female flowers solitary; calyx tube hirsute, corolla pubescent, 0.15-0.2 cm long in both the flowers. Fruits 0.4-0.5 cm across, globose, sessile, red when ripe.

Fls. & Frts. : September-October.

Illus. : Chakravarty and Hore in Indian J. Forestry 2 (4) : 327. Pl. 1. fig. 11. (seeds) 1979.

Distrib. : Scattered, on the outskirts of deciduous forest along the slopes of the ghats; Kankavli-Phonda-Bhairypathar, Phondaghat.

KEDROSTIS Medik.

Kedrostis foetidissima (Jacq.) Cogn. in A. & C. DC. Mon. Phan. 3 : 634. 1881; Jeffrey in Kew Bull. 34 : 792. 1980. *Trichosanthes foetidissima* Jacq.

Collect. 2 : 341. 1789. *Kedrostis rostrata* (Rottl.) Cogn. in A. & C. DC. Mon. Phan. 3 : 636. 1881; Cooke, Fl. Pres. Bombay 1 : 577. 1958 (Repr. ed.); Chakravarty, Fasc. Fl. Ind. 11 : 64. 1982. *Rhynchosarpha foetida* Schrad. in Linnaea 12 : 403. 1838; Clarke in Hook. f. Fl. Brit. India 2 : 627. 1879.

Tendrilar, climbing or spreading herbs, stems and branches angled, hairy. Leaves $1.9-4.5 \times 1.9-4.5$ cm, ovate-orbicular, 5-angled, membranous, scabrid hairy on both sides. Male flowers in racemose-cymes; yellow, calyx and corolla pubescent; female flowers usually solitary or in clusters; calyx and corolla hairy. Fruits 2.5 cm long, ovoid, beaked, deep red when ripe.

Fls. & Frts. : September-November.

Illus. : Chakravarty and Hore in Indian J. Forestry 2 (4) : 328. Pl. 2. fig. 22 (seeds) 1979.

Distrib. : Scattered, in open areas along the ghat slopes; Sawantwadi-Ambolighat-Nanapani.

LUFFA Mill.

Luffa acutangula (L.) Roxb. var. *amara* (Roxb.) Clarke in Hook. f. Fl. Brit. India 2 : 615. 1879; Cooke, Fl. Pres. Bombay 1 : 567. 1958 (Repr. ed.); Chakravarty, Fasc. Fl. Ind. 11 : 70. 1982. *L. amara* Roxb. Fl. Ind. 3 : 715. 1832. *Mar.* : 'Jungli-dodka'.

Perennial climbers, tendrils trifid, stems angular, glabrous. Leaves 5-9 cm as long as broad, ovate, angled, hairy on both sides. Flowers pale yellow; male and female flowers in same axils, male flowers in racemes; calyx pubescent, 1.2 cm long, corolla 1.8 cm long; female flowers solitary. Fruits 4-5 cm long, 8-10 ribbed.

Fls. & Frts. : September-February.

Distrib. : Frequent in open situations along the ghats and in scrub jungle in plains; Kankavli-Phonda-Bhairi pathar. Kudal-Chapheli, Kerude jungle. Sawantwadi-Ramghat.

MOMORDICA L.

1. Flowers monoecious; peduncles of male flowers bracteate at the middle (sometimes near the base)	..	<i>M. charantia</i>
1. Flowers dioecious; peduncles of male flowers bracteate near the apex	..	<i>M. dioica</i>

Momordica charantia L. Sp. Pl. 1009, 1753; Clarke in Hook. f. Fl. Brit. India 2 : 616. 1879; Cooke, Fl. Pres. Bombay 1 : 562. 1958 (Repr. ed.); Chakaravarty, Fasc. Fl. Ind. 11 : 89. 1982. Mar. : 'Karli'.

Climbing or prostrate herbs, stems sparsely pubescent, villous at nodes. Leaves 1.5—8.0 × 1.6—9.0 cm, broadly ovate to orbicular, deeply 3-7-lobed, hairy on both sides. Flowers yellow; male flowers : peduncles 0.3-0.5 cm long, petals 1.5-2.0 cm long; female flowers : peduncles 0.2-0.5 cm long, bracteate at base, petals 0.7-1.2 cm long. Fruits 8-20 cm long, ellipsoid, tuberculate.

Fls. & Frts. : June-August.

Distrib. : Usually cultivated for fruit-vegetable, found as an escape; Deogad-Near Rest House.

M. dioica Roxb. ex Willd. Sp. Pl. 4 : 605. 1805; Clarke in Hook. f. Fl. Brit. India 2 : 617. 1879; Cooke, Fl. Pres. Bombay 1 : 563. 1958 (Repr. ed.); Chakravarty, Fasc. Fl. Ind. 11 : 94. 1982. Mar. : 'Phagla', 'Phagli'.

Twining, tendrilar herbs, roots tuberous, stems slender, glabrous. Leaves 3.5—7.0 × 3—7 cm, broadly ovate, membranous, entire or 3-5 lobed, glabrous on both sides. Male flowers solitary, peduncles 4-10 cm long, bracts enclosing the flowers, petals yellow, 2-3 cm long; female flowers : peduncles with a conspicuous bract near base, 1.5-2.0 cm long. Fruits 3-5 cm long, ellipsoid, densely echinate with soft spines, apex rostrate.

Fls. & Frts. : July-August.

Illus. : Wight, Icon. tt. 505 & 506. 1841.

Distrib. : Occasional, along the slopes of the ghats on the outskirts of forest; Kankavli-Phondaghat. Sawantwadi-Ambolighat.

MUKIA Arn.

Mukia maderaspatana (L.) Roem. Syn. Rep. 47. 1846; Jeffrey in Launert, Fl. Zambes. 4 : 475. 1978 et Kew Bull. 34 794. 1980 *Cucumis maderaspatanus* L. Sp. Pl. 1012. 1753. *Mukia scabrella* (L. f.) Arn. in Hook. J. Bot. 3 : 276. 1841; Clarke in Hook f. Fl. Brit. India 2 : 623. 1879. *Melothria maderaspatana* (L.) Cogn. in A. & C. DC. Mon. Phan. 3 : 623. 1881; Cooke, Fl. Pres. Bombay 1 : 573. 1958 (Repr. ed.); Chakravarty, Fasc. Fl. Ind. 11 : 83. 1982.

Prostrate or climbing herbs with simple tendrils, stems and branches hispid. Leaves 3-6 cm as broad as long, ovate, triangular or deeply 3-5 lobed, hispid on both sides, base cordate to hastate, margins entire or denticulate.

Male flowers shortly pedicellate; calyx villose-hirsute, corolla yellow, 0.2-0.4 cm long; female flowers : 5-10 in each fascicle, shortly pedicellate. Fruits 0.6-0.8 cm across, globose, smooth, glabrous, bright red when ripe.

Illus. : Wight, Icon. t. 501. 1841; Jeffrey in Launert, *l. c.* 476. Tab. 115.

Distrib. : Scarce, in open, moist situations in plains; Malwan-Sindhudurg. Sawantwadi-Akeri-Mangaon forest.

SOLENA LOUR.

Solena heterophylla Lour. Fl. Cochinch. 1 : 514. 1790. *Zehneria umbellata* Thw. Enum. Pl. Zeyl. 125. 1859; Clarke in Hook. f. Fl. Brit. India 2 : 625. 1879. *Melothria heterophylla* (Lour.) Cogn. in A. & C. DC. Mon. Phan. 3 : 618. 1881; Cooke, Fl. Pres. Bombay 1 : 575. 1958 (Repr. ed.); Chakravarty, Fasc. Fl. Ind. 11 : 79. 1982. *Mar.* : 'Gometi'.

Perennial, climbing, tuberous herbs, stems and branches grooved and glabrous. Leaves 4—10 × 2—6 cm, variable, ovate-triangular to sagittate-suborbicular, sometimes 3-5 lobed, scabrid above, glabrous, glandular-punctate beneath. Male flowers with calyx-lobes subulate, corolla yellow, lobes glandular-pubescent; female flowers solitary; ovary smooth, trigonous. Fruits 3-5 cm long, oblong-ovoid, ribbed, bright red when ripe.

Fls. & Frs. : May-October.

Distrib. : Common in open situations from ghats in semi-evergreen forest to deciduous forest in plains; Kankavli-Phonda-Ghonsari Rai, Phondaghat, Sangwe. Kudal-Shivapur paz. Malwan-Kuperighati. Sawantwadi-Amboli-Hirapurekshi, Ambolighat-Nanapani, Banda-Tamboli forest, Ramghat, Satoli.

TRICHOSANTHES L.

1. Bracts of male flowers foliaceous, 2-4 cm long, lacinate	..	<i>T. tricuspidata</i>
1. Bracts of male flowers minute or absent	..	<i>T. cucumerina</i>

Trichosanthes cucumerina L. Sp. Pl. 1008. 1753; Clarke in Hook. f. Fl. Brit. India 2 : 609. 1879; Cooke, Fl. Pres. Bombay 1 : 560. 1958 (Repr. ed.); Chakravarty, Fasc. Fl. Ind. 11 : 112. 1982.

Annual, climbing herbs, stems grooved, glandular hairy, tendrils 3-fid. Leaves $5.9 \times 6-10$ cm, reniform to suborbicular, 3-7 angular or lobed, margins remotely, faintly denticulate, hairy on both sides. Male flowers solitary or in racemes, pedicels 1-2 cm long, jointed at the top; calyx glandular hairy, corolla 5-6 cm long; female flowers solitary, pedicels 0.4-1.6 cm long. Fruits 5-6 cm long, ovoid-conical, beaked.

Fls. & Frts. : August-October.

Distrib. : Scattered, in deciduous forest in open situations; Deogad-Naringre. Kankavli-Phondaghat. Sawantwadi-Akeri-Mangaon forest, Banda.

T. tricuspidata Lour. Fl. Cochinch. 2 : 589. 1790; Jeffrey in Kew Bull. 34 : 794. 1980. *T. bracteata* (Lamk.) Voigt, Hort. Suburb. Calc. 58. 1845; Chakravarty, Fasc. Fl. Ind. 11 : 169. 1982. *T. palmata* Roxb. Fl. Ind. 3 : 704. 1832; Clarke in Hook. f. Fl. Brit. India 2 : 606. 1879; Cooke, Fl. Pres. Bombay 1 : 560. 1958 (Repr. ed.). *Mar.* : 'Kaundal'

Extensive climbers, stems robust, woody below, light grey, branches grooved, with scabrous spots. Leaves $4-15 \times 5-14$ cm, broadly ovate, 3-5 palmately lobed, dark green, hispid, or scabrous above, pale green and glabrous beneath. Male flowers in racemes; calyx hairy, corolla white, 4.5 cm across; female flowers solitary. Fruits 4-5 cm across, ovoid, scarlet when ripe.

Fls. & Frts. : June-September.

Distrib. : Frequent in semi-evergreen forest along the slopes of the ghats and in deciduous forest in plains; Kankavli-Phonda-Harkool forest. Kudal-Songad paz. Sawantwadi-Amboli-ghat, Gavata, Ramghat, Terwan.

ZANONIA L.

Zanonía indica L. Sp. Pl. ed. 2, 1457. 1763; Clarke in Hook. f. Fl. Brit. India 2 : 633. 1879; Cooke, Fl. Pres. Bombay 1 : 581. 1958 (Repr. ed.); Chakravarty, Fasc. Fl. Ind. 11 : 124. 1982.

Climbing shrubs, stems and branches glabrous or hairy. Leaves $6-1 \times 4-8$ cm, ovate or oblong, coriaceous, glabrous on both sides, base rounded or cordate. Male flowers in panicles, pedicels stout, jointed in the middle; calyx ovate, petals greenish-yellow, 0.2-0.3 cm long, oblong; female flowers in racemes, pedicels thick; petals 0.6-0.8 cm long, ovate-oblong. Fruits 5-8 cm long, cylindric, apex truncate, yellowish-brown when ripe.

Fls. & Frts. : December-May.

Distrib. : This species is included here on Cooke's report (*l.c.*) based on collection by Dalzell from Vengurla.

ZEHNERIA Endl.

1. Fruits globose, not beaked	..	<i>Z. scabra</i>
1. Fruits fusiform, beaked	..	<i>Z. thwaitesii</i>

Zehneria scabra (L. f.) Sond. in Harv. & Sond. Fl. Cap. 2 : 486. 1862; Jeffrey in Kew Bull. 15 : 369. 1962 et in Launert, Fl. Zambes. 4 : 478. 1978. *Bryonia scabra* L. f. Suppl. 423. 1781. *Zehneria hookertiana* (Wight & Arn.) Arn. in Hook. J. Bot. 3 : 275. 1841; Clarke in Hook. f. Fl. Brit. India 2 : 624. 1879 (excl. syn.). *Melothria perpusilla* (Bl.) Cogn. in A. & C. DC. Mon. Phan. 3 : 607. 1881; Cooke Fl. Pres. Bombay 1 : 574. 1958 (Repr. ed.); Chakravarty, Fasc. Fl. Ind. 11 : 85. 1982.

Climbing or spreading herbs or undershrubs, branches grooved and glabrous or hairy, tendrils simple. Leaves 3.5-6.5 cm as long as broad, broadly ovate, 5-angled, base rounded, margins denticulate, scabrid above, reticulate veined and hairy beneath. Male flowers sessile or shortly pedunculate; calyx 0.2-0.5 cm long, petals white becoming yellowish with age, 0.15-0.3 cm long; female flowers solitary or in subumbellate clusters. Fruits 0.8-1.2 cm across, bright red when ripe.

Fls. & Frts. : September-October.

Distrib. : Scarce in open situations along the slopes of the ghats and at base; Kankavli-Phondaghat. Wari Country - Sawantwadi-Cooke, *l. c.*

Z. thwaitesii (Schweinf.) Jeffrey in Kew Bull. 15 : 371. 1962 et in Launert, Fl. Zambes 4 : 483. 1978. *Melothria thwaitesii* Schweinf. Reliqu. Kotschy. 44. t. 29. 1868. *M. zeylanica* Clarke in Hook. f. Fl. Brit. India 2 : 626. 1879. *M. ritchiei* Chakravarty in J. Bombay nat. Hist. Soc. 50 : 898. 1952 et Fasc. Fl. Ind. 11 : 86. 1982.

Slender herbs, stems and branches angular, glabrous or sparsely pilose. Leaves 2-4 cm as long as broad, reniform-cordate or broadly ovate, 5-angular, apex acute, base subtruncate or cordate, scabrid-punctate above, setulose on nerves beneath. Male flowers solitary or in fascicles, pedicels 0.8-1.0 cm long; calyx sparsely villous, petals 0.15-0.6 cm long, yellow; female flowers solitary, co-axillary with male flowers, pedicels 0.4-0.6 cm long. Fruits 1.5-3.5 cm long, red when ripe, rostrate.

Fls. & Frts. : August-November.

Illus. : Chakravarty, l. c.

Distrib. : Sawantwadi-Ramghat, Chakravarty l. c.

BEGONIACEAE

BEGONIA L.

Begonia crenata Dryand. in Trans. Linn. Soc. 1 : 162. t. 14. 1791; Clarke in Hook. f. Fl. Brit. India 2 : 651. 1879; Cooke, Fl. Pres. Bombay 1 : 584. 1958 (Repr. ed.).

Annual herbs, 8-15 cm tall, stems red tinged, slender. Leaves 2—6 × 1.0—4.0 cm, ovate, sparsely hairy above, glabrous, purple or grey to silvery shining below, apex acute, base cordate, margins crenate-dentate. Flowers white to pink, unisexual; male flowers with sepals-4, stamens monadelphous; female flowers with sepals-5, styles-3. Fruits 0.6 × 0.8 cm, triangular, 3-winged, membranous, gland-dotted along the margins of wings.

Fls. & Frts. : July-October.

Distrib. : Common, on damp rocks and on the banks of streams from ghats to hilly areas in plains; Deogad-Naringre, Kankavli-Phonda-Ghonsari. Malwan-Adari-Nandruk, Anandval-on Kasal Road. Sawantwadi-Akeri-Nemle forest, Amboli, Ambolighat-Nanapani, Danoli, Satarda.

TETRAMELACEAE (DATISCACEAE)

TETrameles R. Br.

Tetrameles nudiflora R. Br. in Benn. Pl. Java Rar. 79. t. 17. 1838; Clarke in Hook. f. Fl. Brit. India 2 : 657. 1879; Cooke, Fl. Pres. Bombay 1 : 586. 1958 (Repr. ed.); van Steenis, Fl. Males. Ser. 1, 4 : 385. 1953.

Lofty trees, 15-20 m tall, bark smooth, shining, steel grey, stems buttressed, branched above 2/3 height. Leaves 6-15 × 5—12 cm, ovate, glabrous above, hairy beneath, margins irregularly serrate, apex acuminate. Flowers yellow, unisexual, dioecious; male flowers shortly pedicelled, in pubescent panicles; calyx glabrous, petals absent; female flowers sessile, in spicate racemes; calyx lobes connate, pubescent outside. Capsules 0.5-0.6 cm long, ovoid, ribbed, membranous.

Fls. & Frts. : February-June.

Illus. : Wight, Icon. t. 1956. 1853.

Distrib. : Scattered, in deciduous forest along the slopes and at base of ghats; Kankavli-Phonda-Dindiyachi Rai. Sawantwadi-Ramghat.

MOLLUGINACEAE

1. Flowers in terminal or leaf opposed cymes; seeds without appendaged strophiole	..	<i>Mollugo</i>
1. Flowers in axillary fascicles; seeds with appendaged strophiole	..	<i>Glinus</i>

GLINUS L.

1. Plants densely hairy, grey in colour; capsules 5 or more valved.	..	<i>G. latoides</i>
1. Plants glabrous or sparsely hairy, reddish-green in colour; capsules 3-less often 4-valved	..	<i>G. oppositifolius</i>

Glinus latoides L. Sp. Pl. 463. 1753; Gonsalves in Launert, Fl. Zambes. 4: 537. 1978. *Mollugo hirta* Thunb. Prodr. Pl. Cap. 24. 1794; Clarke in Hook. f. Fl. Brit. India 2 : 663. 1879; Cooke, Fl. Pres. Bombay 1 : 593. 1958 (Repr. ed.).

Prostrate, annual, rosulate herbs, diffusely branched. Leaves 1—3 × 0.8—2.0 cm, elliptic or obovate, glabrous or stellately hairy, apex subacute or rounded. Flowers greenish-white; 3-8 in axils; tepals 0.8 cm long, keeled, hairy, mucronate or acute. Capsules 0.6 cm long, ovoid.

Fls. & Frts. : January-May.

Distrib. : Occasional in moist places along water sources : Sawantwadi-Ramghat.

G. oppositifolius (L.) A. DC. in Bull. Herb. Boiss. Ser. 2, 1 : 559. 1901; Gonsalves in Launert, Fl. Zambes. 4 : 539. 1978. *Mollugo oppositifolius* L. Sp. Pl. 89. 1753; Cooke, Fl. Pres. Bombay 1 : 593. 1958 (Repr. ed.). *M. spargula* L. Syst. Nat. ed. 10, 881. 1759; Clarke in Hook. f. Fl. Brit. India 2 : 662. 1879.

Decumbent or prostrate, creeping herbs, stems dichotomously branched, glabrous or hairy at the ends. Leaves 1—2—2.4 × 0.3—0.6 cm, linear-lanceolate or oblanceolate, whorled, 4-6 at nodes, occasionally opposite, hairy on

midrib or glabrescent on both sides, apex acute or apiculate, base cuneate. Flowers white; tepals 0.5 cm long, glabrous. Capsules 0.5 cm long, ellipsoid.

Fls. & Frts. : January-June.

Distrib. : Frequent in moist places and on river bed in open situations; Deogad-Tar-mumbri. Kudal-Kerude. Sawantwadi-Danoli, Ramghat.

MOLLUGO L.

Mollugo pentaphylla L. Sp.Pl. 89. 1753; Cooke, Fl. Pres. Bombay 1:594. 1958 (Repr. ed.). *M. stricta* L. Sp. Pl. ed. 2, 131. 1762; Clarke in Hook, f. Fl. Brit. India 2 : 663. 1879.

Diffuse, glabrous, erect or decumbent-ascending herbs, branches glabrous, angled. Leaves 1.5—3.5 × 0.3—0.6 cm, linear-lanceolate, thin, 3-5 at nodes, glabrous on both sides, apex acute or obtuse, base cuneate. Flowers greenish-white; tepals red tinged, 0.15-0.2 cm long, elliptic-oblong. Capsules 0.2 cm long, ellipsoid, faintly 3-angled.

Fls. & Frts. : July-October.

Distrib. : Frequent in open situations, on river bed and in fallow fields as weed; Kankavli-Janoli river, Kudal Road, Phonda-Harkool. Kudal-Songad paz. Sawantwadi-Ajgaon.

APIACEAE (UMBELLIFERAE)

1. Leaves simple; umbels simple :

2. Umbels solitary or 2-5 together, involucre of 2-bracts; mericarps 7-9 ribbed .. *Centella*

2. Umbels solitary, involucre of 4 or more bracts; mericarps 3-ribbed .. *Hydrocotyle*

1. Leaves compound, basal sometimes simple; umbels compound :

3. Flowers 0.9-1.0 cm wide .. *Heracleum*

3. Flowers 0.1-0.2 cm wide :

4. Fruits dorsally compressed, lateral ridges winged .. *Polyzygus*

4. Fruits laterally compressed, lateral ridges not winged .. *Pimpinella*

CENTELLA L.

Centella asiatica (L.) Urban in Mart. Fl. Bras. 11 (1) : 287. t. 78. fig. 1. 1879; Cannon in Launert, Fl. Zambes. 4 : 562. 1978. *Hydrocotyle asiatica* L. Sp. Pl. 234. 1753; Clarke in Hook. f. Fl. Brit. India 2 : 669. 1879; Cooke, Fl. Pres. Bombay 1 : 598. 1958 (Repr. ed.). Mar. : *Brahmi*.

Creeping, perennial herbs, rooting at nodes, young parts glabrous or hairy. Leaves 1.5-4.0 cm across, reniform to almost orbicular, with deep basal sinus, margins crenate. Flowers in simple umbels, in axils of 2 bracts; calyx teeth obsolete, petals 0.1 cm long, red. Fruits 0.35×0.38 cm, orbicular to ellipsoid.

Fls. & Frts. : October-June.

Illus. : Wight, Icon. t. 565. 1842.

Distrib. : Scattered, in open, moist places and along streams; Sawantwadi-Amboli, Ambolighat-Kumbheshwar, Banda, Bhedshi, Chaukul, Ramghat.

HERACLEUM L.

1. Petals equal; fruits narrowly winged .. *H. sprengelianum*

1. Petals unequal; fruits not winged .. *H. concanense*

Heracleum concanense Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 260. 1850; Clarke in Hook. f. Fl. Brit. India 2 : 716. 1879; Cooke, Fl. Pres. Bombay 1 : 608. 1958 (Repr. ed.).

Erect herbs, 30-60 cm tall, dichotomously branched, branches hairy. Leaves biternate, leaflets 3-lobed or ternately divided, segments ovate, margins serrate, base cuneate. Flowers white; outer flowers in umbel with petals 0.8×0.6 cm, obovate, inner flowers with petals less than 0.4×0.3 cm, elliptic. Fruits 0.5 cm across, obovate-elliptic, with 8-10 vittae.

Fls. & Frts. : August-October.

Distrib. : Infrequent, along higher slopes of the ghats on open, grassy slopes; Kankavli-Phondaghat. Sawantwadi-Amboli, Ramghat (Cooke, *l. c.*).

H. sprengelianum Wight & Arn. Prodr. 372. 1834; Clarke in Hooke. f. Fl. Brit. India 2 : 716. 1879; Cooke, Fl. Pres. Bombay 1 : 607. 1958 (Repr. ed.).

Erect, stout herbs, 50-100 cm tall. Lower leaves 10-18 cm long, bipinnate, pinnae 2-3 pairs, leaflets ovate, slightly hairy on both sides, terminal one bigger; upper leaves 3-foliate. Flowers yellow; in umbels with 2-5 bracteoles; petals 0.15 cm long, ovary pubescent. Fruits 0.5×0.4 cm, ellipsoid, ridges obscure, with 2-4 vittae.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 1008. 1845.

Distrib. : This species is included here on the basis of Cooke's (*l.c.*) report from Ramghat in Sawantwadi taluka based on collection by Dalzell.

HYDROCOTYLE L.

Hydrocotyle sibthorpioides Lamk. *Encycl.* 3 : 153. 1789, Cannon in Launert, *Fl. Zambes.* 4 : 559. 1978. *H. rotundifolia* DC. *Prodr.* 4 : 64. 1830; Clarke in Hook. f. *Fl. Brit. India* 2 : 668. 1879; Cooke, *Fl. Pres. Bombay* 1 : 598. 1958 (Repr. ed.).

Spreading, perennial herbs, rooting at nodes. Leaves reniform, rounded or 3-5 palmatilobed or partite, with crenate-serrate segments, glabrous or thinly hairy, basal sinus narrow. Flowers red; in leaf-opposed, simple umbels; calyx teeth minute or absent, petals lanceolate. Fruits 0.12×0.14 cm, broadly ellipsoid, often red-punctate.

Fls. & Frts. : March-May.

Illus. : Wight, Icon. t. 564. 1842.

Distrib. : Occasional in open, moist areas along streams and in paddy fields; Sawantwadi-Chankul-Soliya jungle, Ramghat.

PIMPINELLA L.

1. Plants prostrate, ascending; leaves simply pinnate	..	<i>P. adscendens</i>
1. Plants erect; leaves trifoliate :		
2. Flowers bisexual; fruits glabrous	..	<i>P. heyneana</i>
2. Flowers polygamous; fruits papillose	..	<i>P. wallichiana</i>

Pimpinella adscendens Dalz. in Hook. *J. Bot. & Kew Gard. Misc.* 2 : 261. 1850; Clarke in Hook. f. *Fl. Brit. India* 2 : 689. 1879; Cooke, *Fl. Pres. Bombay* 1 : 603. 1958 (Repr. ed.).

Herbs, stems and branches 20-40 cm long, spreading, glabrous. Leaves 6-10 cm long, leaflets 4-6 pairs, 0.6-1.8 cm long, ovate or obovate, irregularly serrate, base cuneate. Flowers 0.1 cm across, white; in compound umbels; petals obovate, pubescent outside. Fruits 0.15-0.2 cm long, ovoid, minutely hairy.

Fls. & Frts. : November-May.

Distrib. : Occasional, in open situations in plains; Vengurla-Math forest.

P. heyneana (DC.) Kurz in J. Asiat. Soc. Bengal 46 : 115. 1877; Clarke in Hook. f. Fl. Brit. India 2 : 684. 1879; Cooke, Fl. Pres. Bombay 1 : 601. 1958 (Repr. ed.). *Helosciadium heyneanum* DC. Prodr. 4 : 106. 1830.

Annual herbs, 50-100 cm tall, branches glabrous. Leaflets 1.8-4.5 × 0.6—1.5 cm, ovate, sometimes lateral leaflets deeply divided, base cuneate. Flowers 0.15 cm across,—0.2 white, on filiform pedicels, petals ovate, involucre bracts absent. Fruits 0.18-0.2 cm across, subglobose.

Fls. & Frts. : August-December.

Distrib. : Scattered in the undergrowth in deciduous forest along the slopes of the hills; Kankavli-Phonda-Bhairi pathar. Sawantwadi-Akeri-Mangaon forest, Ramghat.

P. wallichiana (Miq.) Gandhi in Saldanha & Nicolson, Fl. Hassan Distt. 417. 1976. *Helosciadium wallichianum* Miq. Bot. Zeit. 7 : 775. 1849. *Pimpinella monoica* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 212. 1851; Clarke in Hook. f. Fl. Brit. India 2 : 687. 1879; Cooke, Fl. Pres. Bombay 1 : 602. 1958 (Repr. ed.).

Erect herbs, 50-150 cm tall, branches glabrous, smooth. Leaves basal trifoliate, 3.0—5.5 × 1.5—3.5 cm, ovate or ovate-lanceolate, pubescent, margins serrate, upper leaves often segmented. Flowers 0.2 cm across, white; some umbels of male and female flowers; petals obovate. Fruits 0.2 cm long, ovoid.

Fls. & Frts. : October-December.

Distrib. : Frequent, in the undergrowth or in grassy places along the higher slopes of the ghats; Kankavli-Phondaghat. Sawantwadi-Amboli-Ramghat Road and Hiranyakeshi.

POLYZYGUS Dalz.

Polyzygus tuberosus Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 260. 1850; Clarke in Hook. f. Fl. Brit. India 2 : 698. 1879; Cooke, Fl. Pres. Bombay 1 : 603. 1958 (Repr. ed.).

Erect herbs, 20-40 cm tall, stems striate above. Leaves basal lobed or pinnately decomposed, cauline leaves 1-2-pinnatifid or partite, hairy. Flowers white; in terminal or axillary umbels, bract-1; petals oblong. Fruits 0.3 cm long, ovoid, glabrous, ribbed.

Fls. & Frts. : June-September.

Distrib. : Cooke (*l. c.*) has reported this species from Malwan based on collection by Dalzell; so it is included here.

ARALIACEAE

Schefflera J. R. & G. Forest. *emend.* Harms (*nom. cons.*)

Schefflera elliptica (Bl.) Harms in Engl. & Prantl, *Pflanzensam.* 3 (8) : 39. 1894; Shang in *Candollea* 39 : 468. 1984. *Scladophyllum ellipticum* Bl. *Bijdr.* 878. 1826. *Schefflera venulosa* (Wight & Arn.) Harms in Engl. & Prantl, *l. c.*; Maheshwari in *Bull. Bot. Surv. India* 2 : 376. 1960. *Heptapleurum venulosum* Seem. in *J. Bot.* 3 : 80. 1865; Clarke in *Hook. f. Fl. Brit. India* 2 : 729. 1879; Cooke, *Fl. Pres. Bombay* 1 : 610. 1958 (*Repr. ed.*). *Mar.* : 'Wagh-chavad'.

Large, straggling shrubs, branches glabrous. Leaves palmately compound, leaflets 5-7, 8-12 × 3.5-5.0 cm, ovate or elliptic, coriaceous, glabrous on both sides. Flowers greenish-white; in umbels in branched panicles on filiform pedicels; calyx truncate, petals 5. Fruits 0.5 cm long, 5-angled, subglobose, brownish.

Fls. & Frts. : March-August.

Illus. : Talb. *For. Fl. Bombay Pres. & Sind* 2 : 77. fig. 332. 1911.

Distrib. : Frequent in semi-evergreen and moist deciduous forests along the higher slopes of the ghats; Kankavli-Phondaghat. Kudal-Ghotge, Tambyachiwadi. Sawantwadi-Amboli-ghat-Temple point, Chaukul, Ramghat.

RUBIACEAE

1. Inflorescence in heads :

2. Trees or shrubs; stipules entire :

3. Calyx tube connate; fruits syncarpium

..

Morinda

- 3. Calyx tube free; fruits not syncarpium :
 - 4. Leaves cordate at base; corolla tube hairy .. *Haldina*
 - 4. Leaves not cordate at base; corolla tube glabrous :
 - 5. Flowers ebracteolate; stigma fusiform .. *Neolamarckia*
 - 5. Flowers bracteolate; stigma ovoid with disk like base .. *Mitragnya*
- 2. Herbs; stipules pectinate .. *Borreria*
- 1. Inflorescence not in heads :
 - 6. Herbaceous or suffrutescent plants :
 - 7. Petioles equal to or longer than leaf blades .. *Rubia*
 - 7. Petioles shorter than leaf blades :
 - 8. Stipules entire :
 - 9. Inflorescence secund; fruits obcordate .. *Ophiorrhiza*
 - 9. Inflorescence not secund; fruits not obcordate :
 - 10. Plants prostrate :
 - 11. Corolla lobes dentate .. *Dentellia*
 - 11. Corolla lobes entire .. *Geophila*
 - 10. Plants erect :
 - 12. Flowers 5-merous .. *Argostemma*
 - 12. Flowers 4-merous .. *Knoxia*
 - 8. Stipules lobed or pectinate :
 - 13. Ovules 2-many per locule :
 - 14. Seeds 2-5 per locule, not angular .. *Neanotis*
 - 14. Seeds many per locule, angular .. *Oldenlandia*
 - 13. Ovules 1 per locule .. *Knoxia*
 - 6. Shrubs (sometimes climbing) and trees :
 - 15. One of the calyx-lobes enlarged into a coloured, leafy structure .. *Mussaenda*
 - 15. All the calyx lobes equal :
 - 16. Inflorescence spicate; bracts solitary, foliaceous *Hymenodictyon*
 - 16. Inflorescence not spicate; bracts otherwise :
 - 17. Inflorescence paniced cymes; fruits capsular .. *Wendlandia*
 - 17. Inflorescence panicles; fruits drupes or berries :
 - 18. Ovules 2 or more per locule :
 - 19. Ovary 1-celled; stipules amplexicaule .. *Gardenia*

19. Ovary 2-5-celled; stipules not amplexicaule :
20. Bracts connate into a cup or epicalyx; calyx covered with resinous substance .. *Tricalysia*
20. Bracts not connate; calyx not covered with resinous substance :
21. Fruits less than 1 cm across .. *Randia*
21. Fruits more than 2.5 cm across .. *Xeromphis*
18. Ovules 1 per locule :
22. Flowers 4-merous :
23. Exserted portion of style shorter than corolla lobes, 2-branched .. *Ixora*
23. Exserted portion of style longer than corolla lobes, entire .. *Pavetta*
22. Flowers 5-merous :
24. Fruits 2 cm or more across .. *Meyna*
24. Fruits up to 1.5 cm across :
25. Corolla tube curved .. *Chassalia*
25. Corolla tube not curved :
26. Inflorescence axillary; styles not branched .. *Canthium*
26. Inflorescence terminal; styles branched .. *Psychotria*

ARGOSTEMMA Wall.

Argostemma verticillatum Wall. in Roxb. Fl. Ind. 2 : 325. 1824; Hook. f. Fl. Brit. India 3 : 43. 1880; Cooke, Fl. Pres. Bombay 2 : 13. 1958 (Repr. ed.).

Glabrous, annual, epiphytic herbs, 8-10 cm tall. Leaves whorled, 2.5—5.5 × 1.5—2.0 cm, ovate-lanceolate, membranous, sessile or subsessile, glabrous on both sides, apex acuminate. Flowers white; in terminal umbels or in panicles; calyx 0.25 cm long, corolla 0.6 cm long, divided more than $\frac{1}{2}$ the length of tube. Capsules dehiscent at apex.

Fls. & Frts. : August-October.

Distrib. : This species is included here based on Cooke's (*l. c.*) report from 'Wari country' i. e. Sawantwadi area collected by Dalzell.

BORRERIA Mey. (*nom. cons.*)

1. Corolla tube more than 0.1 cm long; seeds smooth or reticulate :
 2. Corolla tube 0.15 cm long, funnel shaped; seeds smooth .. *B. pusilla*
 2. Corolla tube 0.6 cm long, cylindrical; seeds reticulate .. *B. articularis*
 1. Corolla tube 0.03-0.05 cm long; seeds ribbed and reticulate .. *B. ocymoides*

Borreria articularis (L. f.) F. N. Williams in Bull. Herb. Boiss. Ser. 2, 5: 956. 1905; Sant. Fl. Khandala ed. 3, 121. 1967. *Spermacoce articularis* L. f. Suppl. 119. 1781. *S. hispida* L. Sp. Pl. 102. 1753; Hook. f. Fl. Brit. India 3: 200. 1881; Cooke, Fl. Pres. Bombay 2: 53. 1958 (Repr. ed.).

Much branched, prostrate, perennial herbs, branches hairy. Leaves 1—3 × 0.2—1.8 cm, elliptic or oblong, scabrid above, hairy on nerves beneath, apex acute. Flowers bluish-purple or pale blue; in axillary whorls; calyx densely hairy, corolla tube with a ring of hairs within at base. Capsules 0.4-0.6 cm long, ellipsoid, hairy.

Fls. & Frts. : August-November.

Distrib. : Common in open, moist situations, along road-sides and on river bed in plains; Kankavli-Nandgaon, Phondaghat, Malwan-Achre, Adari Road, Sawantwadi-Akeri, Banda-Sherle to Padlos, Danoli, Vengurla-Math forest.

B. ocymoides (Burm. f.) DC. Prodr. 4: 544. 1830. *Spermacoce ocymoides* Burm. f. Fl. Ind. 34. 1768; Hook. f. Fl. Brit. India 3: 200. 1881.

Procumbent herbs, stems and branches sparsely hairy or glabrous, angles wing like. Leaves 2—4 × 1.5—3.0 cm, elliptic to obovate, glabrous on both sides or hairy on nerves beneath, apex acute to rounded. Flowers white; in axillary clusters; calyx lobes ciliate along the margins, corolla lobes triangular. Capsules 0.15 cm long, ovoid, glabrous.

Fls. & Frts. : September-October.

Distrib. : Occasional in open, moist places; Malwan-Sindhudurg.

B. pusilla (Wall.) DC. Prodr. 4: 543. 1830. *Spermacoce pusilla* Wall in Roxb. Fl. Ind. 1: 379. 1820. *S. stricta* L. f. Suppl. 120. 1781; Hook. f. Fl. Brit. India 3: 200. 1881; Cooke, Fl. Pres. Bombay 2: 52. 1958 (Repr. ed.).

Erect herbs, 10-30 cm tall, stems quadrangular, angles scabrid. Leaves 2—4 × 0.4—1.2 cm, elliptic-lanceolate or linear-lanceolate, scabrous above, glabrous beneath, apex acute. Flowers white; in compact, axillary clusters; calyx densely pubescent, corollalobes linear-oblong. Capsules 0.15-0.3 cm long, ellipsoid, mericarps pubescent.

Fls. & Frts. : September-October.

Distrib. : Frequent in open situations, in waste places and along roadsides in plains; Deogad-Dahibav, Kankavli-Humbrat Road, Nandgaon, Phonda Rai. Sawantwadi-Danoli-Kesari R. F. Vengurla-Vagiri forest.

CANTHIUM Lamk.

1. Unarmed shrubs or small trees	..	<i>C. dioecum</i> var <i>umbellatum</i>
1. Armed shrubs	..	<i>C. angustifolium</i>

Canthium angustifolium Roxb. Fl. Ind. 2 : 169. 1824; Hook. f. Fl. Brit. India 3 : 135. 1880. *C. rheedii* DC. Prodr. 4 : 474. 1830; Hook. f. l. c. 134. *Plectronia rheedii* Bedd. For. Man. 134. 1874; Cooke, Fl. Pres. Bombay 2 : 34. 1958 (Repr. ed.).

Scandent or erect shrubs, armed near the base, branches slender, slightly pubescent. Leaves 3—8 × 2—4 cm, ovate or ovate-lanceolate, glabrous on both sides or sparsely hairy beneath, apex acute to acuminate. Flowers greenish-white; in axillary fascicles; calyx turbinate, corolla 0.6-0.8 cm long, tube short. Fruits 1 cm across, globose, bilobed at apex.

Fls. & Frts. : October-April.

Illus. : Wight, Icon. t. 826. 1844-45.

Distrib. : Common, in semi-evergreen forest along the slopes of the ghats and in deciduous forest in plains; Kankavli-Naradave-Brahmanachi Rai, Phonda-Mhatardeo Rai, Phonda-ghat. Sawantwadi-Amboli, Ambolighat-Kumbheshwar, Mulas and Ramghat (Cooke, l. c.).

C. dioecum (Gaertn.) Teysm. & Binn. var *umbellatum* (Wight) Sant. & Merch. in Bull. Bot. Surv. India 3 : 107. 1961 (1962). *C. umbellatum* Wight, Icon. t. 1034. 1845; Hook. f. Fl. Brit. India 3 : 132. 1880. *Plectronia wightii* Cooke, Fl. Pres. Bombay 1 : 606. 1903 et 2 : 34. 1958 (Repr. ed.).

Shrubs or small trees, 2-5 m tall, branchlets angled. Leaves 5—10 × 3—5 cm, elliptic or elliptic-lanceolate, thick, coriaceous, glabrous on both sides, shining above, apex obtuse or acute, sometimes acuminate. Flowers white; in umbels; calyx glabrous, corolla 0.6-0.8 cm long, lobes reflexed. Fruits 0.9-1.2 cm long, ovoid, didymous, warted, black.

Fls. & Frts. s. : September-May.

Illus. : Wight, *l. c.*

Distrib. : Scattered, in moist deciduous and semi-evergreen forests along the higher slopes of the ghats; Kudal-Hanumanghat Rai. Sawantwadi-Amboli, Ambolighat-Nanapani, Ramghat.

CHASSALIA Commers. ex Poir.

Chassalia ophioxylodes (Wall.) Craib in Gard. Bull. Straits Settlement. 6 : 474. 1930; Sant. & Merch. in Bull. Bot. Surv. India 3 : 108. 1961 (1962) *Psychotria ophioxylodes* Wall. in Roxb. Fl. Ind. 2 : 168. 1824. *Chassalia curviflora* auct. non (Wall.) Thw. (1859); Hook. f. Fl. Brit. India 3 : 176. 1880; Cooke, Fl. Pres. Bombay, 2 : 47. 1958 (Repr. ed.).

Shrubs, 1-2 m tall, branchlets glabrous. Leaves 8—18 × 3.5 × 5.0 cm, elliptic-lanceolate or oblanceolate, membranous, glabrous, apex obtuse or acuminate, base cuneate. Flowers pinkish-white; in pinkish cymes; calyx glabrous, corolla 0.8-1.6 cm long, throat hairy inside. Fruits 0.8 cm long, depressed-globular, dark purple to black.

Fls. & Frts. : April-October.

Illus. : Talb. For. Fl. Bombay Pres. Sind 2 : 130. fig. 362. 1911.

Distrib. : Scarce, in deciduous forest along the slopes of the ghats and in plains; Malwan (Cooke, *l. c.*). Sawantwadi-Ramghat.

DENTELLA J. R. & G. Forst.

Dentella repens (L.) J. R. & Forst. Charact. Gen. 26. t. 13. 1776; Hook. f. Fl. Brit. India 3 : 42. 1880; Cooke, Fl. Press. Bombay 2 : 12. 1958 (Repr. ed.); Subramanyam & Sharma in Bull. Bot. Surv. India 10 : 386. 1968 (1969). *Oldenlandia repens* L. Mant. 40. 1767.

Prostrate herbs, rooting at nodes, dichotomously branched. Leaves 0.4—0.6 × 0.1—0.25 cm, oblong-obovate, hairy along margins, sessile. Flowers 0.15 cm across, white, sessile, calyx-tube subglobose, hyaline, hairy, corolla funnel-shaped. Fruits 0.35 cm across, globose, indehiscent.

Fls. & Frts. : April-July.

Illus. : Subramanyam and Sharma *l. c.* 387. fig. 1-6.

Distrib. : Frequent in open, moist situations, from ghats to coastal areas; Deogad-Nadan-Vir. Kudal-Shivapur paz. Malwan-Achre. Sawantwadi-Bhedshi, Danoli.

GARDENIA Ellis (*nom. cons.*)

Gardenia turgida Roxb. Fl. Ind. 2 : 557. 1824; Hook. f. Fl. Brit. India 3 : 118. 1880. *G. turgida* Roxb. var. *montana* Hook. f. *l.c.*; Cooke, Fl. Pres. Bombay 2 : 29. 1958 (Repr. ed.).

Shrubs or small trees, 3-5 m tall, armed with thorns, branchlets stout, yellowish. Leaves 3.5—6.5 cm × 2.5—4.5 cm, oblong-elliptic or ovate-elliptic, glabrous above, tomentose beneath, apex obtuse or rounded. Flowers dimorphic; male flowers in fascicles; calyx pubescent, corolla 1.8—2.0 cm long, creamy-white; female flowers solitary; calyx 0.8-1.5 cm long, corolla as in male. Fruits 2-4 cm across, ovoid.

Fls. & Frts. : February-March.

Illus. : Wight, Icon. t. 577. 1842.

Distrib. : Occasional in deciduous forest in plains; Kankavli-Phonda-Ghonsari Rai.

GEOPHILA D. Don (*nom. cons.*)

Geophila repens (L.) Johnston in Sargentia 8 : 281, 282. 1949; Verdc. in Polhill, Fl. Trop. E. Africa, Rubiaceae (Pt. 1) : 110. fig. 7. 1976. *Rondeletia repens* L. Syst. Nat. ed. 10, 2 : 928. 1759. *Geophila reniformis* D. Don. Prodr. Fl. Nepal 136. 1825; Hook. f. Fl. I Brit. India 3 : 178. 1880; Cooke, Fl. Pres. Bombay 2 : 49. 1958 (Repr. ed.).

Creeping herbs, stems rooting at nodes, densely appressed pubescent. Leaves 1.2-3.0 across, rounded-reniform, glabrous above, pubescent or glabrous beneath, apex rounded, base cordate. Flowers white; solitary or 2-3 in a umbel, terminal; calyx pubescent, corolla tube 0.6-1.2 cm long, finely pubescent. Fruits 0.5-0.8 cm across, globose, bright red.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 54. 1838.

Distrib. : This species is included on the authority of Cooke (*l.c.*) who cites 'Vengurla' as locality of its occurrence on the basis of Dalzell's collection.

HALDINA Ridsd.

Haldina cordifolia (Roxb.) Ridsd. in Blumea 24 : 361. 1978. *Nauclea cordifolia* Roxb. Pl. Cor. 1 : 40. t. 53. 1795. *Adina cordifolia* Hook. f. ex

Brandis, For. Fl. N. W. & C. India 263. 1874; Hook. f. Fl. Brit. India 3 : 24. 1880; Cooke, Fl. Pres. Bombay 2 : 7. 1958 (Repr. ed.). *Mar. : Hed.*

Trees, 5-10 m tall, bark thick, furrowed, young parts pubescent. Leaves 8-16 cm as long as broad, ovate, glabrous or slightly hirsute above, densely pubescent beneath, apex slightly acuminate, base cordate. Flowers yellow; in 1.9-2.5 cm across heads; calyx lobes clavate, corolla 0.2-0.4 cm long. Fruits 0.4-0.5 cm long, pubescent.

Fls. & Frts. : February-April.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 85. fig. 334. 1911.

Distrib. : Scattered in deciduous forest in plains; Kudal-Kadaval, Nileli jungle.

HYMENODICTYON Wall. (*nom. cons.*)

Hymenodictyon obovatum Wall. in Roxb. Fl. Ind. 2 : 153. 1824; Hook. f. Fl. Brit. India 3 : 36. 1880; Cooke, Fl. Pres. Bombay 2 : 10. 1958 (Repr. ed.).

Moderate sized trees, 8-10 m high. Leaves crowded at the apices of twigs, 6—10 × 3.5—5.0 cm, obovate or elliptic, glabrous above, glabrescent beneath, apex acuminate. Flowers white, sessile; in cylindric, panicle-spikes; calyx pubescent, corolla 0.25 cm long. Fruits 1.2-1.8 cm long, ellipsoid, erect.

Fls. & Frts. : July-February.

Illus. : Wight, Icon. t. 1159. 1846.

Distrib. : Scattered in moist deciduous forest along the ghats; Sawantwadi-Amboli, Ambolighat-Kumbheshwar, Ramghat.

IXORA L.

1. Corolla tube more than 1 cm long; anthers not tailed :

2. Plants drying black; flowers white .. *I. nigricans*

2. Plants not drying black; flowers bright scarlet to orange-red .. *I. coccinea*

1. Corolla tube less than 1 cm long; anthers tailed .. *I. brachiata*

Ixora brachiata Roxb. Fl. Ind. 1 : 391. 1820; Hook. f. Fl. Brit. India 3 : 142. 1880; Cooke, Fl. Pres. Bombay 2 : 39. 1958 (Repr. ed.).

Shrubs or small trees, 5-10 m tall. Leaves 4—10 × 3—5 cm, elliptic-oblong or obovate, glabrous on both sides, apex obtuse or rounded, base cuneate. Flowers white; in brachiate cymes; calyx membranous, corolla lobes broadly oblong. Fruits globose, reddish-brown to blackish.

Fls. & Frts. : February-June.

Illus. : Wight Icon. t. 710. 1843.

Distrib. : Fairly common in deciduous forest along ghats and in plains; Deogad-Port Road. Kankavli-Bhironde, Naradave-Girachi Rai, Phonda-Bhairya pathar. Sawantwadi-Akeri-Mangaon forest, Amboli, Ambolighat-Nanapani, Gavata, Hewale, Ramghat.

I. coccinea L. Sp. Pl. 110. 1753; Hook. f. Fl. Brit. India 3 : 145. 1880; Cooke, Fl. Pres. Bombay 2 : 40. 1958 (Repr. ed.).

Shrubs, 1-2 m tall, glabrous. Leaves 3—6 × 2—4 cm, elliptic-oblong, subsessile or sessile, apex obtuse. Flowers 4.0-4.5 cm long; in dense, corymbiform cymes; calyx glabrous lobes triangular, corolla lobes 1.2 cm long, elliptic-oblong. Fruits globose, reddish or purple.

Fls. & Frts. : More or less throughout the year.

Illus. : Wight, Icon. tt. 149 & 153. 1839.

Distrib. : Common in deciduous forest along the ghats and in plains as undergrowth; Kankavli-Digwal-Karanji jungle, Natal jungle, Phonda-Harkool forest. Kudal-Ghotge. Sawantwadi-Akeri-Mangaon forest, Ambolighat-Kumbheshwar, Bhedshi, Danoli-Kesari R. F., Ramghat. Vengurla-Math forest, Vagiri forest.

I. nigricans R. Br. ex Wight & Arn. Prodr. 428. 1834; Hook. f. Fl. Brit. India 3 : 148. 1880; Cooke, Fl. Press. Bombay 2 : 38. 1958 (Repr. ed.).

Shrubs, 2-3 m tall. Leaves 6—12 × 3—6 cm, elliptic-lanceolate or oblong-obovate, glabrous on both sides, membranous, apex acute or acuminate. Flowers 1.2 cm long, white; in branchiate cymes; calyx teeth triangular, corolla lobes 0.4 cm long, oblong. Fruits globose or didymous, black.

Fls. & Frts. : More or less throughout the year.

Illus. : Wight, Icon. t. 318. 1840.

Distrib. : Frequent, in semi-evergreen forest along the ghats and in deciduous forest in hilly areas in plains; Kankavli-Phonda-ghat. Kudal-Hanumanghat, Wasuli Rai. Malwan-Adari-Nandruk. Sawantwadi-Amboli, Ambolighat-Nanapani, Chaukul, Karnyachi Rai near Bhedshi, Ramghat.

KNOXIA L.

Knoxia sumatrensis (Retz.) DC. Prodr. 4 : 569. 1830; Sant. & Merch. in Bull. Bot. Surv. India 3 : 108. 1961 (1962). *Spermacoce sumatrensis* Retz. Obs. Bot. 4 : 23. 1786. *Knoxia corymbosa* auct. non Willd. (1797); Hook. f. Fl. Brit. India 3 : 128. 1880; Cooke, Fl. Pres. Bombay 2 : 33. 1958 (Repr. ed.).

Erect herbs, woody at base, softly hairy. Leaves 4-8 × 1.2-2.2 cm, oblong-lanceolate, sessile or subsessile, grey pubescent on both sides, apex acute. Flowers pale blue or purplish-blue; in corymbose cymes; calyx lobes subequal, corolla 0.4 cm long. Fruits 0.15 cm long, ellipsoid, indehiscent.

Fls. & Frts. : May-October.

Distrib. : This species is included here on the basis of Cooke's (*l. c.*) report from 'Vagdonger near-Vengurla', based on the collection by Graham and Dalzell.

MEYNA Roxb. ex Link

Meyna laxiflora Robyns in Bull. Jard. Bot. Etat. 11 : 228. 1928; Sant. in Bull. Bot. Surv. India 3 : 20. 1961 (1962). *Vangueria spinosa* Roxb. Fl. Ind. 2 : 172. 1824, p. p., excl. typ.; Hook. f. Fl. Brit. India 3 : 136. 1880; Cooke, Fl. Pres. Bombay 2 : 36. 1958 (Repr. ed.). *Mar.* : 'Helu', 'Alu.'

Armed shrubs, 3-5 m tall. Leaves 4-10 × 3-6 cm, ovate or ovate-lanceolate, glabrous, apex acuminate. Flowers greenish-yellow; in axillary, pedunculate cymes; calyx glabrous, corolla 0.6-0.8 cm long, throat hairy. Fruits 2.0-2.5 cm across, globose, smooth.

Fls. & Frts. : January-September.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 109. fig. 348. 1911.

Distrib. : Scattered in semi-evergreen forest along the ghats and in deciduous forest in plains; Kankavli-Harkool forest and Pawanadevi Rai. Kudal-Ghotge. Sawantwadi-Akeri-Mangaon forest, Ambolighat-Kumbheshwar, Bhedshi, Ramghat.

MITRAGYNA Korth. (nom. cons.)

Mitragyna parvifolia (Roxb.) Korth. Obs. Nauch. Ind. 19. 1839; Cooke, Fl. Pres. Bombay 2 : 8. 1958 (Repr. ed.); Ridsd. in Blumea 24 : 63. 1978.

Nauclea parvifolia Roxb. Pl. Cor. t. 52. 1795. *Stephegyne parvifolia* Korth. Verh. Nat. Ges. Bot. 161. 1840, p. p.; Hook. f. Fl. Brit. India 3 : 25. 1880.

Trees, 10-15 m tall, bark whitish-grey. Leaves variable, 4—10 × 3—6 cm, broadly elliptic, orbicular or broadly ovate, glabrous above, sparsely pubescent or glabrous beneath, apex rounded to acute. Flowers greenish-yellow; in 1.5-2.0 cm across heads; calyx lobes margined ciliate, corolla 0.4-0.6 cm long, hairy inside. Fruits 0.3-0.5 cm long, ridged.

Fls. & Frts. : February-November.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 86. fig. 335. 1911.

Distrib. : Frequent in deciduous forest along the slopes of the ghats and in plains; Kankavli-Phondaghat. Kudal-Bhadgaon, Kerude jungle. Sawantwadi-Ambolighat-Kumbheshwar. Vengurla-Math forest.

MORINDA L.

Morinda pubescens Sm. in Rees, Cycl. 24. n. 3. 1813; Verdc. in Kew Bull. 37 : 543. 1883. *M. tinctoria* Roxb. var. *tomentosa* (Roth) Hook. f. Fl. Brit. India 3 : 156. 1880; Cooke, Fl. Pres. Bombay 2 : 43. 1958 (Repr. ed.).

Shrub or small trees, 3-6 m tall, young branches angled, softly hairy. Leaves 6—12 × 4—6 cm, elliptic-lanceolate to ovate, tomentose on both sides, apex acuminate. Flowers 2.5-3.0 cm long, white, fragrant; in axillary heads; calyx hairy outside, corolla tube sparsely hairy. Syncarps 2-3 cm across, globose.

Fls. & Frts. : February-June.

Distrib. : Occasional in deciduous forest in plains; Deogad-Tar-mumbri.

MUSSAENDA L.

1. Stems glabrous; seeds spiny	..	<i>M. glabrata</i>
1. Stems hirsute; seeds not spiny	..	<i>M. laxa</i>

Mussaenda glabrata (Hook. f.) Hutch. ex Gamble, Fl. Pres. Madras 610. 1921 et 2 : 430. 1957 (Repr. ed.); Jayaweera in J. Arnold Arb. 44 : 241. 1963. *M. frondosa* L. var. *glabrata* Hook. f. Fl. Brit. India 3 : 90. 1880; Cooke, Fl. Pres. Bombay 2 : 24 1958 (Repr. ed.).

Climbing shrubs. Leaves 5—10 × 3—5 cm, broadly elliptic, pubescent above, sparsely pubescent beneath, apex acuminate. Flowers orange; in terminal, dichotomous, pubescent cymes; calyx hairy, corolla 2.5-3.5 cm long, hairy in the upper part. Fruits 1.0-1.2 cm long, obovoid, glabrous

Fls. & Frts. : May - October.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 94. fig. 339. 1911

Distrib. : Frequent in deciduous forest along the ghats and in hilly areas in plains; Kudal-Kerude jungle, Shivapur paz. Sawantwadi-Ambolighat-Kumbheshwar, Gavata, Khanale, Ramghat, Terwan. Vengarla-Math forest.

M. laxa (Hook. f.) Hutch. ex Gamble, Fl. Pres. Madras 610. 1921 et. 2 : 430. 1957 (Repr. ed.); Jayaveera in J. Arnold Arb. 44 : 242. 1963. *M. frondosa* L. var. *laxa* Hook. f. Fl. Brit. India 3 : 89. 1880.

Climbing shrubs. Leaves 6—10 × 3—6 cm, broadly ovate, pubescent on both sides, apex abruptly acuminate. Flowers bright orange-red; in lax, terminal cymes; calyx hairy, corolla 3.3 cm long, tube densely hairy towards broader end. Fruits 1.0-1.2 cm long, obovoid, sparsely hirsute.

Fls. & Frts. : April-November.

Distrib. : This species is reported by Jayaveera (*l. c.*) from Ramghat (in Sawantwadi taluka) based on collection by Ritchie, hence included here.

NEANOTIS Lewis

1. Perennial herbs; stems usually rooted at lower nodes; corolla 0.8-1.5 cm long	..	<i>N. concanensis</i>
1. Annual herbs; stems not rooted at lower nodes; corolla less than 0.8 cm long :		
2. Flowers in corymbose cymes, pedicellate	..	<i>N. rheedii</i>
2. Flowers in clusters or heads, usually sessile or subsessile :		
3. Capsules 3-4 locular and 3-4 lobed	..	<i>N. tubulosa</i>
3. Capsules 2-locular and 2-lobed :		
4. Leaves thick, fleshy; calyx papillose	..	<i>N. carnosa</i>
4. Leaves not thick nor fleshy; calyx not papillose :		
5. Stems and branches hispid hairy	..	<i>N. moniholoni</i>
5. Stems and branches glabrous	..	<i>N. hohemackeri</i>

Neanotis carnos (Dalz.) Lewis in Ann. Missouri Bot. Gard. 53 : 37. 1966.
Hedyotis carnos Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 135. 1850.
Anotis carnos (Dalz.) Hook. f. Fl. Brit. India 3 : 74. 1880; Cooke, Fl. Pres. Bombay 1 : 21. 1958 (Repr. ed.).

Annual, diffuse herbs, branched from the base. Leaves 1.9—3.2 × 0.9 cm, elliptic-lanceolate, scaberulous, papillate above, apex subobtuse, margins recurved. Flowers purple; 3-6 in a cyme; calyx-teeth linear-oblong, corolla 0.4 cm long. Capsules 0.3-0.4 cm, broader than long.

Fls. & Frts. : August-September.

Distrib. : This species is reported by Cooke (*l. c.*) based on collection by Dalzell from Malwan and hence it is included here.

N. concanensis Daniel et Vajravelu in J. Econ. Tax. Bot. 3 : 675. 1982 (*nom. nov.*). *Hedyotis lancifolia* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 135. 1850, (*non* Schum. & Thonn. 1827). *Anotis lancifolia* (Dalz.) Hook. f. Fl. Brit. India 3 : 73. 1880; Cooke, Fl. Pres. Bombay 2 : 20. 1958 (Repr. ed.). *Neanotis lancifolia* (Dalz.) Lewis in Ann. Missouri Bot. Gard. 53 : 39. 1966.

Erect herbs, 25-60 cm tall, stems and branches terete. Leaves 2.5—4.5 × 0.9—2.2 cm, ovate-lanceolate, membranous, sparingly hairy on both sides, apex acute or acuminate. Flowers purple; in corymbose cymes; calyx hairy, corolla lobes triangular, acute. Capsules 0.4-0.6 cm broad, compressed, 2-lobed, hairy.

Fls. & Frts. : September-November.

Distrib. : Frequent, in the forest undergrowth along the slopes of the ghats; Kankavli-Phondaghat. Sawantwadi-Amboli-Mahadeogad. Ambolighat.

N. hohenackeri Daniel et Vajravelu in J. Econ. Tax. Bot. 3 : 675. 1982 (*nom. nov.*). *Hedyotis foetida* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 134. 1850, (*non* (Forst. f.) Spreng. 1815). *Anotis foetida* (Dalz.) Hook. f. Fl. Brit. India 3 : 74. 1880; Cooke, Fl. Pres. Bombay 2 : 22. 1958 (Repr. ed.). *Neanotis foetida* (Dalz.) Lewis in Ann. Missouri Bot. Gard. 53 : 38. 1966.

Annual herbs, 6-15 cm tall, stems slender, solitary or branched. Leaves 0.6—2.5 × 0.1—0.15 cm, narrowly linear-lanceolate, sessile, scaberulous above, apex acute, margins recurved. Flowers pale purple, calyx-teeth apiculate, corolla 0.5 cm long. Capsules 0.3-0.5 cm, didymous, sessile.

Fls. & Frts. : August-November.

Distrib. : Common in open, moist situations on rocky or gravelly slopes from ghats to plains; Kankavli-Phondaghat, Malwan-Kuperi ghati, Sindhudurg. Sawantwadi-Ajgaon, Amboli-Ramghat Road and Nangartas, Satarda.

N. mentholoni (Hook. f.) Lewis in Ann. Missouri Bot. Gard. 53: 39. 1966. *Anotis mentholoni* Hook. f. Fl. Brit. India 3: 73. 1880; Cooke, Fl. Pres. Bombay 2: 22. 1958 (Repr. ed.).

Branched, annual herbs, 10-20 cm tall, stems and branches tetragonous. Leaves 2.5—4.0 × 0.8—2.0 cm, ovate or ovate-lanceolate, hispid hairy on both sides, apex acute. Flowers pale purple, pedicelled, calyx teeth longer than tube, corolla 0.5 cm long, funnel-shaped. Capsules 0.3-0.4 cm long, broader, didymous, pubescent.

Fls. & Frts. : September-October.

Distrib. : Occasional (once only collected) in open, moist places along the ghats; Sawantwadi-Amboli-Hiranyakeshi.

N. rheedii (Wall. ex Wight & Arn.) Lewis in Ann. Missouri Bot. Gard. 53: 40. 1966. *Hedyotis rheedii* Wall. ex Wight & Arn. Prodr. 409. 1834. *Anotis rheedii* (Wall. ex Wight & Arn.) Hook. f. Fl. Brit. India 3: 73. 1880; Cooke, Fl. Pres. Bombay 2: 21. 1958 (Repr. ed.).

Slender, annual herbs, 20-40 cm tall, stems and branches glabrous and tetragonous. Leaves 3—6 × 1.0—2.5 cm, ovate-lanceolate, membranous, glabrous above, scurfy beneath, apex acute or acuminate. Flowers pale purple, calyx teeth very small. Capsules didymous, puberulous.

Fls. & Frts. : September-November.

Distrib. : Frequent, in open situations on moist rocky slopes and tree-trunks in plains; Kankavli-Osargaon Road, Phonda. Malwan-Adari-Nandruk, Nandos. Sawantwadi-Akeri, Danoli, Satarda. Vengurla-Vagiri forest.

N. tubulosa (G. Don, f.) Mabber. in Manilal, Bot. Hist. Hort. Malab. 92. 1980. *Oldenlandia tubulosa* G. Don, f. Gen. Syst. 3: 531. 1834, excl. syn. *Hedyotis minima* Heyne, p. p. *Neanotis quadrilocularis* (Thw.) Lewis in Ann. Missouri Bot. Gard. 53: 40. 1966. *Hedyotis quadrilocularis* Thw. Enum. 144. 1857. *Anotis quadrilocularis* (Thw.) Hook. f. Fl. Brit. India 3: 74. 1880; Cooke, Fl. Pres. Bombay 2: 22. 1958 (Repr. ed.).

Annual herbs, branches ascending. Leaves $1.0-2.8 \times 0.6-0.9$ cm, ovate or ovate-elliptic, membranous, hairy on both surfaces, apex acute. Flowers pale pink; in 2-4-flowered cymes; calyx teeth apiculate, corolla 0.5 cm long. Capsules sessile, broader than long.

Fls. & Frts. : September-November.

Illus. : Bedd. Icon. t. 28. 1874.

Distrib. : Scattered in open, moist areas near streams and on fence walls along the ghats; Sawantwadi-Amboli-Mahadeogad and Nangartas.

NEOLAMARCKIA Bosser

Neolamarckia cadamba (Roxb.) Bosser in Bull. du Mus. Nat. d'Hist. Nat. Sect. B. Adansonia Bot. Ser. 4, 6 : 247. 1984. *Nauclea cadamba* Roxb. Fl. Ind. 2 : 121. 1824. *Anthocephalus cadamba* (Roxb.) Miq. Fl. Ind. Bat. 2 : 135. 1856; Hook. f. Fl. Brit. India 3 : 23. 1880. *A. indicus* A. Rich. in Mem. Soc. Hist. Nat. Paris 5 : 238. 1834; Cooke, Fl. Pres. Bombay 2 : 6. 1958 (Repr. ed.). *Mar.* : 'Kadam'.

Moderate sized trees, 10-15 cm tall, branches horizontally spreading. Leaves $10-20 \times 8-12$ cm, ovate-elliptic, coriaceous, glabrous and shining above, pale and pubescent beneath, apex acuminate. Flowers 0.9-1.2 cm long, orange; in 2.8-4.0 cm across globular heads; calyx 0.2-0.3 cm long, lobes hairy, corolla tubular. Capsules 0.6 cm long, made up of 4 cocci.

Fls. & Frts. : March-June.

Distrib. : Scattered in deciduous forest in plains, mostly along streams; Kankavli-Phonda-Pawana-devi Rai. Kudal-Shivapur Rai. Sawantwadi-Danoli.

OLDENLANDIA L.

1. Corolla included in calyx, scarcely exerted; fruiting calyx very stiff .. *O. maheshwarii*
1. Corolla not included in calyx; fruiting calyx not stiff :
 2. Leaves more than 1 cm broad; capsules indehiscent .. *O. auricularia*
 2. Leaves less than 1 cm broad (1.5 cm in *O. trinervia*); capsules dehiscent :
 3. Prostrate herbs, rooting at nodes; flowers sessile or subsessile .. *O. trinervia*
 3. Erect or diffuse herbs, not rooting at nodes; flowers distinctly pedicelled :

4. Capsules protruded beyond calyx, top rounded .. *O. herbacea*
 4. Capsules not protruding beyond calyx, top flat .. *O. corymbosa*

Oldenlandia auricularia (L.) K. Schum. in Engl. & Prantl, Pflanzenfam. 4 : 25. 1891. *Hedyotis auricularia* L. Sp. Pl. 101. 1753; Hook. f. Fl. Brit. India 3 : 58. 1880; Cooke, Fl. Pres. Bombay 2 : 13. 1958 (Repr. ed.).

Spreading herbs, branches hairy all over or at nodes. Leaves 3—5 × 1—3 cm, ovate-lanceolate, subsessile, hairy on both sides, apex acuminate, lateral nerves sunk above. Flowers white; in axillary, dense cymes; calyx teeth triangular, corolla tube very short, lobes hairy. Capsules globose, hairy or glabrous, hard.

Fls. & Frts. : Throughout the year.

Illus. : Bedd. Icon. t. 27. 1874.

Distrib. : Common, in open, moist places from ghats to plains; Kankavli-Nandgaon-Belachi Rai, Phonda-Ghonsari Rai, Phondaghat. Kudal-Songad paz. Sawantwadi-Akeri-Mangaon forest, Amboli, Danoli-Kesari R. F., Khanale, Ramghat, Talkat forest Nursery near Banda.

O. corymbosa L. Sp. Pl. 119. 1753; Hook. f. Fl. Brit. India 3 : 64. 1880; Cooke, Fl. Pres. Bombay 2 : 15. 1958 (Repr. ed.); Verdc. in Polhill, Fl. Trop. E. Africa, Rubiaceae (Pt. 1) : 308. 1976.

Annual herbs, 8-20 cm tall, branched from the base. Leaves 1.0—3.5 × 0.15—0.4 cm, linear to narrowly elliptic, glabrous or sparsely hairy on both sides, apex acute and apiculate. Flowers white; in 1-4 flowered umbels or fascicles; calyx teeth margins hairy, corolla 0.5 cm long. Capsules 0.12-0.2 cm long, ovoid.

Fls. & Frts. : April-November.

Distrib. : Scattered in open, moist places, from ghats to plains; Kankavli-Humbrat Road. Sawantwadi-Akeri-Mangaon forest, Amboli.

O. herbacea (L.) Roxb. Fl. Ind. 1 : 425. 1820; Cooke, Fl. Pres. Bombay 2 : 16. 1958 (Repr. ed.); Verdc. in Polhill, Fl. Trop. E. Africa, Rubiaceae (Pt. 1) : 305. 1976. *Hedyotis herbacea* L. Sp. Pl. 102. 1753. *Oldenlandia heynei* G. Don, Gen. Syst. 3 : 531. 1834; Hook. f. Fl. Brit. India 3 : 65. 1880.

Erect herbs, 10-40 cm tall, stems glabrous, 4-ribbed. Leaves 1.0—3.5 × 0.1—0.3 cm, linear or linear-lanceolate, glabrous on both sides, apex acute.

Flowers white; axillary, solitary or in pairs; calyx glabrous or hairy, corolla 0.4 cm long. Capsules 0.15-0.2 cm across, subglobose, pale straw coloured.

Fls. & Frts. : September-February.

Distrib. : Common, in grasslands, roadsides, fields and on rocky plains; Kankavli-Phonda-Mhatardeo Raj, Sangwe. Kudal-Chapheli forest nursery, Ghotge. Malwan-Adari. Sawantwadi-Akri-Mangaon forest, Bhedshi, Danoli, Gavata.

O. maheshwarii Sant. & Merch. in J. Indian Bot. Soc. 42A : 213-215. fig. 1-6. 1964 et Sant. Fl. Khandala ed. 3, 115. 1967.

Erect, annual herbs, 8-15 cm tall, stems terete at base, subangular in upper portions, scaberulous. Leaves 0.6—1.0 × 0.05—0.1 cm, linear-lanceolate, sessile, scabrid on both sides, apex acute and tipped with fine bristle. Flowers white; solitary; calyx 0.18-0.35 cm long, teeth with fine capillary bristles at apices, corolla pubescent. Capsules 0.15-0.3 cm across, globose, crowned by calyx teeth.

Fls & Frts. : October-November.

Illus. : Sant. & Merch. *l. c.*

Distrib. : Occasional, in ghat areas in open situations; Sawantwadi-Amboli-Nangartas.

O. trinervia Retz. Obs. Bot. 4 : 23. 1786; Hook. f. Fl. Brit. India 3 : 66. 1880; Cooke, Fl. Pres. Bombay 2 : 17. 1958(Repr. ed.).

Spreading, annual herbs, stems and branches weak, hairy along the angles. Leaves 0.6—1.2 × 0.5—0.9 cm, broadly elliptic or obovate, thin, glabrous on both sides, 3-nerved from base, apex acute to rounded. Flowers white ; in 1-6 flowered fascicles; calyx hairy, corolla 0.5-0.9 cm long. Capsules 0.15-0.2 cm across, globose, hairy.

Fls. & Frts. : September-October.

Distrib. : Occasional, in moist fallow fields, in coastal plains; Malwan-Achre.

OPIHORRHIZA L.

Ophiorrhiza prostrata D. Don, Prodr. Fl. Nep. 136. 1825; Sant. & Merch. in Bull. Bot. Surv. India 3 : 109. 1961 (1962). *O. harrisiana* Heyne ex Wight & Arn. Prodr. 405. 1834; Hook. f. Fl. Brit. India 3 : 78. 1880; Cooke, Fl. Pres. Bombay 2 : 23. 1958 (Repr. ed.).

Procumbent, annual herbs, 15-30 cm tall, usually rooting at base. Leaves 4—7×2—3 cm, oblong-elliptic or elliptic-lanceolate, glabrous or sparsely hairy on both sides, apex acute or acuminate. Flowers pale rosy to white; in second dichotomous cyme; calyx pubescent, corolla 0.6 cm long, pubescent. Capsules 0.6-0.8 cm across, minutely puberulous.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 1162. 1846

Distrib. : Scattered in moist, shady places in deciduous forest from ghats to plains; Sawantwadi-Bhatwadi, Chaunkul-Soliya jungle, Talkat forest nursery near Banda.

PAVETTA L.

1. Corolla tube 3-4 cm long; style exerted as much as 3-5 cm	..	<i>P. siphonantha</i>
1. Corolla tube up to 1.2 cm long; style exerted as much as 1.0-1.8 cm		
2. Leaves obovate or oblong-obovate, upper surface glabrous; calyx teeth triangular	..	<i>P. crassicaulis</i>
2. Leaves elliptic or elliptic-lanceolate, rarely obovate, pubescent on both surfaces; calyx teeth minute	..	<i>P. tomentosa</i>

Pavetta crassicaulis Bremek. in Feddes, Repert. 37 : 112. 1934 et 47 : 25. 1939; Sant. & Merch. in Bull. Bot. Surv. India 3 : 109. 1961 (1962).

Shrubs, 1-2 m tall, young branches subquadrangular, glabrous. Leaves 4—12×2—6 cm, apex acute or shortly, bluntly acuminate, base cuneate. Flowers white, fragrant; in loose, corymbose cymes; calyx hirsute, corolla tube 0.9-1.2 cm long, sparsely pubescent inside. Fruits 0.9 cm across, globose, black when ripe.

Fls. & Frts. : April-November.

Distrib. : Frequent, in open situations along the ghats and in plains; Kankavli-Phondaghat. Kudal-Ghotge, Wasuli Rai. Sawantwadi-Akeri-Mangaon forest, Amboli-Mahadeogad, Ambolighat-Kumbheshwar, Ramghat.

P. siphonantha Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 133. 1850; Bremek. in Feddes, Repert. 37 : 90. 1934; Sant. Fl. Khandala ed. 3, 120. 1967. *P. hispidula* Wight & Arn. var. *siphonantha* Hook. f. Fl. Brit. India 3 : 151. 1880; Cooke, Fl. Pres. Bombay 2 : 41. 1958 (Repr. ed.).

Shrubs, 1-3 m tall, young parts glabrous. Leaves 5—12 × 2.5—4.5 cm, elliptic-lanceolate or lanceolate, black when dry, glabrous, apex acuminate. Flowers white; in pubescent, corymbose cymes; calyx hairy, corolla glabrous. Fruits 0.8-1.2 cm across, globose, purple.

Fls. & Frts. : May-August.

Distrib. : Frequent in moist deciduous forest along the ghats and at base; Kankavli-Phonda-Mhatardeo Rai. Kudal-Shivapur paz. Sawantwadi-Ambolighat, Hewale, Ramghat.

P. tomentosa Roxb. ex Sm. in Rees, Cycl. 26 : 2. 1819; Sant. Fl. Khandala ed. 3, 120. 1967. *P. indica* L. var. *tomentosa* (Sm.) Hook. f. Fl. Brit. India 3 : 150. 1880; Cooke, Fl. Pres. Bombay 2 : 41. 1958 (Repr. ed.).

Shrubs, 1-2 m tall, young parts tomentose. Leaves 5—9 × 3—4 cm, apex acute or acuminate. Flowers white; in pubescent cymes; calyx hairy, corolla 1 cm long, pilose within. Fruits 0.5 cm across, subglobose, black.

Fls. & Frts. : April-October.

Distrib. : Occasional, in deciduous forest in hilly areas in plains; Malwan-Kuperi ghati near Kunkavle.

PSYCHOTRIA L.

1. Bracts inconspicuous, caducous or absent; calyx teeth obscure ..	<i>P. truncata</i>
1. Bracts prominent, persistent; calyx teeth distinct ..	<i>P. dalzellii</i>

Psychotria dalzellii Hook. f. Fl. Brit. India 3 : 163. 1880; Cooke, Fl. Pres. Bombay 2 : 45. 1958 (Repr. ed.).

Shrubs, 2-4 m tall, branches green, compressed or flattened. Leaves 10—18 × 5—8 cm, obovate-oblong, coriaceous, glabrous, nerves 14-20 pairs, prominent, apex rounded or acute. Flowers white; in capitate cymes; calyx teeth ciliate along margins, corolla tube short. Fruits 1 cm long, ovoid, black, crowned by persistent calyx.

Fls. & Frts. : May-October.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 125. fig. 358. 1911.

Distrib. : This species is included on the authority of Cooke (*l. c.*) who reports it from Banda (in Sawantwadi taluka) based on the collection by P. S. Kanitkar.

P. truncata Wall. in Roxb. Fl. Ind. 2 : 162. 1824; Hook. f. Fl. Brit. India 3 : 163. 1880; Cooke, Fl. Pres. Bombay 2 : 44. 1958 (Repr. ed.).

Shrubs, 2-3 m tall. Leaves 5—16 × 5—8 cm, obovate-oblong, coriaceous, apex shortly acuminate, nerves 14-16 pairs, prominent. Flowers waxy white; in dense, terminal cymes; calyx truncate, corolla tube straight, broad, 0.25 cm long. Fruits 0.6-0.8 cm long, ovoid, smooth.

Fls. & Frts. : February-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 124. fig. 357. 1911.

Distrib. : Scattered, in semi-evergreen forest along the higher slopes of the ghats; Sawantwadi-Chaukul-Soliya jungle, Ramghat.

RANDIA L.

Randia rugulosa (Thw.) Hook. f. Fl. Brit. India 3 : 113. 1880; Cooke, Fl. Pres. Bombay 2 : 28. 1958 (Repr. ed.). *Griffithia rugulosa* Thw. Enum. 159. 1859.

Climbing shrubs, branches drooping. Leaves 5—12 × 2.5—6.0 cm, elliptic-lanceolate, glabrous, apex acuminate, nerves prominent beneath. Flowers white, fragrant; in leaf-opposed cymes; calyx minutely toothed, glabrous or puberulous, corolla tube 0.8 cm long, glabrous. Fruits 0.9 cm across, globose.

Fls. & Frts. : February-June.

Illus. : Bedd. Icon. t. 37. 1874.

Distrib. : Occasional in semi-evergreen forest along the higher slopes of the ghats; Sawantwadi-Chaukul-Soliya jungle.

RUBIA L.

Rubia cordifolia L. Syst. Nat. ed. 12, 3 : 229. 1768; Hook. f. Fl. Brit. India 3 : 302. 1881; Cooke, Fl. Pres. Bombay 2 : 54. 1958 (Repr. ed.); Deb & Malik in Bull. Bot. Surv. India 10 : 6. 1968. *Mar.* : 'Manjistha'.

Climbing herbs, root stock perennial, stems quadrangular, prickly or hispid on angles. Leaves whorled, normally 4 in a whorl, 2—6 × 1.5—3.0 cm, ovate, scabrous on both sides, apex acute. Flowers greenish-white; in paniculate cymes; calyx glabrous, corolla 0.35 cm long. Fruits 0.4—0.6 cm across, globose, purple.

Fls. & Frts. : October-February.

Illus. : Wight, Icon. t. 187. 1839.

Distrib. : Frequent in the undergrowth in moist deciduous forest along the higher slopes of the ghats; Kankavli-Phonda ghat ('Phunda ghat'-Cooke, *l. c.*). Sawantwadi-Amboli-Hiranyakeshi and Nangartas.

TRICALYSIA A. Rich.

Tricalysia apiocarpa (Dalz.) Gamble, Fl. Pres. Madras 621. 1921 et 2 : 437. 1957 (Repr. ed.). *Discospermum apiocarpum* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 257. 1850. *Diplospora apiocarpa* (Dalz.) Hook. f. Fl. Brit. India 3 : 123. 1880; Cooke, Fl. Pres. Bombay 2 : 32. 1958 (Repr. ed.).

Medium sized trees, 8-15m tall. Leaves 5—10 × 3—6 cm, elliptic-lanceolate, glabrous, apex acuminate. Flowers creamy, polygamo-dioecious; in axillary cymes; calyx campanulate, minutely toothed, corolla 0.6 cm long, glabrous. Fruits 1.9 cm long, ellipsoid.

Fls. & Frts. : August-December.

Illus. : Bedd. Icon. t. 40. 1874.

Distrib. : Cooke (*l. c.*) reports this species from 'Vingurla' ('Vengurla') based on the collection by Dalzell, hence included here.

WENDLANDIA Bartl. ex DC. (*nom. cons.*)

Wendlandia thyrsoides (Roem. & Schult.) Steud. Nom. ed. 2, 2 : 786. 1841; Sant. Fl. Khandala ed. 3, 113, 1967. *Canthium thyrsoides* Roem. & Schult. Syst. 6 : 207. 1820. *Wendlandia notoniana* Wall. ex Wight & Arn. Prodr. 403. 1834; Hook. f. Fl. Brit. India 3 : 40. 1880; Cooke, Fl. Pres. Bombay 2 : 11. 1958 (Repr. ed.).

Shrubs, 1.5-3.0 m tall, young branches pubescent. Leaves ternate, 5—10 × 2.5—4.0 cm, elliptic-lanceolate, sparsely hairy or glabrous above, pubescent beneath, apex acuminate. Flowers white; in terminal paniced cymes; calyx pubescent, corolla 0.3-0.5 cm long. Capsules 0.25 cm across, globose, pubescent.

Fls. & Frts. : February-June.

Illus. : Wight Icon. t. 1033. 1845.

Distrib. : Common along the ghats in open, scrubby vegetation and at base of the ghats; Kankavli-Kanedi-Mall jungle, Naradave, Phondaghat. Kudal-Ghotge, slopes of Rangana fort. Sawantwadi-Amboli, Ambolighat-Kumbheshwar, Bhedshi, Ramghat.

XEROMPHIS Raf.

1. Spines axillary, opposite; calyx lobes persistent	..	<i>X. spinosa</i>
1. Spines terminal, in 1-2 pairs; calyx lobes deciduous	..	<i>X. uliginosa</i>

Xeromphis spinosa (Thunb.) Keay in Bull. Jard. Bot. Etat. 28 : 37. 1958; Maheshwari in Bull. Bot. Surv. India 3 : 91. 1961 (1962). *Gardenia spinosa* Thunb. Diss. Gard. No. 7. t. 2 f. 4 1780. *Randia dumetorum* (Retz.) Poir. in Lamk. Encycl. Suppl. 2 : 829. 1812; Hook. f. Fl. Brit. India 3 : 110. 1880; Cooke, Fl. Pres. Bombay, 1 : 27. 1958 (Repr. ed.). *Mar.* : 'Gehela', 'Gela'.

Armed shrubs or small trees, branches horizontal, spines absent on older parts. Leaves 3—6 × 1.9—3.0 cm, elliptic-obovate, glabrous on both sides, sometimes hairy on nerves beneath, apex rounded or obtuse. Flowers 1.9—2.8 cm across; solitary or 2, at the ends of leaf-bearing branchlets; calyx 1.4 cm long, corolla white, afterwards turning yellow. Fruits 3-4 cm across, globose, obscurely ribbed, yellowish.

Fls. & Frts. : March November.

Illus. : Wight, Icon. t. 580. 1842.

Distrib. : Frequent along the ghats and in hilly areas in plains; Kudal-Ghotge. Sawantwadi-Amboli, Ambolighat-Nanapani.

X. uliginosa (Retz.) Maheshwari in Bull. Bot. Surv. India 3 : 92. 1961 (1962). *Gardenia uliginosa* Retz. Obs. Bot. 2 : 13. 1781. *Randia uliginosa* DC. Prodr. 4 : 386. 1830; Hook. f. Fl. Brit. India 3 : 110. 1880; Cooke, Fl. Pres. Bombay 2 : 27. 1958 (Repr. ed.).

Shrubs or small trees, 2-3 m tall, branches quadrangular. Leaves 5—15 × 3—5 cm, obovate or obovate-oblong, glabrous above, sparsely pubescent beneath, apex rounded or obtuse. Flowers 3-4 cm across; solitary; calyx ciliate, corolla white to creamy. Fruits 5-7 cm long, ovoid, yellow.

Fls. & Frs. : April-June.

Illus. : Wight, Icon. t. 397. 1840.

Distrib. : Frequent in open situations along the ghats and in plains; Kankavli-Osargaon. Kudal-Bhadgaon. Sawantwadi-Akeri-Mangaon forest, Chaukul, Hewale, Ramghat.

ASTERACEAE (COMPOSITAE)

1. Florets all ligulate and bisexual	..	<i>Launea</i>
1. Florets all tubular or the outer ligulate, female or neuter, the inner tubular, bisexual :		
2. Florets all tubular :		
3. Heads few flowered, subtended by leafy bracts	..	<i>Elephantopus</i>
3. Heads many flowered and not subtended by leafy bracts :		
4. Stems winged; pappus absent :		
5. Involucral bracts dry, rigid; achenes ribbed	..	<i>Ephaltes</i>
5. Involucral bracts pallidaceous; achenes angled	..	<i>Sphaeranthus</i>
4. Stems not winged; pappus usually present :		
6. Involucral bracts uniseriate :		
7. Heads scarlet-red or orange	..	<i>Gynura</i>
7. Heads purple or pinkish-red	..	<i>Emilia</i>
6. Involucral bracts bi- or multi-seriate (rarely tri-seriate) :		
8. Involucral bracts biseriate :		
9. Pappus present :		
10. Anthers and pappus gland tipped and sticky	..	<i>Adenostemma</i>
10. Anthers and pappus not gland-tipped	..	<i>Ageratum</i>
9. Pappus absent :		
11. Achenes dorsally compressed; branches ascending	..	<i>Dichrocephala</i>
11. Achenes not compressed; branches not ascending :		
12. Achenes oblong, smooth; branches erect	..	<i>Cyathocline</i>
12. Achenes angled, hairy; branches prostrate	..	<i>Centipeda</i>
8. Involucral bracts multiseriate :		
13. Achenes glandular between the ribs	..	<i>Adenoon</i>

13. Achenes not glandular :
14. Flowers yellow :
15. Anthers tailed or sagittate; achenes not compressed :
16. Plants aromatic, densely silky hairy or glabrous .. *Blumea*
16. Plants not aromatic, densely white woolly .. *Gnaphalium*
15. Anther not tailed; achenes compressed .. *Conyza*
14. Flowers purple or pinkish-violet :
17. Involucral bracts spiny; leaves gland-dotted .. *Tricholepis*
17. Involucral bracts not spiny; leaves not gland-dotted :
18. Involucral bracts with foliaceous upper part .. *Centratherum*
18. Involucral bracts without foliaceous upper part .. *Vernonia*
2. Inner florets tubular and outer rayed :
19. Leaves alternate :
20. Heads solitary; pappus double .. *Pulicaria*
20. Heads in corymbs or panicles; pappus single :
21. Achenes villous .. *Vilca*
21. Achenes glabrous .. *Senecio*
19. Leaves opposite :
22. Pappus bristles plumose .. *Tridax*
22. Pappus absent or of few scales of awns :
23. Heads sessile, usually axillary .. *Synedrella*
23. Heads peduncled :
24. Paleae of receptacle flat, slender; achenes glabrous .. *Eclipta*
24. Paleae of receptacle concave, embracing achenes; achenes hairy :
25. Achenes triquetrous or 4 angled; pappus if present of bristles .. *Blainvillea*
25. Achenes truncate, cuneate; pappus if present, of ring of scales .. *Wedelia*

ADENON DAlz.

Adenon indicum Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 344. 1850; Hook. f. Fl. Brit. India 3 : 229. 1881; Cooke, Fl. Pres. Bombay 2 : 64. 1958 (Repr. ed.).

Erect herbs, 20-50 cm tall. Leaves 3—5 × 2—4 cm, broadly elliptic to obovate, hairy on both sides, apex rounded, margins crenate-serrate. Heads 1 cm across, involucre bracts elliptic-oblong, hairy; florets purple; pappus absent. Achenes 0.2-0.3 cm long, cylindrical, 10-ribbed.

Fls. & Frts. : September-December.

Distrib. : Kankavli-Phondaghat (Phondaghat) (Cooke, l. c.).
Sawantwadi-Amboli-Nangartas and Ramghat Road.

ADENOSTEMMA J. R. & G. Forst.

Adenostemma lavenia (L.) Kuntze, Rev. Gen. Pl. 1 : 304. 1891; Panigrahi in Kew Bull. 30 : 648. 1975. *Verbesina lavenia* L. Sp. Pl. 902. 1753. *Adenostemma viscosum* J. R. & G. Forst. Char. Gen. 90. t. 45. 1776; Hook. f. Fl. Brit. India 3 : 242. 1881, p. p. ; Cooke, Fl. Pres. Bombay 2 : 69. 1958, p. p. (Repr. ed.).

Erect, branched, annual herbs, 60-150 cm tall, young branches glandular pubescent. Leaves 3—7 × 2—5 cm, broadly ovate to oblong, sparsely hairy on both sides, uniform hairy on nerves beneath, margins crenate-serrate, apex subacute. Heads 0.6 cm across, in lax corymbs; corolla white, 0.1-0.15 cm long. Achenes 0.3 cm long, obovoid, tuberculate.

Fls. & Frts. : October-February.

Ilus. : Wight, Icon. t. 1087. 1846.

Distrib. : Scattered, in moist situations along the ghats; Kankavli-Phondaghat. Sawantwadi-Chaukul, Ramghat.

AGERATUM L.

Ageratum conyzoides L. SP. Pl. 839. 1753; Hook. f. Fl. Brit. India 3 : 243. 1881; Cooke, Fl. Pres. Bombay 2 : 70. 1958 (Repr. ed.).

Erect, annual herbs, stems hairy at nodes when young. Leaves 2—8 × 2—5 cm, broadly ovate or rhomboid-ovate, glabrate or hairy on both sides, apex obtuse or acute. Heads 0.3 cm across, in corymbs; corolla white or

violet. Achenes 0.15 cm long, oblong, 5-angled, glabrous or hairy; pappus paleaceous scaly, 5.

Fls. & Frts. : More or less throughout the year.

Distrib. : Common in plains and along the ghats in open situations and in waste lands; Kankavli-Phonda-Bhairi pathar. Sawantwadi-Akeri-Mangaon forest, Ambolighat, Bhedshi, Hewale, Satarda. Vengurla-Vagiri forest.

BLAINVILLEA Cass.

Blainvillea acmella (L.) Philipson in *Blumea* 6 : 350. 1950. *Verbesina acmella* L. Sp. Pl. 901. 1753. *Blainvillea rhomboldea* Cass. in F. Cuv. Dict. Sci. Nat. 29 : 494. 1823; Cooke, Fl. Pres. Bombay 2 : 97. 1958 (Repr. ed.). *B. latifolia* (L. f.) DC. in Wight, Contrib. Bot. Ind. 17. 1834; Hook. f. Fl. Brit. India 3 : 305. 1881.

Erect simple or sparingly branched herbs, 30-100 cm tall, stems hairy. Leaves 3-6 × 2-4 cm, ovate or rhomboid-ovate, scabrid hairy, margins serrate, apex acuminate. Heads 0.8-1.5 cm across, ray and disk florets white turning yellow. Achenes in female florets trigonous, in bisexual florets laterally compressed; pappus absent or of 2-5 bristles or scales.

Fls. & Frts. : September-November.

Distrib. : Occasional in open areas; Vengurla-Vagiri forest.

BLUMEA DC. (nom. cons.)

1. Plants (stems, leaves, inflorescence axes) densely white woolly .. *B. malcolmi*
1. Plants glabrate or variously pubescent, never woolly :
 2. Leaves spinous-toothed; corolla of both types of florets hairy :
 3. Heads in leafy clusters .. *B. belangeriana*
 3. Heads not in leafy clusters :
 4. Corolla tube as well as lobes hairy .. *B. eriantha*
 4. Corolla lobes only hairy *B. oxyodonta*
 2. Leaves not spinous-toothed; corolla of female florets at least glabrous :
 5. Achenes ribbed
 6. Plants glabrous or rarely sparingly pilose .. *B. vivanta*

6. Plants pilose hairy and glandular	..	<i>B. membranacea</i>
5. Achenes subangulate or terete :		
7. Corolla purple	..	<i>B. solidaginoides</i>
7. Corolla yellow	..	<i>B. lacera</i>

Blumea belangeriana DC. Prodr. 5 : 444. 1836; Hook. f. Fl. Brit. India 3 : 226. 1881; Cooke, Fl. Pres. Bombay 2 : 78. 1958 (Repr. ed.); Randeria in Blumea 10 : 277. 1960.

Erect herbs, 30-60 cm tall, stems terete, densely hairy at apex. Leaves 4—8 × 2—4 cm, obovate, hairy on both sides margins serrate-dentate. Heads 0.5-0.6 cm across, involucre bracts longer than florets; corolla of bisexual florets 0.4-0.5 cm long, lobes hairy. Achenes terete, oblong, pubescent.

Fls. & Frt : February-May.

Distrib. : Scattered in open, moist situations in plains; Kudal Kerude jungle near Chapheli. Sawantwadi-Hewale. Vengurla- (Cooke, *l. c.*).

B. eriantha DC. in Wight, Contrib. Bot. Ind. 15. 1834; Hook. f. Fl. Brit. India 3 : 266. 1881; Cooke, Fl. Pres. Bombay 2 : 78. 1958 (Repr. ed.); Randeria in Blumea 10 : 279. 1960.

Perennial herbs, 20-35 cm tall, stems branched from base, stems and branches long silky hairy. Leaves 2—6 × 1—3 cm, obovate or oblanceolate, silky pilose on both sides, margins spinulose-serrate. Heads 0.4-0.5 cm across, involucre bracts silky hairy; florets 0.3—0.4 cm long, lobes densely pubescent. Achenes angled, brown, sparsely hairy.

Fls. & Frts. : February-March.

Distrib. : Occasional, in open situations on hill slopes; Kudal-Ghotge.

B. lacera (Burm. f.) DC. in Wight, Contrib. Bot. Ind. 14. 1834; Hook. f. Fl. Brit. India 3 : 263. 1881; Cooke, Fl. Pres. Bombay 2 : 76. 1958 (Repr. ed.); Randeria 10 : 264. 1960. *Conyza lacera* Burm. f. Fl. Ind. 180. t. 59. f. 1. 1768.

Erect, aromatic, viscid herbs, 25-50 cm tall, stems grooved, glandular pubescent. Leaves 3— × 2—5 cm, obovate-oblong, incised or sometimes lyrate-lyobed, silky pubescent on both sides, margins serrate-dentate. Heads 0.4-0.6 cm across, involucre bracts slightly longer than corolla; corolla 0.3-0.4 cm long. Achenes oblong, sparsely hairy.

Fls. & Frts. : February-May.

Distrib. : Frequent in open situations and in fallow fields from ghats to plains; Kankavli-Phonda-Mhatardeo Rai, Sangwe. Kudal-Bhadgaon, Chapheli-Pulas jungle, Kerude jungle. Sawantwadi-Ramghat.

B. malcolmii (Clarke) Hook. f. Fl. Brit. India 3 : 266. 1881; Cooke, Fl. Pres. Bombay 2 : 78. 1958 (Repr. ed.); Randeria in Blumea 10 : 278. 1960. *Pluchea malcolmii* Clarke, Comp. Ind. 95. 1876.

Stout, scented herbs, 20-50 cm tall, stems branched and leafy. Leaves sessile, 2—0 × 1—4 cm, obovate or oblanceolate, white woolly on both sides, upper becoming scabrous when old, margins irregularly spinous-serrate. Heads 0.8-1.2 cm across, involucre bracts longer than florets; corolla 0.4-0.5 cm long. Achenes somewhat angled, sparsely pubescent.

Fls. & Frts. : February-March.

Distrib. : Scattered in open situations along the slopes of the ghats; Kankavli-Naradave. Sawantwadi-Ramghat.

B. membranacea DC. Prodr. 5 : 440. 1836; Hook. f. Fl. Brit. India 3 : 265. 1881; Cooke, Fl. Pres. Bombay 2 : 77. 1958 (Repr. ed.); Randeria in Blumea 10 : 269. 1960.

Herbs, 30-60 cm tall, stems grooved, pilose, glabrous when old. Leaves thin, membranous, 3—10 × 1.5—4.0 cm, obovate to ovate-lanceolate, upper ones entire, lower lyrate-lobed, pilose on both sides, margins serrate-dentate. Heads 0.6-0.8 cm across, involucre bracts glandular hairy; corolla 0.4-0.5 cm long. Achenes oblong, brown pubescent.

Fls. & Frts. : May.

Distrib. : Occasional, in the undergrowth along the slopes of ghats; Sawantwadi-Ambolighat-Nanapani.

B. oxyodonta DC in Wight, Contrib. Bot. Ind. 15. 1834; Hook. f. Fl. Brit. India 3 : 266. 1881; Cooke, Fl. Pres. Bombay 2 : 77. 1958 (Repr. ed.); Randeria in Blumea 10 : 280. 1960.

Prostrate or decumbent herbs, branched from base, branches whitish-silky hairy. Leaves 1.5—8.0 × 0.6—3.5 cm, obovate to obovate-oblong, silky hairy on both sides, apex spinulose-acute or apiculate. Heads 0.6 cm across, involucre bracts villous and glandular; corolla 0.3 cm long. Achenes oblong, pubescent.

Fls. & Frts. : November-May.

Distrib. : Frequent in open areas among grasses, in fallow fields and on river beds; Kudal-Bhadgaon, Varad. Sawantwadi-Akeri, Ambolighat-Temple point, Ramghat, Terwan. Vengurla-Math forest.

B. solidaginoides (Poir.) DC. Prodr. 5 : 443. 1836; Cufodontis in Bull. Jard. Bot. Brux. Suppl. 36 : 1093. 1966; Wickens, Fl. Jabel Marra (Sudan Republic) 132. 1976. *Gnaphalium solidaginoides* Poir. Encycl. Bot. Suppl. 2 : 805. 1811. *Blumea mollis* (D. Don) Merr. Philipp. J. Sci. (Bot.) 5 : 395. 1910; Randeria in Blumea 10 : 261. 1960. *B. wightiana* DC. in Wight, Contrib. Bot. Ind. 14. 1834; Hook. f. Fl. Brit. India 3 : 261. 1881; Cooke, Fl. Pres. Bombay 2 : 75. 1958 (Repr. ed.).

Erect, aromatic herbs, stems and branches villous. Leaves 2.5—7.5 × 1.6—3.5 cm, elliptic-oblong or obovate, densely hairy beneath, margins dentate-serrate, base tapering into petiole. Heads 0.4-0.5 cm across, in spiciform panicles; florets purple, corolla of disk florets 0.35 cm long. Achenes angled, oblong, glabrecent.

Fls. & Frts. : February-May.

Distrib. : Frequent along the ghats and at base in open situations and in the undergrowth; Kankavli-Phondaghat. Kudal-Ghotge. Sawantwadi-Ambolighat-Temple point, Ramghat.

B. vires DC. in Wight, Contrib. Bot. Ind. 14. 1834; Hook. f. Fl. Brit. India 3 : 264. 1881; Cooke, Fl. Pres. Bombay 2 : 77. 1958 (Repr. ed.); Randeria in Blumea 10 : 272. 1960.

Annual herbs, 40-100 cm tall, stems striate, glabrate. Leaves variable, 2—10 × 0.8—4.5 cm, oblanceolate, obovate or lyrate-lobed (basal ones), glabrous above, sparsely glandular hairy beneath. Heads 0.8-1.0 cm across, in lax panicles; corolla lobes glandular. Achenes oblong, glabrous.

Fls. & Frts. : February-May.

Distrib. : Frequent, along the ghats and in plains in open situations; Kudal-Shivapur paz. Sawantwadi-Ambolighat-Nanapani and Temple point. Gavata, Ramghat.

CENTIPEDA Lour.

Centipeda minima (L.) A. Br. & Aschers. Ind. Sem. Hort. Berol. App. 6. 1867. *Artemisia minima* L. Sp. Pl. 849. 1753. *Centipeda orbicularis* Lour. Fl.

Cochinch. 2 : 493. 1790; Hook. f. Fl. Brit. India 3 : 317. 1881; Cooke, Fl. Pres. Bombay 2 : 103. 1958 (Repr. ed.).

Prostrate, annual herbs, branches radiating. Leaves 0.6—0.8 × 0.2—0.4 cm, obovate, spathulate, margins toothed. Heads 0.2-0.4 cm across, axillary, sessile; florets yellow, regular. Achenes 3-4 angled, hairy on angles.

Fls. & Frts. : April-May.

Illus. : Wight, Icon. t. 1610. 1850.

Distrib. : Occasional, in open, moist situations along the ghats; Sawantwadi-Chaukul.

CENTRATHERUM Cass.

Centratherum phyllolaenum (DC.) Benth. ex Clarke, Comp. Ind. 4. 1876; Hook. f. Fl. Brit. India 3 : 228. 1881; Cooke, Fl. Pres. Bombay 2 : 62. 1958 (Repr. ed.). *Decaneurum phyllolaenum* DC. Prodr. 7 : 264. 1838.

Erect, sparingly branched herbs, 30-80 cm tall. Leaves 3—10 × 2—5 cm, elliptic or elliptic-lanceolate, sparsely hairy above, tomentose, woolly beneath, margins spinous-serrate. Bracts elliptic-oblong, white, hairy, involucrel bracts scarious; heads 1.6-2.0 cm across; florets purple. Achenes ribbed, 0.3 cm long; pappus pale red, deciduous.

Fls. & Frts. : September-November.

Distrib. : Frequent along the ghats and in open areas in plains; Kankavli-Phonda Rai, Phondaghat. Malwan-Adari, Sawantwadi-Akeri-Mangaon forest, Amboli-Hiranyakeshi and Nangartas, Kolgaon, Satarda.

CONYZA Lessing (nom. cons.)

1. Plants viscid; leaves not fastigiately arranged .. *C. leucantha*

1. Plants not viscid; leaves fastigiately arranged .. *C. stricta*

Conyza leucantha (D. Don.) Ludlow & Raven in Kew Bull. 17 : 71. 1963. *Erigeron leucanthum* D. Don, Prodr. Fl. Nep. 171. 1825. *Conyza viscidula* Wall. ex DC. Prodr. 5 : 383. 1836; Hook. f. Fl. Brit. India 3 : 258. 1881.

Erect, branched herbs, 40-80 cm tall, stems ribbed, glandular-crispy hairy, especially at the top. Leaves 3—8 × 2—3 cm, elliptic-oblong, narrowed at both the ends, apex acute, glandular pubescent. Heads 0.8-1.0 cm across, in corymbose panicles, involucrel bracts purple tinged along margins and tip, glandular pubescent; florets pale pink. Achenes compressed; pappus reddish when dry.

Fls. & Frts. : April-May.

Distrib. : Occasional along the ghats in open areas; Sawantwadi-Ramghat.

C. stricta Willd. Sp. Pl. 3 : 1922. 1803; Hook. f. Fl. Brit. India 3 : 258. 1881; Cooke, Fl. Pres. Bombay 2 : 73. 1958 (Repr. ed.).

Annual herbs, 30-50 cm tall, stems densely hairy, branched towards apex. Leaves 1.5-4.0 × 0.3-0.5 cm, oblanceolate-spathulate, sessile or subsessile, margins entire or serrate-dentate or lobed, apex obtuse or apiculate, hairy. Heads 0.2-0.3 cm across, in corymbose panicles, involucre bracts linear, glandular hairy; florets yellow. Achenes compressed; pappus white.

Fls. & Frts. : October-March.

Distrib. : Scattered along the ghats in open situations and along road sides; Kankavli-Phondaghat. Sawantwadi-Ramghat.

CYATHOCLINE Cass.

Cyathocline purpurea (D. Don) Kuntze, Rev. Gen. Pl. 338. 1891. *Tanacetum purpureum* D. Don, Prodr. Fl. Nep. 181. 1825. *Cyathocline lyrata* Cass. in Ann. Sci. Nat. Ser. 1, 17 : 420. 1829; Hook. f. Fl. Brit. India 3 : 246. 1881; Cooke, Fl. Pres. Bombay 2 : 71. 1958 (Repr. ed.).

Aromatic, glandular hairy, annual herbs, branched from base. Leaves 0.5-1.2 cm long, pinnatisect, sessile, glabrescent or glandular hairy, segments serrate-dentate or lobed. Heads 0.3-0.4 cm across, in terminal, corymbose panicles; florets purple. Achenes oblong, smooth.

Fls. & Frts. : October-February.

Illus. : Wight, Icon. t. 1098. 1846.

Distrib. : Common along the ghats and in plains on moist river bed and in open, moist situations; Kankavli-Kudal Road, Naradave-Dirbyachi Rai, Phonda-Bhairi pathar. Kudal-Chapheli, Ghotge, Narur, Sawantwadi-Akeri-Mangaon forest, Amboli, Ambolighat-Kumbheshwar, Banda (Cooke, l. c.), Hewale, Khanale, Ramghat.

DICHROCEPHALA DC.

Dichrocephala integrifolia (L. f.) Kuntze, Rev. Gen. Pl. 333. 1891; Cufodontis in Bull. Jard. Bot. 36 (Suppl.) : 1081. 1966. *Hippia integrifolia*

L. f. Suppl. 389. 1781. *Dichrocephala latifolia* (Lamk.) DC. in Wight, Contrib. Bot. Ind. 11. 1834; Hook. f. Fl. Brit. India 3 : 245. 1881; Cooke, Fl. Pres. Bombay 2 : 70. 1958 (Repr. ed.).

Decumbent-ascending herbs, often creeping at base, stems branched from base. Leaves $2-5 \times 1-3$ cm, ovate-oblong or lyrate, pinnatifid in the lower part, sparsely hairy, margins irregularly dentate-serrate. Heads 0.3 cm across; ray florets white, disc-florets yellow. Achenes compressed.

Fls. & Frts. : September-May.

Illus. : Wight, Icon. t. 1096. 1846.

Distrib. : Scattered in open, moist situations along the ghats; Sawantwadi-Amboli, Ramghat.

ECLIPTA L. (*nom. cons.*)

Eclipta alba (L.) Hassk. Pl. Jav. Rar. 528. 1848; Hook. f. Fl. Brit. India 3 : 304. 1881. *Verbesina alba* L. Sp. Pl. 903. 1753. *Eclipta erecta* L. Mant. 2 : 286. 1771; Cooke, Fl. Pres. Bombay 2 : 95. 1958 (Repr. ed.).
Mar. : *Maka*

Prostrate, decumbent-ascending or erect herbs, stems and branches appressed pubescent. Leaves $2-5 \times 0.8-1.5$ cm, ovate-lanceolate or elliptic-oblong, apex acute or obtuse, appressed hairy, margins subentire. Heads 0.5-1.0 cm across, solitary or paired; florets white. Achenes angled, oblong-turbinate.

Fls. & Frts. : More or less throughout the year.

Distrib. : Frequent in open, moist places in plains; Deogad-Tar-mumbri. Sawantwadi-Danoli. Vengurla-Vagiri forest.

ELEPHANTOPUS L.

Elephantopus scaber L. Sp. Pl. 824. 1753; Hook. f. Fl. Brit. India 3 : 242. 1881; Cooke, Fl. Pres. Bombay 2 : 68. 1958 (Repr. ed.).

Perennial, erect herbs, with creeping rhizome, stems strigose, corymbosely branched at top. Leaves mostly radical, a few reduced and alternate above, $6-14 \times 3-5$ cm, oblanceolate, rigidly hairy, apex obtuse. Heads in fascicles on 8-20 cm long, hairy peduncles; florets purplish-violet, 0.7-0.9 cm long. Achenes ribbed, hairy between the ribs.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 1086. 1846.

Distrib. : Common along ghats and in plains in open situations and in forest undergrowth; Kankavli-Phonda-Bhairi pathar and Devichi Rai. Kudal-Nerur. Sawantwadi-Akeri-Mangaon forest, Amboli-Nangartas, Ambolighat-Nanapani. Vengurla-Vagiri forest.

EMILIA Cass.

Emilia sonchifolia (L.) DC. in Wight, Contrib. Bot. Ind. 24. 1834; Hook. f. Fl. Brit. India 3 : 336. 1881; Cooke, Fl. Pres. Bombay 2 : 107. 1958 (Repr. ed.). *Cacalia sonchifolia* L. Sp. Pl. 835. 1753.

Erect, somewhat glaucescent herbs, much branched from base. Leaves 4—12 × 2—4 cm, lyrate to obovate, lower ones rosulate, sessile, margins entire or dentate, base narrow. Heads 1.0 × 0.15 cm, involucre bracts shorter than florets; florets 0.9-1.0 cm long. Achenes oblong, ribbed.

Fls. & Frts. : September-November.

Distrib. : Common on hill slopes, in sandy, moist situations in deciduous forest in plains; Deogad-Dahibav. Kankavli-Ghon-sari, Osargaon, Phondaghat. Kudal-Varad. Sawantwadi-Akeri-Mangaon forest, Bhedshi. Vengurla-Vagiri forest.

EPALTES Cass.

Epaltes divaricata (L.) Cass. in Bull. Sci. Soc. Philom. Paris 139. 1818; Hook. f. Fl. Brit. India 3 : 274. 1881; Cooke, Fl. Pres. Bombay 2 : 83. 1958 (Repr. ed.). *Ethulia divaricata* L. Mant. 110. 1767.

Diffuse herbs, branches divaricate and numerous. Leaves decurrent on stems, 1.5—4.0 × 0.3—0.6 cm, oblong-spathulate, sessile, glabrous, apex rounded, mucronate, margins toothed. Heads 0.6-0.8 cm across, involucre bracts ovate, aristate; florets purple. Achenes oblong, glandular.

Fls. & Frts. : September-November.

Distrib. : Frequent in open situations and in fallow fields in plains; Kankavli-Phonda-Bhairi pathar. Kudal-Kadaval. Malwan-Deobag. Vengurla-Vagiri forest.

GNAPHALIUM L.

Gnaphalium polycaulon Pers. Syn. Pl. 2 : 421. 1807; Grierson in Notes Roy. Bot. Gard. Edinburgh 31 : 137. 1972. *G. indicum* acut. non L. (1753); Hook. f. Fl. Brit. India 3 : 289. 1881; Cooke, Fl. Pres. Bombay 2 : 87. 1958 (Repr. ed.).

Prostrate or decumbent-ascending herbs, multicauline, woolly. Leaves 1.0—3.5 × 0.3—1.0 cm, oblanceolate-spathulate or linear-obovate, cottony or glabrescent above, densely woolly beneath, apex obtuse or apiculate. Heads 0.3 cm across, in leafy terminal spikes, sessile, involucre bracts woolly at base; florets golden yellow. Achenes oblong, hairy.

Fls. & Frts. : February-May.

Distrib. : Scattered in open, moist situations and in fallow fields; Kudal-Chapheli-Pulas jungle. Sawantwadi-Akeri-Mangaon forest, Terwan.

GYNURA Cass. (nom. cons.)

Gynura cusimbua (D. Don) Moore in J. Bot. 50 : 212. 1912; Sant. Fl. Khandala ed. 3, 134. 1967. *Cacalia cusimbua* D. Don, Prodr. Fl. Nept. 179. 1825. *Gynura angulosa* DC. Prodr. 6 : 298. 1838; Hook. f. Fl. Brit. India 3 : 334. 1881; Cooke, Fl. Pres. Bombay 2 : 106. 1958 (Repr. ed.).

Robust herbs, 50-150 cm tall, stems glabrous, branched at top. Leaves 5—15 × 3—7 cm, oblong-lanceolate or obovate, sessile, glabrous, apex acute or acuminate, margins toothed. Heads 1.0—1.5 × 0.3—0.5 cm, involucre bracts linear, glabrous; florets regular, slender. Achenes 0.3 cm long, oblong, ribbed.

Fls. & Frts. : October-April.

Distrib. : Frequent in moist, shady situations along the ghats and hilly areas in plains; Kankavli-Phondaghat. Kudal-Kerude jungle. Sawantwadi-Akeri-Mangaon forest, Amboli-Mahadeogad, Ambolighat-Nanapani, Hewale, Ramghat.

LAUNEA Cass.

1. Achenes 0.8 - 1.0 long, narrowed into a beak	..	<i>L. acaulis</i>
1. Achenes 0.3 - 0.4 cm long, truncate, not beaked	..	<i>L. procumbens</i>

Launea acaulis (Roxb.) Babcock ex Craib, Fl. Siam. Enum. 2 : 299. 1936. *Prenanthes acaulis* Roxb. Fl. Ind. 3 : 403. 1832. *Crepis acaulis* (Roxb.) Hook. f. Fl. Brit. India 3 : 396. 1881.

Erect, perennial herbs, with thick, stout, cylindrical tap roots, with milky juice. Leaves in a radical rosette, 5—10 × 1—2 cm, linear-lanceolate or narrowly oblong, glabrous, margins entire or remotely denticulate. Heads 1.0-1.5 cm long, in terminal panicles; florets yellow. Achenes ribbed, glabrous.

Fls. & Frts. : February-May.

Illus. : Wight, Icon. t. 1145. 1846.

Distrib. : Occasional in moist, open places along the ghats; Sawant-wadi-Ramghat.

L. procumbens (Roxb.) Ramayya & Rajagopal in Kew Bull. 23 : 465. 1969. *Prenanthes procumbens* Roxb. Fl. Ind. 3 : 404. 1832. *Launea nudicaulis* auct. plur. (India) non (L.) Hook. f. *sensu stricto* Fl. Brit. India 3 : 416. 1881; Cooke, Fl. Pres. Bombay 2 : 122. 1958 (Repr. ed.).

Perennial, multicauline herbs, with stout roots, stems erect or trailing. Leaves 5—15 × 1—3 cm, oblong-lanceolate or spatulate, pinnatifid or pinnately lobed, glaucous on lower surface, margins denticulate with cartilaginous teeth. Heads 1.5 cm long, in terminal sub-racemose inflorescence; florets pale yellow. Achenes rugulose, cylindrical.

Fls. & Frts. : February-September.

Illus. : Ramayya & Rajagopal, l. c. 466, figs. 1-3.

Distrib. : Scattered in open situations, on sandy shore; Deogad-Near Rest House. Malwan-Kolamb.

PULICARIA Gaertn.

Pulicaria angustifolia DC. Prodr. 5 : 479. 1836; Hook. f. Fl. Brit. India 3 : 299. 1881; Cooke, Fl. Pres. Bombay 2 : 90. 1958 (Repr. ed.).

Softly pubescent, annual herbs, branched from base, branches ascending. Leaves 1.5—3.5 × 0.2—1.0 cm, linear-oblong, sessile, pubescent, base amplexicaule, margins entire or slightly serrulate. Heads 1.2-1.5 cm across; florets yellow. Achenes terete; pappus white to reddish.

Fls. & Frts. : February-August.

Distrib. : Frequent in hilly areas in plains in open situations; Deogad-Naringre, Tar-mumbri. Malwan-Achre-Kaziwadadasa, Adari Road, Kuperighati.

SENECIO L.

1. Heads ebracteolate; pappus absent in florets or represented by sub-paleaceous very short ring or cup ... *S. belgaumensis*
1. Heads bracteolate; pappus present :
 2. Leaves clothed with cottony pubescence beneath all over; pappus hairs not dilated at base ... *S. edgeworthii*
 2. Leaves clothed with cottony pubescence beneath between the nerves; pappus hairs dilated and paleaceous at base ... *S. grahmi*

Senecio belgaumensis (Wight) Clarke, Comp. Ind. 200. 1876; Hook. f. Fl. Brit. India 3 : 348. 1881; Cooke, Fl. Pres. Bombay 1 : 111. 1958 (Repr. ed.).
Madacarpus belgaumensis Wight, Icon. t. 1152. 1846 et in Calc. J. Nat. Hist. 7 : 157. 1847.

Slender, annual herbs, 20-60 cm tall, stems and branches hairy. Leaves 3—6 × 1.8—3.5 cm, rhomboid-ovate, glabrous or puberulous above, cottony white beneath, margins dentate. Heads 1.0-1.5 cm across, in terminal corymbs, involueral bracts oblong, hairy; florets yellow. Achenes 0.2 cm long, turbinate, ribbed, pubescent.

Fls. & Frts. : August-February.

Illus. : Wight, l. c.

Distrib. : Common in open or shady places along the ghats and hilly areas in plains; Deogad-Naringre, Kankavli-Humbrat Road, Nandgaon, Osargaon, Phondaghat. Malwan-Kuperighati, Sindhudurg. Sawantwadi-Ajgaon, Ambolighat, Danoli, Gavata, Ramghat. Venguria-Vagiri forest.

S. edgeworthii Hook. f. Fl. Brit. India 3 : 346. 1881; Cooke, Fl. Pres. Bombay 2 : 109. 1958 (Repr. ed.).

Erect herbs, 30-50 cm tall, stems and branches woolly pubescent at first and glabrous when old. Leaves 2—4 × 2—3 cm, ovate or rhomboid, hirsute above, apex acute or obtuse, margins dentate; petioles auricled at base. Heads 1.0-1.2 cm across, in lax, corymbose cymes, involueral bracts woolly in basal portion; florets yellow. Achenes 0.15-0.2 cm long, oblong.

Fls. & Frts. : November.

Illus. : Wight, Icon. t. 1151. 1846.

Distrib. : Occasional, in open places along the ghats; Sawantwadi-Ambolighat.

S. grahmi Hook. f. Fl. Brit. India 3 : 347. 1881; Cooke, Fl. Pres. Bombay 2 : 110. 1958 (Repr. ed.).

Robust, annual herbs, up to 1 m tall, profusely branched, pubescent. Leaves 3—8 × 1.5—5.0 cm, rhomboid-ovate, glabrous or minutely scabrous above, margins coarsely toothed. Heads 1.5-2.5 cm across, in lax, corymbose cymes, involucre bracts pubescent, connate at base; florets yellow. Achenes 0.2-0.25 cm long, scabrid, ribbed.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 1151 B. 1846.

Distrib. : Frequent along the ghats; Kankavli-Phondaghat. Sawantwadi-Ambolighat-Nanapani.

SPHAERANTHUS L.

1. Margins of leaves and wings entire or denticulate; peduncles smooth, not winged or with very narrow entire wings ..	<i>S. africanus</i>
1. Margins of leaves and wings irregularly and sharply toothed; peduncles bearing narrow, toothed wings ..	<i>S. indicus</i>

Sphaeranthus africanus L. Sp. Pl. ed. 2, 2:1314. 1763; Hook. f. Fl. Brit. India 3 : 275. 1881; Cooke, F. Pres. Bombay 2 : 84. 1958 (Repr. ed.).

Erect, annual herbs, 15-30 cm tall, stems much branched, winged, glabrous. Leaves 2—5 × 0.8—2.0 cm, oblanceolate or obovate, sessile, decurrent, apex apiculate, pubescent on both sides. Heads 0.8—1.0 cm across, terminal or axillary; florets white. Achenes 0.1 cm long, glandular.

Fls. & Frts. : February

Distrib. : Scattered in moist fallow fields; Deogad-Tar-mumbri. Vengurla (Cooke, l. c.).

S. indicus L. Sp. Pl. 927. 1753; Hook. f. Fl. Brit. India 3 : 275. 1881; Cooke, Fl. Pres. Bombay 2 : 84. 1958 (Repr. ed.).

Aromatic, decumbent-ascending herbs. stems divaricately branched, glandular and pilose, irregularly winged. Leaves 1.5—4.0 × 0.5—2.0 cm, oblanceolate to obovate-oblong, sessile, decurrent, glandular, hairy on both sides, apex acute or spinulose-mucronate. Heads 0.8-1.5 cm across, on solitary, glandular peduncles; florets purple. Achenes 0.1 cm long, angled, minutely puberulous.

Fls. & Frts. : November-February.

Illus. : Wight, Icon. t. 1094. 1846.

Distrib. : Frequent as weed in open, moist situations and in fallow fields, along the ghats and in plains; Kudal-Ghotge. Sawantwadi-Ramghat. Vengurla (Cooke, l. c.).

SYNEDRELLA Gaertn. (*nom. cons.*)

Synedrella nodiflora (L.) Gaertn. Fruct. 2 : 456. t. 171. f. 7. 1791; Hook. f. Fl. Brit. India 3 : 308. 1881; Sant. in J. Bombay nat. Hist. Soc. 46 : 377. 1946. *Verbesina nodiflora* L. Amoen. Acad. 4 : 290. 1759.

Annual herbs, 30-60 cm tall, stems appressed pilose, branched. Leaves 4—8 × 1—4 cm, ovate or ovate-oblong, distinctly 3-nerved, apex acute, appressed hairy on both surfaces. Heads 0.4 cm across; florets yellow. Achenes in female florets dorsally compressed with 2-awns and lacerate wing and of bisexual florets 2-3 angled, glabrous.

Fls. & Frts. : October-February.

Distrib. : Occasional, as weed growing in open situations and along road sides; Malwan-Sindhudurg. Sawantwadi-Bhedshi, Dodamarg.

TRICHOLEPIS DC.

Tricholepis glaberrima DC. Prodr. 6 : 564. 1837; Hook. f. Fl. Brit. India 3 : 381. 1881; Cooke, F. Pres. Bombay 2 : 114. 1958 (Repr. ed.).

Erect, slender, graceful, annual herbs, stems and branches glabrous, ribbed. Leaves 2—6 × 0.4—0.8 cm, oblong, or elliptic-lanceolate, radical leaves obovate, glabrous, apex acute, margins entire to spinous toothed or sometimes pinnatisect. Heads 0.8-1.0 cm across, involucre bracts aristate-acuminate; florets 5-lobed upto middle. Achenes oblong, ribbed.

Fls. & Frts. : October-February.

Distrib. : Frequent, in open situations along ghats and in plains; Kankavli-Naradave, Phondaghat. Kudal-Kerude 'jungle, Varad. Malwan-Adari Road. Sawantwadi-Ambolighat-Nanapani. Vengurla-Math forest.

TAMAX L.

Tamox procumbens L. Sp. Pl. 900. 1753; Hook. f. Fl. Brit. India 3 : 311. 1881; Cooke, Fl. Pres. Bombay 2 : 102. 1958 (Repr. ed.).

Erect or procumbent-ascending herbs, stems and branches hairy. Leaves 1.5—3.5 × 0.9—1.5 cm, ovate or lanceolate, hirsute on both sides, apex acute, margins serrate-dentate. Heads 1.5-2.0 cm across, solitary, on 10-20 cm

long, hirsute peduncles; florets creamy white to yellow. Achenes 0.2 cm long, obconical, hairy.

Fls. & Frts. : June-April ((almost throughout the year.)).

Distrib. : Common exotic weed, growing in open situations on sandy and gravelly soils; Deogad-Dahibav. Kankavli-Osargaon. Sawantwadi-Danoli.

VERNONIA Schreb. (*nom. cons.*)

1. Achenes glabrescent or glabrous; pappus uniseriate	..	<i>V. divergens</i>
1. Achenes hairy; pappus biseriate	..	<i>V. cinerea</i>

Vernonia cinerea (L.) Less. in Linneaa 4 : 291. 1829; Hook. f. Fl. Brit. India 3 : 233. 1881; Cooke, Fl. Pres. Bombay 2 : 65. 1958 (Repr. ed.). *Conyza cinerea* L. Sp. Pl. 862. 1753. *Mar.* : 'Sahadevi'.

Erect or decumbent-ascending herbs, 10-30 cm tall, stems and branches striate, appressed hairy. Leaves 2—5 × 1.5—3.0 cm, variable, rhomboid-ovate or elliptic-ovate to oblong or obovate, sparsely pubescent or glabrate above, moderately to densely pubescent and punctate beneath, apex acute or obtuse. Heads 0.6-0.9 cm across, in terminal corymbs, involueral bracts ovate-lanceolate; florets pink. Achenes 0.12-0.15 cm long, obscurely angled.

Fls. & Frts. : August-February.

Distrib. : Common, in open situations on gravelly and sandy soils, from ghats to plains; Deogad-Dahibav. Tar-mumbri. Kankavli-Phonda-Bhairi pathar, Phondaghat. Malwan-Achre. Deobag. Sawantwadi-Akeri, Satarda.

V. divergens (Roxb.) Edgew. in Asiat. Soc. Bengal 21 : 172. 1853; Hook. f. Fl. Brit. India 3 : 234. 1881; Cooke, Fl. Pres. Bombay 2 : 67. 1958 (Repr. ed.). *Eupatorium divergens* Roxb. Fl. Ind. 3 : 414. 1832.

Perennial, stout herbs or undershrubs, stems and branches pubescent. Leaves 3—10 × 2—5 cm, elliptic or elliptic-ovate, scabrous above, pubescent beneath, apex acute, margins entire or serrate. Heads 0.7-0.8 cm across, in corymbose panicles, involueral bracts oblong, obtuse; florets purple. Achenes 10-ribbed, glandular between the ribs.

Fls. & Frts. : May-June.

Illus. : Wight. Icon. t. 1084. 1846.

Distrib. : Frequent along the ghats; Kankavli-Phondaghat. Kudal-Tambyachiwadi.

VICOA Cass.

Vicoa cernua Dalz. in Dalz. & Gibs. Bombay Fl. 126 & 314. 1861; Hook. f. Fl. Brit. India 3 : 297. 1881; Cooke, Fl. Pres. Bombay 2 : 89. 1958 (Repr. ed.).

Erect, slender herbs, stems and branches pubescent. Leaves 2—6 × 1.0—2.5 cm, linear or elliptic-lanceolate, sessile, apex acute to acuminate, hairy on both sides. Heads 1.5-2.0 cm across, axillary, solitary or in terminal corymbose panicles, involueral bracts squarrose; florets yellow. Achenes oblong, sparsely hairy.

Fls. & Frts. : November-February.

Distrib. : This species is reported by Cooke (*l. c.*) from Ambolighat (Sawantwadi taluka) based on collection by P. S. Kanitkar; so it is included here.

WEDELIA Jacq. (*nom. cons.*)

Wedelia biflora (L.) DC. in Wight, Contrib. Bot. Ind. 18. 1834; Hook. f. Fl. Brit. India 3 : 306. 1881; Cooke, Fl. Pres. Bombay 2 : 99. 1958 (Repr. ed.). *Verbesina biflora* L. Sp. Pl. ed. 2, 1272. 1763.

Straggling undershrubs, stems hairy or glabrescent. Leaves 3—10 × 2—6 cm, ovate, 3-nerved, appressed hispid on both sides, apex acute, margins serrate. Heads 1.5-1.9 cm across, in loose corymbs, involueral bracts ovate-elliptic, pubescent; florets yellow. Achenes 0.35 cm long, those of ray-florets triquetrous and disc-florets compressed.

Fls. & Frts. : February.

Illus. : Wight, Icon. t. 1108. 1846.

Distrib. : Scattered, along the coast on sandy soil; Deogad-Portside.

*Cultivated plants :*GUIZOTIA Cass. (*nom. cons.*)

Guizotia abyssinica (L. f.) Cass. in F. Cuv. Dict. Sci. Nat. 59 : 248. 1829; Hook. f. Fl. India 3 : 308. 1881; Cooke, Fl. Pres. Bombay 2 : 125. (Repr. ed.). *Polymnia abyssinica* L. f. Suppl. 383. 1781.

Stout, annual herbs, 30-50 cm tall. Leaves 4—8 × 2—3 cm, lanceolate, sparsely hairy, apex acute, base cordate. Heads 2.0-2.5 cm across, solitary, terminal, involucrel bracts-outer foliaceous, inner smaller; florets yellow. Achenes angled, compressed, glabrous.

Fls. & Frts. : September-October.

Distrib. : Cultivated; Kankavli-Humbrat, Phondaghat.

TITHONIA Desf. ex Juss.

Tithonia diversifolia (Hemsl.) A. Gray, Proc. Amer. Acad. 19 : 5. 1883; Sant. Fl. Khandala ed. 3, 139. 1967. *Mirasalia diversifolia* Hemsl. Biol. Contrib. Amer. Bot. 2 : 168. t. 47. 1881.

Perennial herbs, up to 2 m tall, stems pubescent or glabrescent. Leaves 5—12 × 3—9 cm, older/basal 3-lobed and upper ones ovate-deltoid, hispidulous above, pubescent beneath. Heads 3-5 cm across, solitary, terminal, involucrel bracts biseriate; florets yellow. Achenes 0.6 cm long, oblong, hairy.

Fls. & Frts. : April-May.

Distrib. : Cultivated along the hedges; Sawantwadi-Ainoda.

LOBELIACEAE

LOBELIA L.

1. Slender herbs, stems trigonous	..	<i>L. alsinoides</i>
1. Undershrubs, stems terete	..	<i>L. nicotianifolia</i>

Lobelia alsinoides Lamk. Encycl. 3 : 588. 1792; Sant. Fl. Khandala ed. 3 : 140. 1967. *L. trigona* Roxb. Fl. Ind. 2 : 111. 1824; Clarke in Hook. f. Fl. Brit. India 3 : 423. 1881; Cooke Fl. Pres. Bombay 2 : 130. 1958 (Repr. ed.).

Erect or decumbent-ascending herbs, 5-15 cm tall, stems glabrous. Leaves 1.5—2.0 × 0.7—1.5 cm, ovate or oblong, glabrous, apex acute or obtuse, base cordate, margins crenate. Flowers blue; axillary, solitary forming lax, leafy, terminal racemes; corolla 0.5 cm long. Capsules 0.4 cm long, hemispherical.

Fls. & Frts. : October-February.

Illus. : Wight, Icon. 1. 1170. 1848.

Distrib. : Frequent, in open, moist areas in plains; Kankavli-Ghonsari, Phonda-Devichi Rai. Kudal-Bhadgaon, Sawantwadi-Akeri-Mangaon forest, Gavata.

L. nicotianifolia Roth ex Roem. & Schult. Syst. Veg. 5 : 47. 1819; Clarke in Hook. f. Fl. Brit. India 3 : 327. 1881; Cooke, Fl. Pres. Bombay 2 : 131. 1958 (Repr. ed.). Mar. : 'Bhognal'.

Undershrubs, up to 1.5 m tall, stems stout, hollow, branched upwards. Leaves 10—25 × 4—6 cm, oblong-lanceolate, pubescent in the beginning glabrous when old, apex acuminate, margins crenate-serrate. Flowers white; in terminal racemes; calyx pubescent or glabrous, corolla 2 cm long. Capsules 0.8 cm long, subglobose, many seeded.

Fls. & Frts. : October-March.

Distrib. : Frequent, on the slopes along the ghats; Kankavli-Phonda ghat. Sawantwadi-Amboli-Lingasakhal, Ambolighat-top.

SPHENOCLEACEAE

SPHENOCLEA Gaertn. (*nom. cons.*)

Sphenoclea zeylanica Gaertn. Fruct. 1 : 113. t. 24. f. 5. 1788; Clarke in Hook. f. Fl. Brit. India 3 : 438. 1881; Cooke, Fl. Pres. Bombay 2 : 134. 1958 (Repr. ed.).

Erect, simple or branched, annual herbs, stems glabrous, fistular. Leaves 2.5—6.0 × 0.6—1.8 cm, lanceolate-oblong, glabrous, tapering at both ends, apex acute. Flowers greenish-white, sessile; in compact, terminal spikes; calyx glabrous, accrescent, corolla 0.3 cm long. Capsules 0.4 cm across, depressed-globose.

Fls. & Frts. : October-February.

Distrib. : Scattered in moist, fallow fields in plains; Deogad-Tar-mumbri. Malwan-Adari Road. Vengurla (Cooke, l. c.).

PLUMBAGINACEAE

PLUMBAGO L.

Plumbago zeylanica L. Sp. Pl. 151 1753; Clarke in Hook. f. Fl. Brit. India 3 : 480. 1882; Cooke, Fl. Pres. Bombay 2 : 136. 1958 (Repr. ed.). Mar. : 'Chitrak'

Erect or sometimes scandent, perennial undershrubs, stems glabrous. Leaves 3—5 × 2—3 cm, ovate-lanceolate or ovate, thin, glabrous above, white punctate beneath, apex acute. Flowers white; in terminal or axillary elongate spikes; calyx green, glandular hairy, 1 cm long, corolla 1.2-1.5 cm long. Fruits 0.5 cm long, oblong, circumscissile.

Fls. & Frts. : September-October.

Distrib. : Occasional, along the hedges near Rest House; Deogad-Rest House campus.

PRIMULACEAE

ANAGALLIS L.

Anagallis pumila Sw. Prod. Veg. Ind. Occ. 1 : 40. 1788; Sant. Fl. Khandala ed. 3, 140. 1967. *Centunculus tenellus* Duby in DC. Prodr. 8 : 72. 1844; Hook. f. Fl. Brit. India 3 : 506. 1882; Cooke, Fl. Pres. Bombay 2 : 140. 1958 (Repr. ed.).

Erect, simple or branched herbs, 5-8 cm tall. Leaves 0.5—1.0 × 0.2—0.3 cm, ovate, sessile, glabrous, 1-nerved, apex acute. Flowers white; axillary solitary, peduncles 0.4-0.6 cm long; calyx divided up to the base, segments lanceolate, corolla also divided to the base, shorter than calyx. Capsules subglobose.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 1585. 1850.

Distrib. : Uncommon, in open, moist situations along the ghats; Sawantwadi-Amboli-Mahadeogad.

MYRSINACEAE

1. Plants growing in salt marshes; fruits cylindric, falcately curved ..	<i>Aegiceras</i>
1. Plants not growing in salt marshes; fruits globose :	
2. Petals thick and fleshy, waxy; pedicels exceeding 1 cm in fruits ..	<i>Ardisia</i>
2. Petals not thick and fleshy, nor waxy; pedicels under 0.5 cm in fruits :	
3. Flowers bisexual, rarely unisexual; fruits many seeded ..	<i>Maca</i>
3. Flowers unisexual or polygamo-dioecious; fruits one seeded ..	<i>Embellia</i>

AEGICERAS Gaertn.

Aegiceras corniculatus (L.) Balnco, Fl. Filip. 1: 79. 1837; Jafri & Quaiser in Nasir & Ali, Fl. W. Pakistan 89: 7. fig. 2, C & D. 1975. *Rhizophora corniculata* L. Amoen. Acad. 4: 123. 1762. *Aegiceras majus* Gaertn. Fruct. 1: 216. t. 46. 1788; Clarke in Hook. f. Fl. Brit. India 3: 533. 1882; Cooke, Fl. Pres. Bombay 2: 147. 1958 (Repr. ed.). *Mar.*: Cheep.

Shrubs or small trees, 1-2m tall, branches glabrous. Leaves 4—8 × 2.5—4.0 cm, obovate or obovate-oblong, shining above, glaucous beneath, base cuneate. Flowers white, fragrant; in umbels, leaf-opposed or terminal; calyx glabrous, twisted, corolla deeply 5-lobed. Fruits cylindrical, reddish-brown.

Fls. & Frts.: February-May.

Illus.: Talb. For. Fl. Bombay Pres. & Sind 2: 151. fig. 369. 1911.

Distrib.: Frequent along the seashore in salt marshes; Deogad-Tarmumbri. Kudal-Kochre coast. Malwan-Achre creek.

ARDISIA Swartz (*nom. cons.*)

Ardisia solanacea Roxb. Pl. Cor. 1: 27. t. 27. 1795; Cooke, Fl. Press Bombay 2: 146. 1958 (Repr. ed.). *A. humilis* auct. non Vahl (1794); Clarke in Hook. f. Fl. Brit. India 3: 529. 1882.

Shrubs, 1.5-3.0 m tall, branches stout. Leaves 8-12 × 4-6 cm, obovate-oblong or oblanceolate, subcoriaceous, glabrous, apex acute or acuminate. Flowers 1.5-2.0 cm across, pink; in axillary, corymbose cymes; calyx free up to the base, corolla gland dotted. Drupes 0.7-1.3 cm across, globose.

Fls. & Frts.: May-November.

Illus.: Wight, Icon. t. 1212. 1848.

Distrib.: Frequent in moist deciduous and in semi-evergreen forests; Kudal-Dukanvad, Shivapur paz, Wasuli Rai, Sawantwadi-Amboli-Linga-sakhal, Ambolighat-Kumbheshwar and Temple point, Bhedshi-Konal R. F., Danoli, Ramghat.

EMBELIA Burm. f. (*nom. cons.*)

1. Inflorescence much branched in racemes or panicles, much longer than leaves; stamens not exerted ..

E. ribes

1. Inflorescence simple racemes, mostly shorter than leaves, sometimes slightly longer; stamens exerted

2. Erect shrubs, rarely scandent; petals 5 .. *E. tsjeriam-cottam*
 2. Scandent shrubs; petals 4 .. *E. viridiflora*

Embelia ribes Burm. f. Fl. Ind. 62. t. 23. 1768; Clarke in Hook. f. Fl. Brit. India 3 : 513. 1882; Cooke, Fl. Pres. Bombay 2 : 143. 1958 (Repr. ed.).
Mar. : 'Vavding', 'Murad-vel'

Climbing shrubs, branches with long internodes. Leaves 4—7 × 2—3 cm, elliptic-lanceolate, thinly coriaceous, glabrous, gland-dotted beneath, apex acute. Flowers greenish-yellow, 5-merous, calyx hairy, petals papillose. Fruits 0.5 cm across, globose.

Fls. & Frts. : March-June.

Illus. : Wight, Icon. t. 1207. 1848.

Distrib. : Occasional along the ghats; Sawantwadi-Terwan near Ramghat.

E. tsjeriam-cottam (Roem. & Schult.) DC. in Trans. Linn. Soc. London 17 : 131. 1834; Sant. Fl. Khandala ed. 3. 141. 1967. *Ardisia tsjeriam-cottam* Roem. & Schult. Syst. Veg. 4 : 518. 1819. *E. robusta* Clarke in Hook. f. Fl. Brit. India 3 : 515. 1882; Cooke, Fl. Pres. Bombay 2 : 144. 1958 (Repr. ed.), (non Roxb. 1832).

Shrubs or undershrubs, young branches rusty tomentose. Leaves 5—9 × 2.5—5.0 cm, broadly elliptic or ovate, glabrous, punctate on both sides, apex acute or acuminate. Flowers white to creamy; in rusty hairy racemes; calyx glabrous, petals papillose. Fruits 0.4-0.5 cm across, globose, red when ripe.

Fls. & Frts. : May-December.

Illus. : Wight, Icon. t. 1209. 1848.

Distrib. : Common along the ghats and in hilly areas in plains; Kankavli-Osargaon, Phonda-Harkool forest, Phondaghat. Kudal-Ghotge, Shivapur Rai. Malwan-Kuperighati near Kunkavle. Sawantwadi-Akeri-Mangaon forest. Danoli-Kesari R. F., Nemle forest. Vengurla-Math forest.

E. viridiflora (A. DC.) Scheff. Myrsin. Arch. Ind. 45. 1867; Clarke in Hook. f. Fl. Brit. India 3 : 516. 1882; Cooke, Fl. Pres. Bombay 2 : 145. 1958 (Repr. ed.). *Chortpetalum viridiflorum* A. DC. in DC. Prodr. 8 : 88. 1844. *Mar.* : *Ambat*.

Extensive climbing shrubs, branches lenticellate, warted. Leaves 4—8 × 3—4 cm, elliptic-oblong, coriaceous, glabrous, punctate on both sides, apex

obtuse to subacute. Flowers orange, dull due to papillae; in axils of fallen leaves with imbricate scales; calyx segments triangular, gland-dotted, corolla elliptic-oblong. Fruits 0.6-0.8 cm across, globose, reddish.

Fls. & Frts. : February-May.

Illus. : Wight, Icon. t. 1210. 1848.

Distrib. : Very scattered, in semi-evergreen forest along ghats; Sawantwadi-Ramghat.

MAESA Forssk.

Maesa indica (Roxb.) DC. in Trans. Linn. Soc. London 17 : 134. 1834; Clarke in Hook. f. Fl. Brit. India 3 : 509. 1882; Cooke, Fl. Pres. Bombay : 2 141. 1958 (Repr. ed.). *Baeobotrys indica* Roxb. Fl. Ind. 2 : 230. 1824. *Mar.* 'Atki'

Shrubs, 1.5-3.0 m tall, bark thin, lenticellate. Leaves 5—12 × 3.5—6.0 cm, elliptic-lanceolate to ovate-oblong, pilose to completely glabrous, margins serrate or dentate, apex acute to acuminate. Flowers 0.4-0.5 cm across, white; in branched, axillary racemes; calyx campanulate, corolla rotate. Fruits 0.5—0.7 cm across, globose, whitish.

Fls. & Frts. : January-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 144. fig. 367. 1911.

Distrib. : Frequent in open situations along the slopes of the ghats and at base; Kankavli- Phondaghat. Kudal-Ghotge. Sawantwadi-Amboli, Ambolighat-top and Nanapani, Danoli, Ramghat.

SAPOTACEAE

1. Leaves with numerous close, parallel veins; sepals biseriata	..	<i>Mimusops</i>
1. Leaves with distant, not parallel veins; sepals uniseriate	..	<i>Xantolis</i>

MIMUSOPS L.

Mimusops elengi L. Sp. Pl. 349. 1753; Clarke in Hook. f. Fl. Brit. India 3 : 548. 1882; Cooke, Fl. Pres. Bombay 2 : 155. 1958 (Repr. ed.). *Mar.* 'Bakul'.

Medium sized trees, 8-10 m tall. Leaves 4—8 × 3—4 cm, elliptic or ovate-lanceolate, thinly coriaceous, glabrous, apex shortly acuminate. Flowers 1.4-2.0 cm across, white, fragrant; solitary or in axillary clusters; calyx hairy, corolla 8-lobed, lobes with bifid appendages on back. Fruits 3 × 2 cm, ellipsoid.

Fls. & Frts. : February-October.

Illus. : Wight, Icon. t. 1586. 1850.

Distrib. : Frequent along the ghats and in plains and also planted; Kankavli-Bhironde. Kudal-Chapheli, Wasuli. Malwan-Achre. Sawantwadi-Akeri-Mangaon forest, Amboli-Mulai jungle, Banda-Sherle to Padlos. Vengurla-Math forest.

XANTOLIS Raf.

Xantolis tomentosa (Roxb.) Raf. Sylv. Tell. 36. 1838; van Royen in Blumea 8 : 226. 1957; Sant. Fl. Khandala ed. 3, 142. 1967. *Sideroxylon tomentosum* Roxb. Pl. Cor. 1 : 28. t. 28. 1795; Clarke in Hook. f. Fl. Brit. India 3 : 538. 1882; Cooke, Fl. Pres. Bombay 2 : 150. 1958 (Repr. ed.).

Armed shrubs or small trees, 5-8 m tall, young parts tawny tomentose. Leaves 4—9 × 2.5—4.5 cm, elliptic or obovate, hairy when young, apex acute, obtuse or retuse. Flowers 0.8-1.0 cm across, dull white; in drooping, axillary clusters; calyx fulvous pubescent, corolla 5-6 lobed. Fruits 3 × 2 cm, ovoid, puberulous.

Fls. & Frts. : September-February.

Illus. : Talb. For Fl. Bombay Pres. & Sind 2 : 154. fig. 371. 1911.

Distrib. : Frequent, along the ghats on the outskirts of forest; Kankavli-Phondaghat. Kudal-Ghotge. Sawantwadi-Amboli R. F., Ambolighat-Nanapani, Chaukul, Danoli, Ramghat.

EBENACEAE

DIOSPYROS L.

1. Flowers 3-merous; stamens in male flowers 3-9 .. *D. pigrescens*
1. Flowers 4-5-merous; stamens in male flowers 12-30 (mostly 16) :
 2. Plants armed; leaves pubescent at least when young .. *D. montana*
 2. Plants unarmed; leaves glabrous :

3. Calyx in flowers truncate; fruits ellipsoid .. *D. oocarpa*
 3. Calyx in flowers lobed; fruits globose :
 4. Flowers 5-merous; corolla in male flowers tubular .. *D. candolleana*
 4. Flowers 4-merous; corolla in male flowers campanulate .. *D. malabarica*

Diospyros candolleana Wight, Icon. tt. 1221-1222. 1848; Clarke in Hook. f. Fl. Brit. India 3 : 566. 1882; Cooke, Fl. Pres. Bombay 2 : 161. 1958 (Repr. ed.).

Moderate sized trees, 8-10 m tall, branches drooping, glabrous. Leaves 8—12 × 3.5—5.5 cm, elliptic or elliptic-oblong, coriaceous, glabrous, apex shortly, obtusely acuminate, Flowers white; in axillary fascicles; male flowers 0.7-0.8 cm long, calyx fulvous hairy; female flowers slightly larger; 3-10 in a fascicle. Fruits 2.0-2.5 cm across, 3-4 seeded.

Fls. & Frts. : April-June.

Illus. : Wight, l. c.

Distrib. : Frequent along the ghats and in plains in moist deciduous to semi-evergreen forests; Kudal-Narur, Shivapur paz. 'Phondaghat' in Kankavli Taluka (Cooke, l. c.). Sawantwadi-Amboli, Ramghat, Terwan. Vengurla (Cooke, l. c.).

D. malabarica (Desr.) Kostel. in Allg. Med. Pharmac. Flora 3:1099. 1834. *Garcinia malabarica* Desr. in Lamk. Encycl. 3 : 701. 1789. *Diospyros embryopteris* Pers. Syn. Pl. 2 : 624. 1807; Clarke in Hook. f. Fl. Brit. India 3 : 556. 1882; Cooke, Fl. Press. Bombay 2 : 167. 1958 (Repr. ed.).

Small trees, 5-8 m tall, young parts glabrous. Leaves 8—20 × 2.5—7.0 cm, oblong-elliptic or elliptic-ovate, coriaceous, glabrous, prominently reticulately veined, apex acute. Flowers pale yellow, fragrant; male flowers 3-9 together, 1.0-1.5 cm long; calyx hairy, 4-lobed; female flowers 1-5 together, 1.5-2.0 cm long. Fruits 4-5 cm across, scurfy when young, glabrous when old.

Fls. & Frts. : April-July.

Illus. : Wight, Icon. tt. 843-844. 1845.

Distrib. : Occasional in moist deciduous forest, also grown in forest nursery; Sawantwadi-Banda-Tamboli forest nursery.

D. montana Roxb. Pl. Cor. 1 : 36. t. 48. 1795; Clarke in Hook. f. Fl. Brit. India 3 : 555. 1882, p.p.; Cooke, Fl. Pres. Bombay 2 : 165. 1958 (Repr. ed.).

Medium-sized trees, 10-15 m tall, young parts pubescent. Leaves 4—9 × 2—4 cm, ovate-elliptic or ovate-oblong, glabrous above, pubescent beneath, apex acute. Flowers white; male flowers 2-8, in bracteate cymes; calyx lobes ciliate along margins, corolla sparsely pubescent; female flowers solitary. Fruits 1.8-2.5 cm across, globose, glabrous.

Fls. & Frts. : May-October.

Illus. : Wight, Icon. t. 1225. 1848.

Distrib. : Frequent in deciduous forest along the ghats and in plains; Kankavli-Phondaghat. Sawantwadi-Akeri-Mangaon forest, Ambolighat-Nanapani, Danoli, Ramghat.

D. nigrescens (Dalz.) Saldanha in Saldanha & Nicolson, Fl. Hassan Distt. 197. 1976. *Maba nigrescens* Dalz. in Dalz. & Gibs. Bombay Fl. 142. 1861; Clarke in Hook. f. Fl. Brit. India 3 : 551. 1882; Cooke, Fl. Pres. Bombay 2 : 157. 1958 (Repr. ed.).

Shrubs or small trees, 3-8 m tall, young parts rufous villous. Leaves 2.5—5.6 × 1.5—2.5 cm, ovate-lanceolate or elliptic-lanceolate, glabrous, margins undulate, apex acute. Flowers white; male flowers 1-5 flowered axillary cymes; calyx and corolla lobes hairy; female flowers solitary. Fruits 0.5-0.7 cm across, ovoid, hirsute when young.

Fls. & Frts. : April-October.

Distrib. : Frequent along the slopes and at the base of ghats, near streams; Kudal-Ghotge, Shivapur Rai. Sawantwadi-Amboli, Ambolighat-top, Danoli, Hewale, Ramghat, Terwan.

D. oocarpa Thw. Enum. Pl. 180. 1860; Clarke in Hook. f. Fl. Brit. India 3 : 560. 1882; Cooke, Fl. Pres. Bombay 2 : 162. 1958 (Repr. ed.).

Trees, 10-15 m tall, young parts glabrous. Leaves 5—9 × 3—6 cm, ovate-elliptic, subcoriaceous, glabrous, apex obtuse-acuminate. Flowers white, fragrant; male flowers 3-6 together in rusty tomentose cymes; calyx glabrous, thick, corolla tubular; female flowers solitary. Fruits 3 × 2 cm, angled, black.

Fls. & Frts. : February-June.

Distrib. : Scattered, along the ghats in semi-evergreen forest and in sacred groves; Kankavli-Naradaye-Dirbyachi Rai, Phondaghat Rai. Kudal-Hanuman ghat Rai.

SYMPLOCACEAE

SYMPLOCOS Jacq.

1. Spikes mostly unbranched; fruits not ribbed, ellipsoid .. *S. racemosa*
 1. Spikes often branched; fruits ribbed, ampulliform .. *S. cochinchinensis* ssp. *laurina*

Symplocos cochinchinensis (Lour.) Moore ssp. *laurina* (Retz.) Nooteb. Rev. Symplocaceae Old World 156. 1975. *Myrtus laurina* Retz. Obs. Bot. 4 : 26. 1786. *Symplocos spicata* Roxb. Fl. Ind. 2 : 541. 1832.; Clarke in Hook. f. Fl. Brit. India 3 : 573. 1882; Cooke, Fl. Pres. Bombay 2 : 169. 1958 (Repr. ed.).

Shrubs or small trees, 3-5 m tall, branches glabrous. Leaves 4—12 × 3—5 cm, elliptic or elliptic-lanceolate, coriaceous, glabrous, margins entire or crenate-serrate, apex acute or acuminate. Flowers white, fragrant; in pubescent, axillary spikes; calyx glabrous, corolla divided up to base. Fruits 0.4-0.6 cm across, 2-3 seeded.

Fls. & Frts. : June-April.

Distrib. : Frequent in moist deciduous and semi-evergreen forests along higher slopes of the ghats; Kudal-Shivapur paz. Sawantwadi-Amboli-Hiranyakeshi, Chaukul, Ramghat.

S. racemosa Roxb. Fl. Ind. 2 : 539. 1832; Clarke in Hook. f. Fl. Brit. India 3 : 576. 1882. *S. beddomei* Clarke in Hook. f. l. c. 582; Cooke, Fl. Press. Bombay 2 : 169. 1958 (Repr. ed.). *Mar.* : 'Lenda', 'Dhamu'.

Moderate sized trees, 8-10 m tall, branches glabrous. Leaves 6—14 × 3.5—5.0 cm, elliptic-lanceolate, subcoriaceous, glabrous, margins remotely crenate-serrate, apex acuminate or acute. Flowers white or creamy; in densely pubescent spikes; calyx 0.2-0.3 cm long, corolla divided up to base. Fruits 1.0—1.5 × 0.4—0.6 cm, ellipsoid, deep blue at maturity.

Fls. & Frts. : February-June.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 181. fig. 382. 1911.

Distrib. : Scattered in semi-evergreen forest along the ghats; Sawantwadi-Ambolighat top, Ramghat.

OLEACEAE

1. Scandent shrubs; petals imbricate .. *Jasminum*
 1. Erect shrubs or trees; petals valvate :

2. Inflorescence terminal thyrsoid—panicles; fruits 1-3-seeded	..	<i>Ligustrum</i>
2. Inflorescence axillary, in fascicles, simple racemes or few-flowered panicles; fruits 1-seeded :		
3. Flowers polygamo-dioecious, petals all connate	..	<i>Olea</i>
3. Flowers bisexual, petals free or connate by pairs	..	<i>Chionanthus</i>

CHIONANTHUS L.

Chionanthus malabarica (Wall. ex. G. Don) Bedd. For. Man. 154. 1872 et Fl. Sylv. t. 239. fig. in corner. 1872. *Linociera malabarica* Wall. ex G. Don, Gen. Syst. 4: 53. 1837; Clarke in Hook. f. Fl. Brit. India 3: 607. 1882; Cooke, Fl. Pres. Bombay 2: 178. 1958 (Repr. ed.).

Shrubs or small trees, 5-8 m tall, bark glabrate, lenticular. Leaves 4—8 × 2—4 cm, elliptic or elliptic-oblong, coriaceous, glabrous, apex abruptly acute or acuminate, twisted. Flowers white, odorous; in fascicled branching cymes; calyx pubescent, corolla 0.6 cm long. Fruits 1.0—1. × 0.6—0.8 cm, ellipsoid or ovoid, dark purple or black.

Fls. & Frts. : December-march.

Illus. : Wight, Icon. t. 1246. 1848.

Distrib. : This species is reported by Cooke (*l. c.*) from 'S. M. Country' : Ramghat in Sawantwadi taluka based on collection by Law and Ritchie. So it is included here.

JASMINUM L.

1. Bracts white, large, 0.9-1.5 cm long, foliaceous	..	<i>J. rostrerianum</i>
1. Bracts green, small, 0.4-0.8 cm long, not foliaceous :		
2. Calyx hairy, teeth much longer than corolla tube	..	<i>J. malabaricum</i>
2. Calyx glabrous, teeth shorter than corolla tube	..	<i>J. ritchiei</i>

Jasminum malabaricum Wight, Icon. t. 1250. 1848; Clarke in Hook. f. Fl. Brit. India 3: 594. 1882; Cooke, Fl. Pres. Bombay 2: 172. 1958 (Repr. ed.). *Mar.* : *Kusar* .

Climbing shrubs, branches puberulous, glabrescent at length. Leaves 6—10 × 4—6 cm, broadly ovate, glabrous, apex abruptly acuminate. Flowers white, fragrant; in lax, trichotomous cymes; calyx teeth 6-8, reflexed, corolla lobes 5-10, tube 1.5 cm long. Fruits 1 × 0.6 cm, oblong, dark purple to black.

Fls. & Frts. : February-September.

Illus. : Wight, *l. c.*

Distrib. : Common in deciduous and semi-evergreen forests along the ghats to hilly areas in plains; Kankavli-Bhironde, Digwal-Karanji jungle, Phondaghat. Kudal-Bhadgaon, Narur. Malwan-Kunkavle, Kuperi ghati. Sawantwadi-Akeri-mangaon forest, Amboli-Hemkunj palace, Ambolighat-Kumbheshwar, Bhedshi-River side, Chaukul, Danoli, Ramghat, Terwan.

J. ritchiei Clarke in Hook. f. *Fl. Brit. India* 3 : 598. 1882; Cooke, *Fl. Pres. Bombay* 2 : 174. 1958 (Repr. ed.).

Climbing, branched shrubs, branches black, glossy. Leaves 3—9 × 2—4 cm, elliptic or ovate-elliptic, glabrous on both sides or sometimes hairy on nerves beneath, apex acute or acuminate. Flowers white; in few-flowered cymes; corolla 2.0-2.5 cm long. Fruits 0.6 cm across, globose or spherical.

Fls. & Frts. : September-October.

Illus. : Talb. *For. Fl.* Bombay Pres. & Sind 2 : 190. fig. 386. 1911.

Distrib. : Scattered, along the ghats; Kankavli-Phondaghat. Sawantwadi-Amboli-Nangartas, Ambolighat-top.

J. rottlerianum Wall. ex A. DC. in DC. *Prodr.* 8 : 305. 1844; Clarke in Hook. f. *Fl. Brit. India* 3 : 593. 1882; Cooke, *Fl. Pres. Bombay* 2 : 173. 1958 (Repr. ed.).

Scandent shrubs, branches, petioles and inflorescence fulvous pubescent. Leaves 3.5—8.0 × 2—4 cm, elliptic or ovate-lanceolate, villous on both sides, later glabrescent above, drying black, apex acuminate. Flowers white, fragrant; in compact cymes; corolla 1.8—3.0 cm long. Fruits 1.5 × 0.8 cm, ellipsoid or ovoid.

Fls. & Frts. : April-June.

Illus. : Wight, *Icon. t.* 1249. 1848.

Distrib. : Scattered, in thickets and at the edges of semi-evergreen forest along the ghats; Kudal-Hanuman ghat, Wasuli. Sawantwadi-Amboli-Malai jungle, Ambolighat-Temple point, Chaukul, Ramghat.

LIGUSTRUM L.

Ligustrum perrottetii A. DC. in DC. Prodr. 8 : 294. 1844; Clarke in Hook. f. Fl. Brit. India 3 : 615. 1882. *L. neilgherrense* Wight var. *obovata* (Decne.) Clarke in Hook. f. l. c.; Cooke, Fl. Pres. Bombay 2 : 181. 1958 (Repr. ed.).

Shrubs or small trees, 2-6 m tall, branches lenticellate. Leaves 4—8 × 1.5—4.0 cm, elliptic or obovate, glabrous, punctate beneath, apex acute or obtusely acuminate. Flowers white, fragrant, calyx 0.2-0.3 cm long, 4-toothed, glabrous, corolla twice as long the calyx, infundibuliform, lobes reflexed. Fruits 0.8—1.0 × 0.4 cm, ellipsoid, dark purple.

Fls. & Frts. : September-February.

Illus. : Wight, Icon. 1. 1243. 1848.

Distrib. : Frequent along the forest edges along the ghats; Kankavli-Phondaghat. Sawantwadi-Ambolighat. Danoli. Ramghat.

OLEA L.

Olea dioica Roxb. Fl. Ind. 1 : 106. 1820; Clarke in Hook. f. Fl. Brit. India 3 : 612. 1882; Cooke, Fl. Pres. Bombay 2 : 179. 1958 (Repr. ed.).

Trees, 7-15 m tall, young parts glabrous, young leaves reddish. Leaves 6—12 × 3—5 cm, elliptic-lanceolate, glabrous, midnerve reddish, apex acute or acuminate, margins entire or distantly serrate. Flowers creamy or white; in lax, axillary or extra-axillary panicles; calyx glabrous, corolla often lacking in female flowers. Fruits ellipsoid, dark purple.

Fls. & Frts. : December April.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 191. fig. 390. 1911.

Distrib. : Frequent along the ghats and in plains, in semi-evergreen and deciduous forests; Kankavli-Naradave, Phonda-Mhatdeo Rai. Kudal-Ghotge. Sawantwadi-Ambolighat-top. Ramghat.

Cultivated species :

Jasminum sambac Ait. Hort. Kew 1 : 8. 1789; Clarke in Hook. f. Fl. Brit. India 3 : 591. 1882; Cooke Fl. Pres. Bombay 2 : 172. 1958 (Repr. ed.). *Mar.* : 'Bat-Mogara'

Undershrubs, 1-2 m tall, young branches hairy. Leaves 4—10 × 3—6 cm, elliptic or ovate, variable in shape, glabrous, apex acute or obtuse. Flowers white, fragrant; in terminal cymes; calyx hairy, teeth 6-8, linear, corolla lobes as long as tube. Fruits of 1-2 carpels, subglobose.

Fls. & Frts. : More or less throughout the year.

Illus. : Wight, Icon. t. 704. 1843.

Distrib. : Widely cultivated for flowers; Kudal-Narur.

APOCYNACEAE

1. Plants erect :

2. Leaves alternate .. *Cerbera*

2. Leaves opposite or whorled :

3. Leaves opposite :

4. Herbaceous annuals, less than 50 cm tall .. *Catharanthus*

4. Perennials, woody shrubs or trees, over 50 cm tall :

5. Fruits follicular :

6. Fruits obliquely ovoid; seeds arillate .. *Ervatamia*

6. Fruits linear, cylindric; seeds comose :

7. Corolla with corona; anthers exerted .. *Wrightia*

7. Corolla without corona; anthers included .. *Holarrhena*

5. Fruits fleshy berries .. *Carissa*

3. Leaves whorled :

8. Lateral nerves of leaves numerous, close and parallel; seeds comose .. *Aletris*

8. Lateral nerves of leaves few, distant, not parallel; seeds not comose .. *Rauvolfia*

1. Climbing or scandent shrubs :

9. Plants armed with long sharp spines .. *Carissa*

9. Plants unarmed :

10. Flowers 6 - 10 cm long :

11. Corolla funnel-shaped, lobes imbricate to right .. *Beaumontia*

11. Corolla salver-shaped, lobes twisted to left .. *Chanemorpha*

10. Flowers less than 4 cm long :

12. Anthers free from stigma; seeds winged at both ends, not comose .. *Elbertonia*

12. Anthers firmly adhering to stigma; seeds comose :
13. Anthers exserted, filaments spirally twisted around style .. *Parsonsia*
13. Anthers included, filaments not spirally twisted :
14. Young branches glabrous; stamens inserted below the middle of tube .. *Anodendron*
14. Young branches pubescent; stamens inserted at the middle of tube :
15. Calyx divided to the base, yellowish hairy; sap milky .. *Aganosma*
15. Calyx divided 1/2 way down, fulvous hairy; sap watery .. *Ichnocarpus*

AGANOSMA G. Don

Aganosma cymosa (Roxb.) G. Don, Gen. Syst. 4 : 77. 1837-1838; Hook. f. Fl. Brit. India 3 : 665. 1882; Cooke, Fl. Pres. Bombay 2 : 203. 1958 (Repr. ed.). *Echites cymosa* Roxb. Fl. Ind. 2 : 16. 1832.

Large, woody climbing shrubs, young parts appressed hairy. Leaves 4—8 × 2.0—3.5 cm, elliptic to ovate, glabrous above, pubescent beneath, at least on the nerves, apex acuminate or rounded or emarginate. Flowers yellowish-brown; in lax, corymbose cymes; calyx hairy on both sides, corolla lobes 0.7-0.9 cm long. Fruits 8-12 cm long, cylindric, pointed, at first hairy, later glabrous.

Fls. & Frts. : April-June.

Illus. : Wight, Icon. t. 1304, 1848.

Distrib. : Scattered, on the forest edges along the ghats; Kankavli-Phondaghat (Cooke, l. c.). Kudal-Tambyachi wadi near Ghotge. Sawantwadi-Ambolighat-Nanapani, Ramghat.

ALSTONIA R. Br. (*nom. cons.*)

Alstonia scholaris (L.) R. Br. in Mem. Wern. Nat. Hist. Soc. 1 : 76. 1811; Hook. f. Fl. Brit. India 3 : 642. 1882; Cooke, Fl. Pres. Bombay 2 : 194. 1958 (Repr. ed.). *Echites scholaris* L. Mant. 53. 1767. *Mar.* : *Sarvin*

Trees, 10-15 m tall, with milky latex. Leaves 5-7 in a whorl, 8—16 × 3—5 cm, oblong-elliptic to oblanceolate or obovate, coriaceous, dark green above, glaucous beneath, apex obtuse or emarginate. Flowers greenish-white, fragrant; in umbellate cymes; calyx pubescent, corolla tube 0.6-0.8 cm

long, pubescent, pilose at mouth. Fruits 20-40 cm long, cylindric, pendulous, in clusters.

Fls. & Frts. : October-April.

Illus. : Wight, Icon. t. 422. 1841.

Distrib. : Frequent in moist deciduous forest along the ghats and in plains; Kankavli-Digwal-Karanji jungle, Janoli river bank, Kumbhavade. Sawantwadi-Akeri-Mangaon forest, Hewle, Ramghat.

ANODENDRON DC.

Anodendron paniculatum DC. Prodr. 8 : 444. 1844. Hook. f. Fl. Brit. India 3 : 668. 1882; Cooke, Fl. Pres. Bombay 2 : 204. 1958 (Repr. ed.).

Extensive climbing shrubs, stems fluted. Leaves 8—15 × 3-6 cm, narrowly oblong-lanceolate to elliptic, thinly coriaceous, glabrous, apex acute to acuminate. Flowers yellow or greenish-yellow; in paniculate cymes; calyx glabrous, corolla tube 0.16-0.18 cm long, slightly hairy, lobes linear. Fruits 6—10 × 1.0—1.5 cm, ovoid-oblong, short, woody.

Fls. & Frts. : February-October.

Illus. : Wight, Icon. t. 396. 1840.

Distrib. : Frequent in deciduous forest along the ghats, in plains and in Raies (sacred groves); Kankavli-Bhironde, Nardave-Brahmanachi Rai, Phonda-Devichi Rai and Mhatardeo Rai. Kudal-Bhadgaon, Shivapur paz.

BEAUMONTIA Wall.

Beaumontia jerdoniiana Wight, Icon. tt. 1314-1315. 1848; Hook. f. Fl. Brit. India 3 : 661. 1882; Cooke, Fl. Pres. Bombay 2 : 201. 1958 (Repr. ed.).

Scandent, woody shrubs, branches glabrous. Leaves 10—20 × 4—12 cm, oblong-ovate, coriaceous, at first rusty tomentose, glabrous later, apex abruptly acuminate. Flowers white; in rusty pubescent cymes; calyx with numerous glands within, corolla tube pubescent outside. Fruits 18-22 cm long, cylindric, glabrous.

Fls. & Frts. : November-January.

Illus. : Wight, l. c.

Distrib. : This species is recorded by Cooke (l. c.) based on report by Dalzell & Gibson (Bombay Fl. 158. 1861) from 'Wari country' i. e. Sawantwadi. So it is included here.

CARISSA L. (*nom. cons.*)

1. Spines distinctly recurved	..	<i>C. inermis</i>
1. Spines usually straight, sometimes slightly recurved	..	<i>C. congesta</i>

Carissa congesta Wight, Icon. t. 1289. 1848; Sant. Fl. Khandala ed' 3, 145. 1967. *C. carandas* Grah. Cat. Pl. Bombay 116. 1839; Hook. f. Fl. Brit. India 3 : 630. 1882; Cooke, Fl. Pres. Bombay 2 : 186. 1958 (Repr. ed.), (non L. 1767). *Mar.* : *Karvand*.

Scandent or erect shrubs, profusely armed, spines sometimes compound. Leaves 3—7 × 2—4 cm, broadly ovate, glabrous, apex bluntly acute, mucronate. Flowers white, pinkish tinged; in pubescent corymbose cymes; calyx pubescent, corolla tube 0.9-1.5 cm long. Fruits 2-3 cm across, spherical or slightly ellipsoid, dark purple.

Fls. & Frts. : February-June.

Illus. : Wight, l. c.

Distrib. : Common in deciduous forest along the ghats and in plains; Kankavli-Bhironde, Digwal-Karanji jungle, Kudal-Ghotge. Sawantwadi-Akeri-Mangaon forest, Bhedshi, Ramghat.

C. inermis Vahl, Symb. Bot. 3 : 43. 1794; Cooke, Fl. Pres. Bombay 2 : 187. 1958 (Repr. ed.). *C. macrophylla* Wall. ex A. DC. in DC. Prodr. 8 : 332. 1844; Hook. f. Fl. Brit. India 3 : 631. 1882.

Scandent shrubs. Leaves 5—9 × 2.5—4.0 cm, ovate or elliptic-lanceolate, coriaceous, glabrous, apex acute to acuminate. Flowers white; in terminal, puberulous corymbose cymes; calyx pubescent, corolla tube 1-2 cm long. Fruits 2.5-4.0 cm across, ovoid-globose, dark purple.

Fls. & Frts. : February-June.

Distrib. : Frequent in semi-evergreen and moist deciduous forests along the ghats; Kudal-Shivapur Rai. Sawantwadi-Amboli, Ambolighat-Temple point, Chaukul, Ramghat.

CATHARANTHUS G. Don

Catharanthus pusillus (Murr.) G. Don, Gen. Syst. 4 : 95. 1837-1838. *Pluca pusilla* Murr. Novi Comment. Soc. Regiae Sci. Gott. 3 : 66. 1773; Hook. f. Fl. Brit. India 3 : 640. 1882. *Lochnera pusilla* K. Schum. in Engl. &

Prantl, Pflanzenfam. 4 (2) : 145. 1895; Cooke, Fl. Pres. Bombay 2 : 191. 1958 (Repr. ed.). Mar. : 'Sadaphuli'.

Erect, annual herbs. Leaves 3—6 × 0.8—2.5 cm, lanceolate, membranous, glabrous, apex acuminate. Flowers white; in axillary, 1-2 flowered cymes; calyx glabrous, corolla tube 0.5-0.9 cm long, mouth pilose within, lobes 0.3 cm long. Fruits 3-5 cm long, cylindric, glabrous.

Fls. & Frts. : June-September.

Distrib. : This species is reported by Cooke (*l. c.*) from 'Vengurla, based on the report by Dalzell & Gibson (Bombay Fl. 144. 1861). Hence it is included here.

CERBERA L.

Cerbera manghas L. Sp. Pl. 208. 1753. *C. odollam* Gaertn. Fruct. 2 : 193. 1791; Hook. f. Fl. Brit. India 3 : 638. 1882; Cooke, Fl. Pres. Bombay 2 : 190. 1958 (Repr. ed.).

Trees, with milky latex, 5-8 m tall, branches glabrous. Leaves at the ends of branches, 8—20 × 3.5—5.0 cm, oblong-ovate or oblanceolate, glabrous, apex abruptly acuminate or rounded. Flowers white; in terminal, paniculate cymes; calyx glabrous, corolla tube 1.5-2.0 cm long, lobes longer than tube. Fruits 4-5 cm across, compressed-globose, fibrous.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 441. 1841.

Distrib. : Occasional in sandy area along the coast; Malwan-Deobag.

CHONEMORPHA G. Don (*nom. cons.*)

Chonemorpha fragrans (Moon) Alston in Ann. Roy. Bot. Gard. (Peradeniya) 11 : 203. 1929. *Echites fragrans* Moon, Cat. Pl. Ceylon 20. 1824. *Chonemorpha macrophylla* (Roxb.) G. Don, Gen. Syst. 4 : 76. 1837; Hook. f. Fl. Brit. India 3 : 661. 1882; Cooke, Fl. Pres. Bombay 2 : 202. 1958 (Repr. ed.).

Woody, tomentose, lofty climbers. Leaves 12—24 × 10—20 cm, broadly elliptic or oblong or suborbicular, glabrous above, pubescent or tomentose beneath, apex abruptly acuminate. Flowers white or yellowish, fragrant;

in terminal, lax cymes; calyx pubescent, lobes ciliate, corolla funnel-shaped. Fruits woody, slightly falcate.

Fls. & Frts. : April-September.

Illus. : Wight, Icon. t. 432. 1841.

Distrib. : Scattered, in moist deciduous and semi-evergreen forests along the ghats and at base; Kudal-Narur. Sawantwadi-Ambolighat-Kumbheshwar, Banda (Cooke, *l. c.*), Ramghat.

ELLERTONIA Wight

Ellertonia rheedii Wight, Icon. t. 1295. 1848; Hook. f. Fl. Brit. India 3 : 641. 1882; Cooke, Fl. Pres. Bombay 2 : 193. 1958 (Repr. ed.).

Climbers, young parts glabrous, branches striate, lenticular, drying black. Leaves 5—10 × 2.5—5.0 cm, elliptic-oblong or elliptic-lanceolate, thinly coriaceous, glabrous. Flowers white; in terminal, many flowered, corymbose cymes; calyx glabrous, corolla tube 1.0-1.5 cm long, curved. Fruits 5-10 cm long, cylindric, divaricate.

Fls. & Frts. : February-July.

Illus. : Wight, *l. c.*

Distrib. : This species is recorded by Cooke (*l. c.*) from 'Wari Country' (Sawantwadi), based on the report by Dalzell & Gibson, Bombay Fl. 145. 1861; so it is included here.

ERVATAMIA Stapf

Ervatamia heyneana (Wall.) Cooke, Fl. Pres. Bombay 2 : 134. 1904 et 2 : 196. 1958 (Repr. ed.). *Tabernaemontana heyneana* Wall. in Edward's Bot. Reg. 15 : subt. 1273. 1829; Hook. f. Fl. Brit. India 3 : 646. 1882. *Mar.* : 'Nagkuda'.

Shrubs or small trees, 4-10 m tall. Leaves 6—16 × 3—6 cm, elliptic to lanceolate, glabrous, apex acuminate. Flowers white; in terminal or lateral corymbose cymes; calyx with basal glands beneath, corolla tube 1.6-3.0 cm long, throat yellow. Fruits 2.5-3.5 cm long, paired, boat-shaped, bright yellow-orange at maturity.

Fls. & Frts. : February-August.

Illus : Talb. For. Fl. Bombay Pres. & Sind 2 : 218.
fig. 399. 1911.

Distrib. : Common in semi-evergreen and deciduous forests along the ghats and in plains; Kankavli-Bhironde, Naradave-Brahmanchi Rai, Phonda-Ghonsari Rai. Kudal-Chapheli, Kerude jungle, Shivapur Rai. Sawantwadi-Akeri-Mangaon forest, Ambolighat-Kumbheshwar, Gavata, Kesari R. F. near Danoli, Konal R. F. near Bhedshi, Ramghat, Satarda.

HOLARRHENA R. Br.

Holarrhena antidysenterica (Roth) A. DC. in DC. Prodr. 8 : 413. 1844; Hook. f. Fl. Brit. India 3 : 644. 1882; Cooke, F. Pres. Bombay 2 : 195. 1958 (Repr. ed.). *Echites antidysenterica* Roth, Nov. Pl. Sp. 138. 1821. *Mar.* : 'Kuda', 'Pandhara-Kuda'.

Shrubs, 3-6 m tall. Leaves 8—16 × 4—9 cm, elliptic or ovate-oblong, pubescent or glabrous, apex acuminate. Flowers white, faintly fragrant, 2.5—3.5 cm across; in terminal or lateral corymbose cymes; calyx with small basal glands within, corolla tube about 1 cm long. Fruits paired, 20-40 cm long, cylindric, speckled with white dots.

Fls. & Frts. : April-November.

Illus. : Wight, Icon. tt. 1297-1298. 1848.

Distrib. : Common in deciduous forest from ghats to plains; Deogad-Nadan-Vir. Kankavli-Humbrat, Kumbhavde, Phonda-Harkool forest, Phondaghat. Kudal-Ghotge, Pangrad, Tambyachiwadi. Malwan-Kunkavle. Sawantwadi-Ambolighat-Kumbheshwar, Hewale, Kesari R. F. near Danoli, Konal R. F. near Bhedshi.

ICHNOCARPUS R. Br. (*nom. cons.*)

Ichnocarpus frutescens (L.) R. Br. in Mem. Wern. Soc. 1 : 62. 1809; Hook. f. Fl. Brit. India 3 : 669. 1882; Cooke, Fl. Pres. Bombay 2 : 205. 1958 (Repr. ed.). *Apocynum frutescens* L. Sp. Pl. 213. 1753.

Climbing shrubs, branches, young leaves and inflorescence ferruginous-tomentose. Leaves 3—6 × 2.0—3.5 cm, oblong-lanceolate to oblong-ovate, glabrous to sparsely pubescent beneath. Flowers white; in axillary cymes

forming elongate thyrsus; calyx fulvous hairy, corolla lobes white-woolly pubescent. Fruits paired, up to 15 cm long, rusty pubescent at first, later glabrous.

Fls. & Frts. : October-February.

Illus. : Wight, Icon. t. 430. 1841.

Distrib. : Infrequent in deciduous forest along the slopes of the ghats and in plains; Sawantwadi-Ambolighat-Nanapani, Gavata, Madkhol.

PARSONSIA R. Br. (*nom. cons.*)

Parsonsia alboflavescens (Dennst.) Mabber. in Taxon 26 : 532. 1977. *Periploca alboflavescens* Dennst. in Forts. Allg. Deutsch. Gaerth-Mag. 3 : 31, 41, 83. 1818. *Parsonsia spiralis* Wall. ex. G. Don, Gen. Syst. 4 : 80. 1837-1838; Hook. f. Fl. Brit. India 3 : 650. 1882; Cooke, Fl. Pres. Bombay 2 : 198. 1958 (Repr. ed.).

Climbing shrubs, young parts glabrous. Leaves 6—12 × 3.5—7.0 cm, elliptic or oblong-elliptic, thinly coriaceous, glabrous, apex acuminate. Flowers white; in terminal, corymbose to paniculate cymes; calyx with deltoid basal glands within, corolla campanulate, tube 0.5 cm long. Fruits 10-15 cm long, cylindric, straight, pointed.

Fls. & Frts. : March-August.

Illus. : Wight, Icon. t. 1303. 1848.

Distrib. : Scattered, in deciduous forest along the ghats and in plains; Kudal-Wasuli, Sawantwadi-Banda (Cooke, l. c.), Hewale, Ramghat, Satarda.

RAUVOLFIA L.

1. Pedicels and calyx bright red; corolla tube dilated little above the middle	..	<i>R. serpentina</i>
1. Pedicels and calyx pale green; corolla tube dilated near the mouth	..	<i>R. densiflora</i>

Rauvolfia densiflora (Wall.) Benth. ex. Hook. f. Fl. Brit. India 3 : 633. 1882; Cooke, Fl. Pres. Bombay 2 : 189. 1958 (Repr. ed.); Sulochana in J. Ind. Bot. Soc. 38 : 580. 1959. *Tabernaemontana densiflora* Wall. in Edward's Bot. Reg. 15 : t. 1273. 1829.

Shrubs, 3-5 m tall, branches lenticellate. Leaves often in whorls of 3-4, at the ends of branches, 5—18 × 2.5—6.5 cm, oblanceolate or obovate, glabrous, light green above, pale beneath, apex acuminate. Flowers white; in lax, corymbose cymes; calyx lobes long, slender, corolla tube 0.5-0.7 cm long. Fruits 0.8-1.2 cm across, ellipsoid, brownish-purple.

Fls. & Frts. : May-August.

Illus. : Wight, Icon. tt. 1291-1292. 1848.

Distrib. : Frequent along the ghats in open places; Kudal-Songadpaz, Tambyachiwadi. Sawantwadi-Amboli-Mahadeogad, Ambolighat-Nanapani, Ramghat (Cooke, *l. c.*).

R. serpentina (L.) Benth. ex Kurz, For. Fl. Burma 2 : 171. 1877; Hook. f. Fl. Brit. India 3 : 632. 1882; Cooke, Fl. Pres. Bombay 2 : 188. 1958 (Repr. ed.); Sulochana in J. Ind. Bot. Soc. 38 : 578. 1959. *Ophioxylon serpentinum* L. Sp. Pl. 1043. 1753. *Mar.* : 'Hadki', 'Adkai'.

Glabrous undershrubs, up to 1 m tall. Leaves in whorls of 3, 6—15 × 2.5—6.0 cm, elliptic-oblong or lanceolate, thin, glabrous, shining green above, pale beneath, apex acuminate. Flowers white and pinkish tinged; in dense, many-flowered cymes; calyx glabrous, corolla tube 1.0-1.5 cm long. Fruits 0.5-0.6 cm across, didymous or ovoid, purplish-black.

Fls. & Frts. : February-August.

Illus. : Wight, Icon. t. 849. 1844-1845.

Distrib. : Frequent in the undergrowth of deciduous forest along the ghats and in plains; Kankavli-Osargaon plateau, Phonda-Rest House campus. Kudal-Pangrad. Malwan-Anand-Val on Kasal Road. Sawantwadi-Akeri, Bhedshi, Danoli, Hewale, Satarda.

WRIGHTIA R. Br.

1. Branchlets puberulous, at length glabrate; corona scales numerous	..	<i>W. tinctoria</i>
1. Branchlets softly tomentose; corona scales 5-9	..	<i>W. arborea</i>

Wrightia arborea (Dennst.) Mabber. in Taxon 26 : 533. 1977. *Periploca arborea* Dennst. in Forts. Allg. Deutsch. Gaertn-Mag. 3 : 32, 41, 83. 1818. *Wrightia tomentosa* (Roxb.) Roem. & Schult. Syst. Veg. 4 : 414. 1819; Hook. f. Fl. Brit. India 3 : 653. 1882; Cooke, Fl. Pres. Bombay 2 : 199. 1958 (Repr. ed.); Nagan in Ann. Missouri Bot. Gard. 52 : 147. 1965.

Small trees, 5-8 m tall, branchlets grey to brownish, puberulent and lenticellate. Leaves 6—15 × 3—5 cm, elliptic or obovate, puberulous or glabrescent above, densely puberulous beneath, apex acuminate to caudate-acuminate. Flowers pale yellowish or pinkish; in corymbose, tomentose cymes; calyx pubescent, corolla sub-rotate, tube 0.3-0.7 cm long, lobes hairy. Fruits paired, 15-30 cm long, fusiform, densely and conspicuously lenticellate.

Fls. & Frts. : April-December.

Illus. : Wight, Icon. t. 443. 1841.

Distrib. : This species is reported by Cooke (*l. c.*) based on collection from 'Wari Country' by Dalzell, and Savantwadi by Woodrow (Savantwadi), so it is included here.

W. tinctoria R. Br. in Mem. Wern. Soc. 1 : 74. 1811; Hook. f. Fl. Brit. India 3 : 653. 1882; Cooke, Fl. Pres. Bombay 2 : 200. 1958 (Repr. ed.); Nagan in Ann. Missouri Bot. Gard. 52 : 142, 143. 1965. *Mar.* : 'Kala-Kuda

Small trees, 3-5 m tall, branches glabrous or densely puberulous, bark smooth, yellowish-grey. Leaves 6—12 × 2—5 cm, elliptic to narrowly obovate, apex acuminate to caudate-acuminate. Flowers white; in terminal, dichasial cymes; calyx glabrous or puberulent, corolla sub-rotate, tube 0.2-0.4 cm long. Fruits 20-40 cm long, lenticellate.

Fls. & Frts. : February-November.

Illus. : Wight, Icon. t. 444. 1841.

Distrib. : Frequent in deciduous forest along the ghats and in plains; Kudal-Ghotge. Sawantwadi-Akeri-Mangaon forest, Ambolighat-Kumbheshwar, Ramghat.

Cultivated species :

THEVETIA L. (*nom. cons.*)

Thevetia peruviana (Pers.) K. Schum. in Engl. & Prantl, Pflanzenfam. 4 (2) : 159. 1895; Sant. Fl. Khandala ed. 3, 150. 1967. *Cerbera peruviana* Pers. Syn. Pl. 1 : 257. 1805. *Thevetia nerifolia* Juss. ex Steud. Nom. ed. 2, 2 : 680. 1841; Cooke, Fl. Pres. Bombay 2 : 207. 1958 (Repr. ed.).

Shrubs, 3-5 m tall, branches glabrous. Leaves 4—12 × 0.6—1.2 cm, linear-lanceolate, glabrous, apex acute. Flowers pale to bright yellow, 3-4 cm across, funnel-shaped; in axillary, few-flowered cymes; corolla tube 5-7 cm long. Fruits 2.5-3.5 cm long, ellipsoid-oblong, obscurely 4-angled, glabrous.

Fls. & Frrs. : Throughout the year.

Distrib. : Native of South America usually planted for flowers;
Sawantwadi-Satarda.

ASCLEPIADACEAE

1. Plants erect :

2. Plants with tuberous rootstock; sap watery .. *Ceropegia*

2. Plants without tuberous rootstock; sap milky :

3. Leaves petiolate; corona of 5 erect, oblong lobes, with horn like appendages .. *Asclepias*

3. Leaves sessile; corona of scales laterally compressed, without appendages .. *Calotropis*

1. Plants twining, climbing or procumbent :

4. Plants with tuberous rootstock; corolla tubular .. *Ceropegia*

4. Plants without tuberous rootstock; corolla not tubular

5. Root-climbers, often epiphytic and pendulous with thick, waxy, glabrous leaves .. *Hoya*

5. Plants not climbing by roots, nor epiphytic; leaves not so thick :

6. Corolla entirely glabrous :

7. Corona cupular, enclosing gynostegium .. *Cynanchum*

7. Corona, if present, not cupular :

8. Corona of a prominent, fleshy annulus; pollen-masses pendulous .. *Holostemma*

8. Corona of 5 lobes; pollen-masses erect :

9. Corona adnate to staminal column or radiating from its base; peduncles longer than petioles .. *Tylophora*

9. Corona not adnate to staminal-column, but projecting horizontally; peduncles shorter than petioles .. *Heterostemma*

6. Corolla pubescent, at least within or on the margins :

10. Corolla-lobes densely white-villous within; anthers with membranous appendages .. *Genianthus*

10. Corolla-lobes not densely white-villous within; anthers without membranous appendages :

11. Corona double, staminal-corona minute and corolline of 5-fleshy lobes .. *Leptadenia*

11. Corona single

12. Corolla rotate; gynostegium short, sessile .. *Wartakaka*12. Corolla campanulate; gynostegium
elongate .. *Gymnema*

ASCLEPIAS L.

Asclepias curassavica L. Sp. Pl. 215. 1753; Hook. f. Fl. Brit. India 4 : 18. 1883; Cooke, Fl. Pres. Bombay 2 : 245. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 15. 1962.

Perennial herbs, up to 1 m tall, young parts hairy. Leaves 5—12 × 1.5—2.0 cm, oblong-lanceolate, glabrous or hairy on nerves beneath, apex acute or acuminate. Flowers bright orange; in terminal or lateral umbelliform-cymes; calyx with a gland between the lobes, corolla reflexed; corona scales orange. Fruits 6 cm long, in pairs.

Fls. & Frts. : June.

Distrib. : Exotic species grows wild as weed, in open situations; Kudal-Hanuman ghat Rai.

CALOTROPIS R. Br.

Calotropis gigantea (L.) R. Br. in Aiton, Hort. Kew. ed. 2, 2 : 78. 1811; Hook. f. Fl. Brit. India 4 : 17. 1883; Cooke, Fl. Pres. Bombay 2 : 214. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 17. 1962. *Asclepias gigantea* L. Sp. Pl. 214. 1753. *Mar.* : Rui' Aak

Shrubs, 1.5—2.0 m tall, young parts covered with appressed cottony pubescence. Leaves 8—16 × 3—8 cm, elliptic-ovate to obovate, densely jointed hairy when young, glabrous at length. apex obtuse or acute. Flowers pale purple or white; in subumbellate lateral cymes; corona lobes 1.2 cm long with recurved spurs at base and 2-obtuse auricles just below rounded apex. Fruits 7—10 × 4.0—4.5 cm, boat-shaped.

Fls. & Frts. : February-June.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 241, figs. 408 & 409. 1911.

Distrib. : Frequent in open situations along the ghats and in plains; Kankavli-Digwal-Karanji jungle, Phondaghat. Sawant-wadi-Konal R. F. near Bhedshi.

CEROPEGIA L.

1. Erect plants

2. Leaves less than 1.5 cm in width; corolla lobes as long as or sometimes longer than tube :

3. Herbs 6 - 10 cm tall; corolla 1.8 - 2.0 cm long .. *C. jainii*

3. Herbs 20 - 60 cm tall; corolla up to 7.5 cm long .. *C. attenuata*

2. Leaves more than 3 cm in width; corolla lobes shorter than tube .. *C. sahyadrica*

1. Twining plants :

4. Stems and peduncles densely pilose; inner corona lobes hooked .. *C. hirsuta*

4. Stems glabrous, peduncles sparsely hairy; inner corona lobes straight .. *C. oculata*

Ceropegia attenuata Hook. Icon. Pl. Ser. 2 : 5. t. 867. 1852; Hook. f. Fl. Brit. India 4 : 67. 1883; Cooke, Fl. Pres. Bombay 2 : 239. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 26. 1962; Ansari, Fasc. Fl. Ind. 16 : 9. 1984.

Erect herbs, stems glabrous. Leaves 3—15 × 0.4—1.0 cm. linear to linear-lanceolate, glabrous (pubescent when young), apex acute, base narrow. Flowers solitary, sometimes 2, on pubescent peduncles; calyx hairy, corolla tube pale yellowish-green, slightly inflated at base, lobes pale purple in upper half, merging to pale green below, margins hairy all along, pubescent inside in the upper 3/4 part; outer corona of bifid, ciliate lobes; inner spatulate divergent. Fruits 5-8 cm long.

Fls. & Frts. : July-September.

Illus. : Sant. & Irani, l. c. 105. Pl.; Ansari, l. c. Pl. III. 9.

Distrib. : This species is reported by Cooke, (l. c.) from 'Malwan', based on collection by Dalzell and from Vengurla ('Vingorla') collection by Dalzell and Ritchie. Hence it is included here.

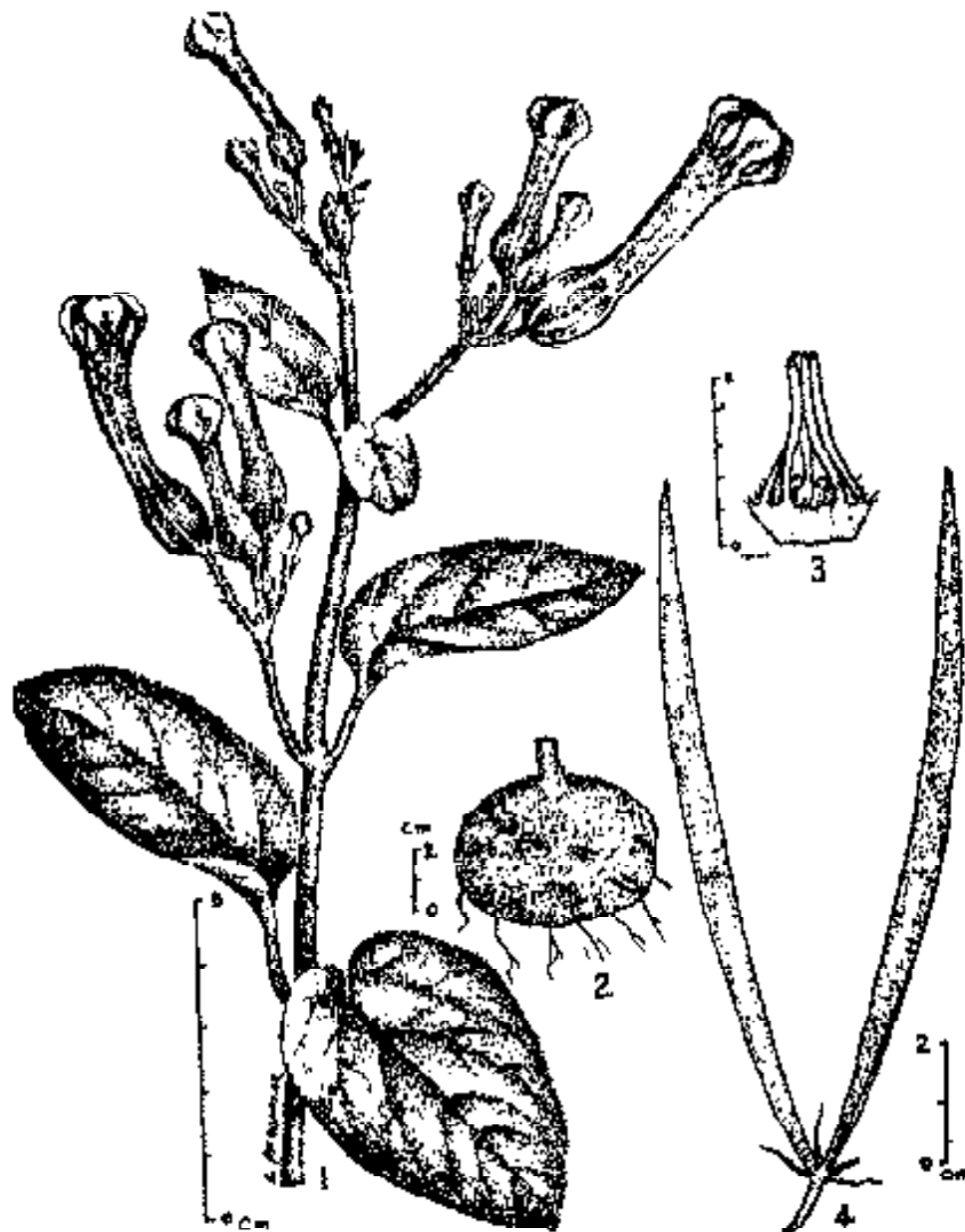
C. hirsuta Wight & Arn. in Wight, Contrib. Bot. Ind. 30. 1834; Hook. f. Fl. Brit. India 4 : 71. 1883; Cooke, Fl. Pres. Bombay 2 : 242. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 30. 1962; Ansari, Fasc. Fl. Ind. 16 : 16. 1984.

Hairy twiners. Leaves variable, mostly ovate-elliptic; peduncles, pedicels and calyx all hairy. Flowers in umbellate cymes; corolla 2.5-4.5 cm long, tube purple-violet within with white hairs; lobes with white hairs inside and along margins; outer corona of 5-deltoid bifid lobes, inner linear, erect, hooked at apex. Fruits linear-lanceolate.

Fls. & Frs. : July-October.

Illus. : Sant. & Irani, *l. c.* 106. Pl. 3; Ansari, *l. c.* pl. III. 11.

Distrib. : Occasional, in open situations in deciduous forest in plains; Malwan-Kuperi ghati. Vengurla (Cooke, *l. c.*).



Ceropogia sahyadrica Ansari et Kulkarni

1. Flowering twig. 2. Tuber. 3. Corona. 4. Follicles.

C. Jain¹ Ansari et Kulkarni in Bull. Bot. Surv. India 22 (1-4) : 221-222, figs. 1-4. 1980 (1982); Ansari, Fasc. Fl. Ind. 16 : 18. 1984.

Erect, dwarf herbs, stems unbranched. Leaves $2-4 \times 0.5-1.0$ cm, upper elliptic-linear, lower elliptic, hairy above and along the margins, shortly petiolate. Flowers in uniflowered cymes; corolla curved, purplish; tube 0.9-1.0 cm long, base inflated, narrowed in the middle, expanding near mouth, lobes 0.9-1.0 cm long, purple, linear-oblong, glabrous above from ovate deltoid base which is white hairy inside; outer corona of 5 bidentate, ciliate lobes, inner linear, erect.

Fls. & Frts. : August-September.

Illus. : Ansari, *l. c.* pl. III. 13.

Distrib. : Endemic to western ghats, on open rocky plains; Sawantwadi-Ambolighat-top.

C. oculata Hook. in Bot. Mag. t. 4093. 1844; Hook. f. Fl. Brit. India 4 : 72. 1883; Cooke, Fl. Pres. Bombay 2 : 242. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 33. 1962; Ansari, Fasc. Fl. Ind. 16 : 26. 1984.

Twining, stems sparingly branched, glabrous. Leaves broadly ovate or ovate-oblong, sparingly pubescent above. Flowers in lateral umbellate cymes; corolla 5-6 cm long, tube inflated at base, funnel-shaped above, lobes hairy inside, below; outer corona of 5-bifid, glabrous lobes, inner linear-clavate.

Fls. & Frts. : August-September.

Illus. : Ansari, *l. c.* pl. IV. 20.

Distrib. : Scattered, in open areas or on the outskirts of forests along the ghats; Kudal-Hanumanghat Raf. Sawantwadi-Amboli-Ramghat Road.

C. sahyadrica Ansari et Kulkarni in Indian For. 97 (12) : 688-690. Pl. 1, f. 1-4. 1971; Ansari, Fasc. Fl. Ind. 16 : 29. 1984. *C. lawii* auct. non Hook. f. (1883); Cooke, Fl. Pres. Bombay 2 : 175. 1904 et 2 : 240. 1958, (Repr. ed.), p. p; Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 27. 1962. *C. Panchganlensis* auct. non Blatt. et McCann (1933); Venkatarreddi in Willdenowia 5 (1) : 32. t. 3 & 4. 1968; Hemadri in Bull. Bot. Surv. India 10 (2) : 125. t. 1. f. 1 & 1A. 1968 (1969).

Erect, robust herbs, with stems pubescent above. Leaves $4-11 \times 2-8$ cm, ovate or ovate-lanceolate (upper ones), hispidulous above. Flowers in umbellate cymes; corolla 3.5-5.5 cm long, tube subcylindric, base largely inflated, lobes ovate-cordate, glabrous; outer corona saucer-shaped, 5 lobed, inner of 5 erect processes. Follicles paired, terete.

Fls. & Frts. : August-October.

Illus. : Ansari, *l. c.* pl. IV. 24.

Distrib. : Frequent, in open, moist situations along the ghats; Sawantwadi-Ambolighat-top.

CYNANCHUM L.

Cynanchum callialata Ham. ex Wight, Contrib. Bot. Ind. 56. 1834; Hook. f. Fl. Brit. India 4 : 24. 1883; Cooke, Fl. Pres. Bombay 2 : 221. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 39. 1962.

Twining undershrubs, stems and branches slender, glabrous or sparsely pubescent. Leaves 4—8 × 2.0—3.5 cm, elliptic-oblong, glabrous on both sides, margins sparsely pubescent, apex acute or acuminate. Flowers pale greenish-brown; in corymbose cymes; calyx lobes glabrous, corolla rotate; corona white, plicate with 5 shorter erect lobes, bifid at apex. Fruits winged.

Fls. & Frts. : September-January.

Illus. : Wight, Icon. t. 1279. 1848.

Distrib. : Scattered, along the ghats; Sawantwadi-Amboli-Nangartas, Ramghat.

GENIANTHUS Hook f.

Genianthus laurifolius (Roxb.) Hook. f. Fl. Brit. India 4 : 16. 1883; Cooke, Fl. Pres. Bombay 2 : 213. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 46. 1962. *Asclepias laurifolia* Roxb. Fl. Ind. 2 : 49. 1832.

Extensive climbers, stems and branches lenticelled, glabrous. Leaves 5—8 × 3—5 cm, broadly elliptic, coriaceous, glabrous, apex acuminate. Flowers in rusty-hairy, paniculate cymes; calyx pubescent, corolla 0.2 cm long, white villous inside; corona of 5-adnate scales with terminal projections reaching the top of gynostegium. Pollinia sessile. Fruits 6-10 cm long, slender, terete.

Fls. & Frts. : February-June.

Illus. : Wight, Icon. t. 588. 1842.

Distrib. : Occasional, along the ghats; Sawantwadi-Ramghat.

GYMNEMA R. Br.

Gymnema sylvestre (Retz.) R. Br. ex Schult. Syst. Veg. ed. 15, 6 : 57. 1820; Hook. f. Fl. Brit. India 4 : 29. 1883; Cooke, Fl. Pres. Bombay 2 : 224. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 47. 1962. *Periploca sylvestris* Retz. Obs. Bot. 2 : 15. 1781.

Twining shrubs, young branches densely pubescent, brown. Leaves 3—5 × 1.5—3.0 cm, ovate to elliptic-oblong, sparsely or densely pubescent, apex

short, acuminate. Flowers pale yellow; in lateral corymbose cymes; calyx cupular, pubescent within; corona of 5 fleshy processes. Pollen masses erect. Fruits paired, 6-8 cm long, terete.

Fls. & Frts. : April-February.

Illus. : Wight, Icon. t. 349. 1840.

Distrib. : Scattered, along the ghats; Kudal—Ghotge.
Sawantwadi-Ambolighat-top, Ramghat.

HETEROSTEMMA Wight & Arn.

Heterostemma dalzellii Hook. f. Fl. Brit. India 4 : 48. 1883; Cooke, Fl. Pres. Bombay 2 : 232. 1958 (Repr. ed.).

Climbing undershrubs, stems and branches glabrous or puberulous. Leaves 6—12 × 3—7 cm, broadly ovate, upper leaves ovate-oblong or ovate-lanceolate, sparsely pubescent above, glabrous below, apex acute. Flowers creamy to pink; in umbellate cymes; calyx puberulous, persistent, corolla 1.0-1.5 cm across, puberulous, gynostegium pink. Pollen masses ascending. Fruits 6-9 cm long, cylindrical.

Fls. & Frts. : September-October.

Distrib. : Occasional, in deciduous forest in the undergrowth in plains; Malwan (Cooke, l. c.). Vengurla-Math forest.

HOLOSTEMMA R. Br.

Holostemma annulare (Roxb.) K. Schum. in Engl. & Prantl, Pflanzenfam. 4 (2) : 250. 1895; Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 53. 1962. *Asclepias annularia* Roxb. Hort. Beng. 20 1814 et. Fl. Ind. 2 : 37. 1832. *Holostemma rheedei* Wall. Pl. As. Rar. 2 : 51. 1831; Hook. f. Fl. Brit. India 4 : 21. 1883. *H. rheedianum* Cooke, Fl. Pres. Bombay 2 : 156. 1904. et 2 : 220. 1958 (Repr. ed.), (non Spreng. 1825).

Extensive twiners, stems and branches glabrous. Leaves 6—12 × 4—6 cm, broadly ovate, glabrous or sparsely pubescent, apex shortly acuminate, base cordate with broad sinus and rounded lobes. Flowers pinkish-red; in lateral cymes; calyx glabrous, corolla 2.5-3.0 cm across, sub-rotate, waxy. Pollinia linear, falcate. Fruits 8-10 cm long, glabrous follicles.

Fls. & Frts. : July-October.

Illus. : Wight, Icon. t. 597. 1842.

Distrib. : Uncommon, in deciduous forest in plains; Kankavli-Nandgaon. Sawantwadi-Satarda.

HOYA R. Br.

Hoya wightii Hook. f. Fl. Brit. India 4 : 59. 1883; Cooke, Fl. Pres. Bombay 2 : 234. 1958 (Repr. ed.). *H. pendula* sensu aut. excl. basionym; Wight & Arn. in Wight, Contrib. Bot. Ind. 36. 1834; Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 56. 1962. *Mar.* : 'Dudh-Yel'

Perennial climbers, become epiphyte after severing connection with the ground, stems and branches glabrous. Leaves 5—8 x 3.0—3.5 cm, elliptic-lanceolate, thick, pale green, glabrous, apex acuminate, margins revolute. Flowers cream coloured, waxy; in drooping, umbellate cymes; calyx glabrous, corolla 2 cm across, rotate; corona of 5 fleshy lobes. Pollinia falcate-elongate. Fruits 6-9 m long, linear, cylindrical.

Fls. & Frts. : May-June.

Distrib. : Frequent, in forest along the ghats; Kudal-Hanumanghat. Sawantwadi-Ramghat.

LEPTADENIA R. Br.

Leptadenia reticulata (Retz.) Wight & Arn. in Wight, Contrib. Bot. Ind. 47. 1834; Hook. f. Fl. Brit. India 4 : 63. 1883; Cooke, Fl. Pres. Bombay 2 : 237. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 60. 1962. *Cyhanthum reticulatum* Retz. Obs. Bot. 2 : 15. 1781.

Twining shrubs with watery sap, branches appressedly pubescent, swollen at nodes. Leaves 3—8 x 1.8—4.0 cm, ovate to lanceolate, puberulous on both sides, apex acute to acuminate. Flowers pale greenish-white; in lateral, umbellate cymes; calyx densely pubescent, corolla 0.7 cm across, pubescent. Pollen-masses erect. Fruits 5-8 cm long, tapering into curved beak.

Fls. & Frts. : February-March.

Illus. : Wight, Icon. t. 350. 1840.

Distrib. : Uncommon, in deciduous fores in plains; Malwan-Achre creek.

TYLOPHORA R. Br.

1. Stems erect, less than 60 cm tall (apex with tendency to climb) .. *T. fasciculata*
1. Stems climbing or twining
2. Corona fully adnate to staminal column; sap milky .. *T. dalzellii*
2. Corona apex free; sap watery .. *T. indica*

Tylophora dalzellii Hook. f. Fl. Brit. India 4 : 43. 1883; Cooke, Fl. Pres. Bombay 2 : 227. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 87. 1962.

Twining perennial herbs, stems wiry, purplish. Leaves 4—10 × 2.5—5.0 cm, elliptic or ovate-oblong, puberulous, glabrous at length, apex acute or acuminate. Flowers reddish-purple; in lateral, many-flowered, branched, umbellate cymes; calyx pubescent, corolla 0.7-0.9 cm across, glabrous; corona of 5-fleshy lobes, cuneate. Fruits 7-9 cm long, lanceolate.

Fls. & Frts. : May-September.

Illus. : Sant. & Irani, *l. c.* Pl. 11.

Distrib. : Frequent, from ghats to plains in deciduous forest; Kudal-Kerude, Songad paz, Tambyachiwadi. Malwan-Deobag, Dhamapur, Kuperighati on Kasal Road and Nandos. Sawantwadi-Amboli-Hiranyakeshi, Ambolighat-Nanapani, Danoli, Ramghat, Tambolinear Banda. Vengurla (Cooke, *l. c.*).

T. fasciculata Ham. ex Wight, Contrib. Ind. Bot. 50. 1834; Hook. f. Fl. Brit. India 4 : 40. 1883; Cooke, Fl. Pres. Bombay 2 : 226. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 85. 1962.

Perennial undershrubs, several stems from the rootstock, sap watery. Leaves 1.5—4.0 × 1—2 cm, ovate or ovate-lanceolate, glabrous above, hairy on nerves below, apex acute or shortly acuminate. Flowers chocolate-brown; in lateral, umbellate cymes; calyx pubescent, corolla 0.4 cm across, pubescent inside; corona of 5, deep purple, orbicular lobes. Fruits 3-4 cm long, ovoid, bulging on one side.

Fls. & Frts. : May-August.

Illus. : Wight, Icon. t. 848. 1844-1845.

Distrib. : Occasional, in open situations on rocky plain; Sawantwadi-Terwan.

T. indica (Burm. f.) Merr. in Philipp. J. Sci. Bot. 19 : 373. 1921; Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 88. 1962. *Cynanchum indicum* Burm.

f. Fl. Ind. 70. 1768. *Tylophora asthmatica* (L. f.) Wight & Arn. in Wight, Contrib. Bot. Ind. 51. 1834; Hook. f. Fl. Brit. India 4 : 44. 1883; Cooke, Fl. Pres. Bombay 2 : 228. 1958 (Repr. ed.). Mar. : *Antamul*.

Twining undershrubs with creeping rootstock, young parts glabrous or pubescent. Leaves 5—10 × 3—5 cm, elliptic to ovate, glabrous above, pubescent beneath, apex acute or apiculate. Flowers 0.6—0.9 cm across, pale reddish purple; in lateral, umbellate cymes; calyx pubescent, corolla glabrous or sometimes hairy inside; corona of 5-fleshy, small, obovate lobes. Fruits 6-7 cm long, lanceolate, glabrous.

Fls. & Frts. : February-July.

Illus. : Wight, Icon. t. 1277. 1848.

Distrib. : Infrequent, in deciduous forest in plains; Kudal-Wasuli-Sawantwadi-Ainoda. Vengurla (Cooke, l. c.).

WATTAKAKA Hassk.

Wattakaka volubilis (L. f.) Stapf in Curtis, Bot. Mag. sub. t. 8976. 1923; Huber in Abeywick. Rev. Handb. Fl. Ceylon 1 : 50. 1973. *Asclepias volubilis* L. f. Suppl. 170. 1781. *Dregea volubilis* (L. f.) Benth. ex Hook. f. Fl. Brit. India 4 : 46. 1883; Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 42. 1962. *Marsdenia volubilis* (L. f.) Cooke, Fl. Pres. Bombay 2 : 166. 1904 et 2 : 230. 1958 (Repr. ed.). Mar. : *Hirandodi*.

Climbing shrubs, sap watery, young parts pubescent. Leaves 5—12 × 4—8 cm, broadly ovate, glabrous above, pubescent beneath especially when young, glabrous when old, glands present on upper side at the base of midrib, apex acuminate. Flowers greenish-yellow; in drooping, umbellate cymes; calyx pubescent, corolla rotate, glabrous; corona of 5-fleshy lobes adnate below to the staminal column. Fruits 9 × 4 cm, bluntly tapering, velvety when young, rugosely striate when dry.

Fls. & Frts. : May-August.

Illus. : Wight, Icon. t. 586. 1842.

Distrib. : Infrequent, in open areas in deciduous forest; Deogad-Near Bus stand. Kudal-Tambyachiwadi.

PERIPLOCACEAE

1. Leaves with close parallel and horizontal nerves, united into an intramarginal nerve; inflorescence pedunculate ..

Cryptolepis

1. Leaves with few lateral nerves, not parallel, arching upwards; inflorescence sessile ..

Hemideasma

CRYPTOLEPIS R. Br.

Cryptolepis buchapani Roem. & Schult. Syst. Veg. 4 : 409. 1819; Hook. f. Fl. Brit. India 4 : 5. 1883; Cooke, Fl. Pres. Bombay 2 : 210. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 91. 1962.

Climbing shrubs, young parts pale and glabrous. Leaves 6—12 × 3—5 cm, elliptic-oblong or ovate-oblong, glabrous, whitish beneath, apex apiculate to caudate. Flowers pale greenish-yellow; in paniculate cymes; calyx glabrous, divided almost to the base, corolla lobes revolute along the margins; corona corolline, of 5-fleshy, clavate lobes. Fruits 5-9 cm long, in pairs, triquetrous.

Fls. & Frts. : April-October.

Illus. : Wight, Icon. t. 494. 1841.

Distrib. : Infrequent in deciduous forest from ghats to plains; Deogad-Port Road. Kankavli-Phondaghat. Sawantwadi-Konal-R. F. near Bhedshi.

HEMIDESMUS R. Br.

Hemidesmus indicus (L.) R. Br. in Aiton, Hort. Kew. ed. 2, 2 : 75. 1811; Hook. f. Fl. Brit. India 4 : 5. 1883; Cooke, Fl. Pres. Bombay 2 : 210. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. No. 4, 96. 1962. *Periploca indica* L. Sp. Pl. 211. 1753. *Mar.* : 'Uppersal'

Perennial, twining undershrubs, with aromatic, woody root stock. Leaves variable, 4—8 × 1—4 cm, mostly elliptic-linear, sometimes linear-lanceolate or obovate-oblong, glabrous above, hairy or glabrescent beneath, apex acute or apiculate. Flowers yellowish with purplish centre; calyx glabrous, persistent, corolla 1 cm across, rotate; corolline corona of 5-fleshy lobes. Fruits 8-12 cm long, cylindric, tapering, divaricate.

Fls. & Frts. : October-February.

Illus. : Wight, Icon. t. 594. 1842.

Distrib. : Frequent in deciduous forest in plains; Kankavli-Achre Road, Nandgaon. Sawantwadi-Danoli, Karnyachi Rai near Bhedshi.

LOGANIACEAE

1. Annual herbs :

2. Flowers 4-merous; leaves 1-nerved .. *Mitrasacme*

2. Flowers 5-merous; leaves more than 3-nerved .. *Cynactonum*

1. Perennial, woody plants .. *Strychnos*

CYNOCOTONUM Gmel.

Cynocotnum mitreola (L.) Britt. in Mem. Torr. Bot. Club. 5 : 258. 1894; Leenhouts in van Steenis, Fl. Males. Ser. 1, 6 : 375. 1962. *Ophiorrhiza mitreola* L. Sp. Pl. 150. 1753. *Mitreola oldenlundiioides* G. Don, Gard. Diet. 4 : 172. 1837, *nom. illeg.*; Clarke in Hook. f. Fl. Brit. India 4 : 79. 1883; Cooke, Fl. Pres. Bombay 2 : 246. 1958 (Repr. ed.).

Erect, glabrous herbs, 20-35 cm tall, stems quadrangular. Leaves 3—6 × 1.5—3.0 cm, oblong or ovate-oblong, apex acute. Flowers white, 0.2 cm across; in terminal, dichotomous cymes; calyx glabrous, corolla urceolate, papillose. Capsules 0.2-0.3 cm long, 2-horned, wedge-shaped.

Fls. & Frits. : September-October.

Illus. : Wight, Icon. t. 1600. 1850.

Distrib. : Occasional in open or shady areas in plains; Sawantwadi-Akeri Road.

MITRASACME Labill.

Mitrasacme indica Wight, Icon. t. 1601. 1850; Leenhouts in van Steenis, Fl. Males. Ser. 1, 6 : 384. 1962. *M. alsinoides auct. non* R. Br. (1810); Clarke in Hook. f. Fl. Brit. India 4 : 80. 1883; Cooke, Fl. Pres. Bombay 2 : 247. 1958 (Repr. ed.).

Tiny, erect herbs, 8-10 cm tall, stems glabrous, ribbed. Leaves 0.6—0.8 × 0.15-0.30 cm, ovate to lanceolate, sessile, glabrous, apex acute. Flowers white; solitary in upper leaf-axils; calyx about 1/2 way connate, corolla campanulate, thinly hairy in the mouth. Capsules 0.2 cm long, subglobose, styles connate at apex.

Fls. & Frits. : August-September.

Illus. : Wight, l. c.

Distrib. : Cooke (l. c.) mentions this species based on the report by Dalzell & Gibson (Bombay Fl. 15 1861) from 'Malwan'; so it is included here

STRYCHNOS L.

1. Woody climbing shrubs, with tendrils	..	<i>S. waltfchiana</i>
1. Erect trees, without tendrils	..	<i>S. nux-tomica</i>

Strychnos nux-vomica L. Sp. Pl. 189. 1753; Clarke in Hook. f. Fl. Brit. 4 : 90. 1883; Cooke, Fl. Pres. Bombay 2 : 250. 1958 (Repr. ed.); Leenhouts in van Steenis, Fl. Males. Ser. 1, 6 : 349. 1962. Mar. : 'Kajra'.

Trees, 10-15 m tall, young parts glabrescent. Leaves 6—12 × 4.5—6.0 cm, broadly elliptic or ovate-elliptic, subcoriaceous, 5-nerved, glabrous, apex bluntly acuminate or obtuse. Flowers greenish-white; in axillary or terminal cymes; calyx pubescent, corolla tube cylindric-elongate, hairy inside. Fruits 3-8 cm across, globose, orange-yellow or orange-red when mature.

Fls. & Frts. : March-November.

Illus. : Bedd. Fl. Sylv. t. 243. 1872.

Distrib. : Frequent in deciduous forest in plains; Kankavli-Natal jungle, Osargaon. Kudal-Bhadgaon, Sawantwadi-Akeri-Mangaon forest. Ambolighat-Kumbheshwar, Ramghat, Satoli, Satarda, Tirali.

S. wallichiana Steud. ex DC. Prodr. 9 : 13. 1845; Bisset & Philcox in Taxon 20 : 543. 1971. *S. colubrina auct non* L. (1753); Clarke in Hook. f. Fl. Brit. India 4 : 87. 1883; Cooke, Fl. Pres. Bombay 2 : 249. 1958 (Repr. ed.); Leenhouts in van Steenis, Fl. Males. Ser. 1, 6 : 355. 1962.

Shrubs, climbing up to 10 m or more, young parts glabrous, tendrils bifid (or 1), thickened and circinate. Leaves 6—9 × 3—4 cm, ovate-lanceolate, subcoriaceous, 3-5 nerved, glabrous, apex acute or rounded. Flowers greenish-white; in axillary or terminal cymes; calyx glabrous or hairy, corolla 0.3-0.5 cm long, hairy inside. Fruits 2-3 cm across, globose, yellowish-purple when mature.

Fls. & Frts. : October-March.

Illus. : Leenhouts in van Steenis, l. c. 354. fig. 31.

Distrib. : Occasional, in moist deciduous forest along ghats; Sawantwadi-Ramghat.

BUDDLEJACEAE

BUDDLEJA L.

Buddleja asiatica Lour. Fl. Cochinch. 72. 1790; Hook. f. Fl. Brit. India 4 : 82. 1883; Cooke, Fl. Pres. Bombay 2 : 248. 1958 (Repr. ed.); Leenhouts in van Steenis, Fl. Males. Ser. 1, 6 : 337. 1962.

Evergreen, suffrutescent undershrubs, 1-2 m tall, young parts white tomentose. Leaves 4—10 × 1.5—3.0 cm, lanceolate to oblong-lanceolate, glabrous

above, white hairy beneath, apex acuminate, margins subentire. Flowers white, fragrant; in thyrsoid, spiciform panicles; calyx divided above the middle, white hairy, corolla 0.8 cm long, throat hairy. Fruits 0.4—0.5 cm long, ellipsoid-oblong, glabrous.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 894. 1844-1845.

Distrib. : Occasional along the ghats; Kankavli-Phondaghat.

GENTIANACEAE

1. Flowers irregular, corolla lobes unequal; usually 1 (rarely 2) fertile stamens ..	<i>Canscora</i>
1. Flowers regular, corolla lobes equal; stamens all fertile :	
2. Calyx lobes 4, keeled, often winged or flat on back; anthers opening by terminal pore ..	<i>Exacum</i>
2. Calyx lobes 5, keeled or not, never winged; anthers opening by longitudinal slits :	
3. Leaves petiolate; anthers spirally twisted ..	<i>Centaurium</i>
3. Leaves sessile; anthers not spirally twisted ..	<i>Enicostema</i>

CANSCORA Lamk.

1. Bracts perfoliate; calyx strongly winged ..	<i>C. perfoliata</i>
1. Bracts not perfoliate; calyx not winged :	
2. Stems 4-angled, but not winged ..	<i>C. diffusa</i>
2. Stems 4-winged :	
3. Pedicels winged; calyx ribbed ..	<i>C. pauciflora</i>
3. Pedicels not winged; calyx not ribbed ..	<i>C. decurrens</i>

Canscora decurrens Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 136. 1850; Clarke in Hook. f. Fl. Brit. India 4 : 103. 1883; Cooke, Fl. Pres. Bombay 2 : 257. 1958 (Repr. ed.).

Slender, much branched herbs. Leaves 1-3 × 1-2 cm, elliptic, sessile, membranous, 3-nerved, apex acute. Flowers pink; in trichotomous cymes; calyx 0.4 cm long, lobes lanceolate, corolla 0.6 cm long, lobes shorter than tube. Capsules ellipsoid, membranous.

Fls. & Frts. : September-February.

Distrib. : Frequent in open, moist situations along the ghats and in plains; Kankavli-Nandgaon, Phondaghat, Phonda Rai, Kudal-Dukanwad. Malwan-Adari.

C. diffusa (Vahl.) R. Br. Prodr. 451. in Obs. 1810; Clarke in Hook. f. Fl. Brit. India 4 : 103. 1883; Cooke, Fl. Pres. Bombay 2 : 257. 1958 (Repr. ed.). *Gentiana diffusa* Vahl, Symb. Bot. 3 : 47. 1794.

Slender, much branched, annual herbs, 10-30 cm tall. Leaves $1-3 \times 0.5-1.5$ cm, elliptic or elliptic-oblong, petiolate, membranous, upper ones ovate-lanceolate, sessile, passing into bracts, apex acute. Flowers pale rosy-pink to purple; in paniculate cymes; calyx 0.6 cm long, corolla 1.5 cm long, lobes unequal. Capsules 0.5-0.6 cm long, narrowly oblong.

Fls. & Frts. : September-April.

Illus. : Wight, Icon. t. 1327. 1848.

Distrib. : Common, in moist places from ghats to plains; Kankavli-Achre Road, Naradave, Phonda-Pawandevi Rai, Phondaghat. Kudal-Ghotge. Malwan-Adari-Nandruk. Sawantwadi-Akeri-Mangaon forest, Amboli R. F. and Mahadecgad, Hewale, Ramghat, Tirali.

C. pauciflora Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 136. 1850; Clarke in Hook. f. Fl. Brit. India 4 : 103. 1883; Cooke, Fl. Pres. Bombay 2 : 258. 1958 (Repr. ed.).

Erect herbs, stems not much branched. Leaves $0.8-1.5 \times 0.4-0.6$ cm, ovate, sessile, 3-nerved, upper ones oblong and smaller, apex obtuse or acute, margins scabrous. Flowers pale pink; in few-flowered, lax panicles, pedicels thickened towards the tips; calyx ribbed, ribs run into calyx teeth, corolla 1.5 cm long, lobes and tube equal; stamens and styles exserted.

Fls. & Frts. : September-October.

Distrib. : Cooke, (*l. c.*) reports this species from 'Malwan' based on the collection by Dalzell, hence it is included here.

C. perfoliata Lamk. Encycl. 1 : 601. 1785; Clarke in Hook. f. Fl. Brit. India 4 : 104. 1883; Cooke, Fl. Pres. Bombay 2 : 258. 1958 (Repr. ed.).

Annual herbs, 20-30 cm tall, stems angled and winged. Leaves $1.9-3.5 \times 0.4-1.5$ cm, elliptic or oblong-lanceolate, sessile, glabrous, acute at both ends, 3-nerved. Flowers pale pink; in fascicles or solitary; calyx 1.5-1.8 cm

long, orolla 1.9 cm long, lobes obovate. Capsules 0.8-1.5 cm long, ovoid.

Fls. & Frts. : November-February.

Illus. : Wight, Icon. t. 1326. 1848.

Distrib. : Infrequent in shady places from ghats to plains; Kudal-Ghotge, Kerude jungle. Sawantwadi-Ramghat, Tirali. Vengurla (Cooke, l. c.).

CENTAURIUM Hill.

Centaurium centaurioides (Roxb.) Rao et Hemadri in J. Bombay nat. Hist. Soc. 67 : 357. 1970. *Chironia centaurioides* Roxb. Fl. Ind. 2 : 283. 1824. *Erythraea roxburghii* G. Don, Gen. Syst. 4 : 206. 1837; Clarke in Hook. f. Fl. Brit. India 4 : 102. 1883; Cooke, Fl. Pres. Bombay 2 : 255. 1958 (Repr. ed.).

Erect, annual herbs, 8-15 cm tall, with perennial rootstock. Leaves 1.5—2.5 × 0.3—0.6 cm, lanceolate, glabrous, apex acute. Flowers rosy-white; in dichotomous cymes; calyx lobes linear, keeled, corolla 0.6-0.8 cm long, lobes elliptic. Capsules 0.8 cm long, linear-oblong, many seeded.

Fls. & Frts. : February-April.

Illus. : Wight, Icon. t. 1325. 1848.

Distrib. : Frequent in moist situations and in fields in plains; Kankavli-Kumbhavde. Sawantwadi-Ramghat.

ENICOSTEMA Bl. (nom. cons.)

Enicostema hyssopifolium (Willd.) Verdoon in Bothalia 7 : 462. 1961; Veldkamp in Blumea 16 : 135. 1968. *Exacum hyssopifolium* Willd. Sp. Pl. 1 : 640. 1798. *Enicostema littorale* Bl. Bijdr. 848 1826; Clarke in Hook. f. Fl. Brit. India 4 : 101. 1883; Cooke, Fl. Pres. Bombay 2 : 255. 1958 (Repr. ed.).

Erect, 10-15 cm tall herbs, simple or branched. Leaves 3—5 × 0.5—1.5 cm, linear or linear-oblong, glabrous, apex acute or obtuse. Flowers white; in axillary clusters; calyx glabrous, 0.3 cm long, corolla 0.6-0.8 cm long, tube greenish. Capsules 0.3 cm long, elliptic-subglobose.

Fls. & Frts. : August-November.

Illus. : Wight, Icon. t. 600. 1842.

Distrib. : This species is reported by Cooke (l. c.) from 'Malwan' based on collection by Dalzell; so it is included here.

EXACUM L.

1. Leaves distinctly petiolate	..	<i>E. carinatum</i>
1. Leaves all sessile :		
2. Corolla 1.5 - 2.5 cm long; buds curved	..	<i>E. bicolor</i>
2. Corolla less than 1 cm long; buds not curved :		
3. Leaves and calyx punctate	..	<i>E. laxii</i>
3. Leaves and calyx not punctate	..	<i>E. pumilum</i>

Exacum bicolor Roxb. Fl. Ind. 1 : 413. 1820; Clarke in Hook. f. Fl. Brit. India 4 : 96. 1883; Cooke, F. Pres. Bombay 2 : 252. 1958 (Repr. ed.).

Annual or biennial herbs, up to 1 m tall, rootstock somewhat enlarged and tuberous. Leaves 3.5—10 × 1.9—3.0 cm, variable, ovate-oblong to oblong-lanceolate, 5-nerved, glabrous, apex acute. Flowers 3-4 cm across; in many-flowered cymes; calyx 4-lobed, winged on back, corolla lobes upper half bluish-violet, lower half white. Capsules 1.5 cm long, ellipsoid, yellowish-brown.

Fls. & Frts. : September-February.

Illus. : Wight, Icon. t. 1321. 1848.

Distrib. : Frequent in open situations among grasses in plains; Kankavli-Nandgaon. Kudal-Chapheli, Kerude jungle. Sawantwadi-Bhedshi-Dodamarg Road, Sherle to Padlos, Tirali.

E. carinatum Roxb. Fl. Ind. 1 : 415. 1820; Ramam. in Saldanha & Nicolson Fl. Hassan Dist. 425. 1976. *E. Petiolare* Griseb. in DC. Prodr. 9 : 46. 1845; Clarke in Hook. f. Fl. Brit. India 4 : 98. 1883. *E. Pedunculatum* L. var. *petiolare* (Griseb.) Trim. Handb. Fl. Ceylon 3 : 182. 1893; Cooke, Fl. Pres. Bombay 2 : 253. 1958 (Repr. ed.).

Erect, branched, annual herbs, stems glabrous, pale green. Leaves 2—5 × 1.5—3.0 cm, elliptic, acute at both ends, glabrous, 3-5 nerved. Flowers pale blue or white, 1.5 cm across; in few-flowered cymes; calyx 4-lobed, lobes broad, conspicuously nerved, corolla lobes lanceolate. Capsules 0.2-0.3 cm across, globose, smooth.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 1324 (2). 1848.

Distrib. : Frequent in open or shady, moist places among grasses and near streams; Kankavli-Achre Road, Nandgaon, Phonda-Bhairi pathar, Phonda Rai. Sawantwadi-Amboli-ghat-Nanapani, Danoli.

E. lawii Clarke in Hook. f. Fl. Brit. India 4 : 98. 1883; Cooke, Fl. Pres. Bombay 2 : 254. 1958 (Repr. ed.).

Annual herbs, 8-10 cm tall, stems slender, seldom branched. Leaves 0.4-0.6 cm as long as broad, ovate, 3-nerved, apex acute or subacute. Flowers pale purple; solitary, peduncles 2-4 cm long; calyx 4-lobed, lobes ovate, corolla lobes broadly ovate, 0.4-0.6 cm long. Capsules 0.2-0.3 cm across, subglobose, thin walled.

Fls. & Frts. : September-October.

Distrib. : Occasional, in open, moist grassy slopes along the ghats; Sawantwadi-Amboli-Mahadeogad.

MENYANTHACEAE

NYMPHOIDES Seguiet

1. Leaves gland-dotted beneath; corolla lobes-5	..	<i>N. aurantiacum</i>
1. Leaves not gland-dotted; corolla lobes-4	..	<i>N. parvifolium</i>

Nymphoides aurantiacum (Dalz.) Kuntze, Rev. Gen. Pl. 2 : 429. 1891; Subramanyam, Aquat. Ang. 24. 1962. *Limnanthemum aurantiacum* Dalz in Hook. J. Bot. & Kew Gard. Misc. 2 : 136. 1850; Clarke in Hook. f. Fl. Brit. India 4 : 132. 1883; Cooke, Fl. Pres. Bombay 2 : 262. 1958 (Repr. ed.).

Aquatic herbs with elongate rhizomes and purplish-red branches. Leaves 2—4 × 2—3 cm, orbicular-ovate, green and glabrous above, purple and black gland-dotted beneath, apex rounded. Flowers yellow; 1-3 together; calyx glabrous, corolla lobes emarginate at tip and margins fimbriate. Capsules globose. Seeds minutely reticulate, prominently tuberculate.

Fls. & Frts. : September-December.

Distrib. : Cooke, (l. c.) reports this species based on collection by Dalzell from 'Malwan' and so it is included here.

N. parvifolium (Griseb.) Kuntze, Rev. Gen. Pl. 2 : 429. 1891; Subramanyam, Aquat. Ang. 26. 1962. *Limnanthemum parvifolium* Griseb. in DC. Prodr. 9 : 141. 1845; Clarke in Hook. f. Fl. Brit. India 4 : 132. 1883; Cooke, Fl. Pres. Bombay 2 : 261. 1958 (Repr. ed.).

Delicate, aquatic herbs with rhizomes, stems slender, 6-20 cm long. Leaves radical, rosette, 1.5-2.0 cm as long as broad, spatulate or deltoid,

petiolate and cauline leaves at the ends of branches, floating, $1.5-2.0 \times 0.3-1.5$ cm, broadly ovate, glabrous. Flowers 1.5 cm across, white; in axillary clusters; calyx and corolla lobes oblong. Capsules 0.4×0.2 cm, oblong. Seeds minutely tuberculate and puberulous.

Fls. & Frts. : November-December.

Distrib. : This species is included here on the authority of Cooke (*l. c.*) who reports it from 'Malwan' based on collection of Dalzell.

HYDROPHYLLACEAE

HYDROLEA L. (*nom. cons.*)

Hydrolea zeylanica (L.) Vahl, *Symb. Bot.* 2 : 46. 1791; Clarke in Hook. f. *Fl. Brit. India* 4 : 133. 1883; Cooke, *Fl. Pres. Bombay* 2 : 283. 1958 (Repr. ed.); Subramanyam, *Aquat. Ang.* 27. 1962. *Nama zeylanica* L. *Sp. Pl.* 226. 1753.

Procumbent, ascending herbs, succulent, rooting at nodes. Leaves $2-5 \times 0.3-1.5$ cm, lanceolate, glabrous, apex acute, base tapering. Flowers bright blue, 1.0-1.2 cm across; in short racemes; calyx glandular hairy, corolla 0.4-0.6 cm long, rotate. Capsules 0.4-0.6 cm long, ovoid, enclosed in persistent calyx. Seeds oblong, minute, numerous.

Fls. & Frts. : December-February.

Illus. : Wight, *Icon.* t. 601. 1842.

Distrib. : Frequent in wet situations in fields and along banks of streams; Kankavli-Naradave-Girachi Rai, Phonda-Bhairy pathar and Harkool. Sawantwadi-Gavata near Bhedshi.

BORAGINACEAE (*sensu lato*)

1. Trees or shrubs, 3 m or more tall :

2. Styles dichotomously twice branched; calyx accrescent .. *Cordia*

2. Styles once divided; calyx not accrescent .. *Ehretia*

1. Herbs or undershrubs, under 2 m tall :

3. Styles 2, divaricate; flowers solitary .. *Coldenia*

3. Styles simple; flowers usually not solitary :
4. Plants woody, near streams, often partly submerged .. *Rotula*
4. Plants not woody, not of aquatic habitat :
5. Flowers more than 1 cm wide, solitary or in racemes.. *Trichodesma*
5. Flowers less than 1 cm wide, in scorpioid spikes or racemes :
6. Flowers in spikes; nutlets not glochidiate .. *Heliotropium*
6. Flowers in racemes; nutlets glochidiate :
7. Nutlets attached to receptacle towards apex, not or slightly margined .. *Cynoglossum*
7. Nutlets attached to receptacle by almost their whole inner surface, prominently margined .. *Adelocaryum*

ADELOCARYUM Brand

Adelocaryum coelestinum (Lindl.) Brand in Feddes, Repert. 13 : 549. 1915 et in Engl. Pflanzenr. 78 : 78, 79, fig. 8. 1921; Sant. Fl. Khandala ed. 3, 167. 1967. *Cynoglossum coelestinum* Lindl. in Bot. Reg. 25 : t. 36. 1839. *Paracaryum coelestinum* Benth. et Hook. f. (Gen. Pl. 2 : 850. 1876) ex Clarke in Hook. f. Fl. Brit. India 4 : 160. 1883; Cooke, Fl. Pres. Bombay 2 : 285. 1958 (Repr. ed.).

Erect, branched, perennial or biennial herbs, stems and branches reddish-purple, young parts subscabrous. Leaves radical : basal large, 12—16 × 8—10 cm, broadly ovate, base cordate; cauline 4—8 × 1.9—3.5 cm, ovate, base cuneate, scabrid on both sides. Flowers bluish-pink to purplish-violet; in forked racemes; calyx ciliate, persistent, corolla campanulate, lobes 0.4-0.5 cm long. Nutlets 4, ovate.

Fls. & Frts. : September-November.

Illus. : Wight, Icon. t. 1394. 1848.

Distrib. : Frequent in open situations from ghats to plains; Sawant-wadi-Akeri-Mangaon forest, Amboli-Nangartas and Ramghat Road, Ambolighat-top. Vengurla-Math forest.

COLDENIA L.

Coldenia procumbens L. Sp. Pl. 125. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 144. 1883; Cooke, Fl. Pres. Bombay 2 : 271. 1958 (Repr. ed.); Kazmi in J. Arnold Arb. 51 : 148. 1970.

Prostrate herbs, white hairy. Leaves $1.2-3.5 \times 0.6-1.9$ cm, obovate-oblong, crisped, oblique, hairy on both sides, margins crenate-dentate. Flowers white, 0.4-0.5 cm across, subsessile, 4-merous, calyx lobes ovate, hairy, corolla 0.25 cm long, lobes oblong, spreading. Fruits 0.3-0.4 cm long, beaked, breaking into 4-pyrenes.

Fls. & Frts. : February-May.

Distri : Frequent in open, moist places and in fields as weed in plains; Kudal-Bhadgaon, Kerude. Sawantwadi-Konal R. F. near Bhedshi.

CORDIA L.

Cordia dichotoma Forst. f. Prodr. 18. 1786; Kazmi in J. Arnold Arb. 51 : 141. 1970. *C. myxa* auct. plur. (non L. 1753); Clarke, in Hook. f. Fl. Brit. India 4 : 136. 1884; Cooke, Fl. Pres. Bombay 2 : 265. 1958 (Repr. ed.). *Mar.* : 'Bhokar'.

Medium-sized trees, 8-10 m tall, young parts glabrous. Leaves 6-10 $\times$ 5-8 cm, elliptic to ovate or obovate, pubescent, glabrescent or at times dotted above, paler, puberulent or glabrescent beneath, apex obtuse. Flowers white, of two kinds, bisexual and male; male flowers shorter than bisexual ones, in dichotomous cymes; calyx campanulate, 0.4-0.6 cm across, corolla 0.8-1.0 cm long, lobes unequal. Drupes 1.0-1.5 cm across, globose, mericarps viscous.

Fls. & Frts. : February-June.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 270. fig. 422. 1911.

Distrib. : Frequent in deciduous forest in plains and at lower slopes of the ghats; Kankavli-Bhironde, Phonda-Harkool, Phondaghat. Kudal-Narur. Sawantwadi-Akeri-Mangaon forest, Ainoda near Bhedshi, Danoli, Ramghat.

CYNOGLOSSUM L.

Cynoglossum zeylanicum (Hornem.) Thunb. ex Lehm. Neue Schrift. Naturf. Ges. Halle 3 (2) : 20. 1817; Kazmi in J. Arnold Arb. 52 : 344. 1971. *Anchusa zeylanica* Vahl ex Hornem. Enum. Hafn. 3. 1807. *Cynoglossum detnuculatum* DC. var. *zeylanicum* (Hornem.) Clarke in Hook. f. Fl. Brit. India 4 : 157. 1883; Cooke, Fl. Pres. Bombay 2 : 284. 1958 (Repr. ed.).

Erect herbs, stems and branches clothed with white or yellowish hairs. Leaves $3.5-6.0 \times 1.5-2.5$ cm, elliptic-lanceolate, hairy on both sides, (basal

leaves bigger than cauline and with 8-10 cm long petioles). Flowers 0.5 cm across, pale blue or lilac, throat violet; in racemes; calyx divided up to $\frac{3}{4}$ of its length, corolla infundibuliform, 0.5 cm long. Nutlets 4, ovoid.

Fls. & Frts. : August-October.

Distrib. : Uncommon in open situations in plains; Kankavli-Phondaghat. Sawantwadi-Akeri-Mangaon forest, Kolgaon.

EHRETIA L.

1. Leaves symmetric, dark brown or black when dry; cymes shorter than $\frac{1}{2}$ the length of lamina	..	<i>E. canarensis</i>
1. Leaves asymmetric, pale greenish when dry; cymes longer than lamina	..	<i>E. laevis</i>

Ehretia canarensis (Clarke) Gamble, Fl. Pres. Madras 891. 1923 et. 2 : 626. 1957 (Repr. ed.). *E. laevis* Roxb. var. *canarensis* Clarke in Hook. f. Fl. Brit. India 4 : 142. 1883; Cooke, Fl. Pres. Bombay 2 : 270. 1958 (Repr. ed.).

Trees, 5-8 m tall. Leaves 5—10 × 3—5 cm, elliptic-lanceolate, glabrous on both sides, apex acuminate, base cuneate, sometimes rounded. Flowers white; in short, axillary cymes; calyx campanulate, corolla lobes ovate. Fruits 0.5-0.6 cm across, ovoid, 4-seeded, indehiscent.

Fls. & Frts. : September-October.

Distrib. : Frequent, along higher slopes of the ghats; Kankavli-Phondaghat. Sawantwadi-Amboli R. F., Ambolighat-Nanapani.

E. laevis Roxb. Pl. Cor. 1 : 42. t. 55. 1796 et Fl. Ind. 2 : 341. 1824; Clarke in Hook. f. Fl. Brit. India 4 : 141. 1883; Cooke, Fl. Pres. Bombay 2 : 269. 1958 (Repr. ed.); Kazmi in J. Arnold Arb. 51 : 147. 1970.

Small trees, 3-6 m tall, young parts glabrous. Leaves 4—10 × 4—6 cm, ovate-elliptic or obovate or even suborbicular, glabrous above, glandular pubescent beneath, apex acuminate, acute or obtuse, or emarginate. Flowers white, sessile or subsessile; in unilateral, compound spikes; calyx 0.1-0.2 cm long, hairy, corolla 0.2-0.4 cm long, subrotate. Fruits 0.3-0.4 cm across, 2-lobed, orange when mature.

Fls. & Frts. : September-December.

Illus. : Wight, Icon. t. 1382. 1848.

Distrib. : Uncommon, in deciduous forest in plains and along the lower slopes of the ghats; Malwan (Cooke, l. c.). Sawantwadi-Danoli, Ramghat (Cooke, l. c.).

HELIOTROPIMUM L.

1. Leaves more than 4 cm long; calyx shorter than fruits .. *H. indicum*
1. Leaves less than 2 cm long; calyx equal or longer than fruits :
2. Fruits quadrangular, with blunt cornate processes .. *H. cornutum*
2. Fruits 4-lobed, with rounded angles, without cornate processes .. *H. strigosum*

Heliotropium cornutum Johnst. in Contrib. Gray Herb. n. s. 92 : 90. 1930; Fischer in Gamble, Fl. Pres. Madras 3 : 1303. 1957 (Repr. ed.); Arora & Banerjee in Bull. Bot. Surv. India 8 : 341. 1966 (1967); Kulkarni & Wadhwa in J. Bombay nat. Hist. Soc. 70 : 235. 1973.

Prostrate herbs, greyish-green. Leaves 0.3—0.8 × 0.15—0.20 cm, ovate to oblong-lanceolate, appressed hairy on both sides, apex subacute. Flowers pinkish-white; in extra-axillary, few-flowered cymes; calyx deeply 5-partite, hirsute, corolla infundibuliform, lobes sparsely hairy. Fruits 0.3 × 0.2 cm, densely villous, beaked.

Fls. & Frts. : February-January.

Illus. : Arora & Banerjee l. c. 341. figs. A-I.

Distrib. : Frequent in open situations and in fallow fields in plains and on ghat-tops; Kankavli-Kumbhavde. Kudal-Bhadgaon, Kerude, Shivapur Rai.

H. indicum L. Sp. Pl. 130. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 152. 1883; Cooke, Fl. Pres. Bombay 2 : 273. 1958 (Repr. ed.).

Erect or sometimes decumbent-ascending annual herbs, branches hirsute. Leaves 3—8 × 2—4 cm, ovate, elliptic or ovate-oblong, sparsely hairy on both sides, apex acute, base sometimes contracted into partially winged petiole. Flowers white or bluish-white, sessile; in 2-ranked, dense, scorpioid cymes; calyx hairy, corolla salver-shaped. Fruits deeply bifid, nutlets beaked, angled.

Fls. & Frts. : April-June.

Distrib. : Frequent, in open, moist situations on ghats and in plains; Kudal-Kerude jungle, Songad paz. Sawantwadi-Akeri-Mangaon forest, Amboli, Banda (Cooke, l. c.), Ramghat.

H. strigosum Willd. Sp. Pl. 1 : 743. 1798; Clarke in Hook. f. Fl. Brit. India 4 : 151. 1883; Kazmi in J. Arnold Arb. 51 : 152. 1970.

Suberect or spreading, perennial herbs, appressedly hairy. Leaves 0.6-2.0 × 0.2-0.3 cm, linear-lanceolate, stiff hairy on both sides, apex acute or obtuse.

Flowers white or pale blue; solitary or in short spikes; calyx deeply 5-lobed, strigose, corolla 0.3 cm long, strigose outside, throat glandular and puberulent. Fruits depressed-globose, appressed hairy, nutlets-4.

Fls. & Frts. : February-August.

Distrib. : Frequent, in open areas and in fallow fields in plains; Deogad-Near Bus stand, Kudal-Chapheli forest nursery, Sawantwadi-Akeri-Mangaon forest.

ROTULA Lour.

Rotula aquatica Lour. Fl. Cochinch. 121. 1790; Sant. Fl. Khandala ed. 3, 164. 1967. *Rhabdia lycioides* Mart. Nov. Gen. & Sp. 2 : 137. t. 195. 1826; Clarke in Hook. f. Fl. Brit. India 4 : 145. 1883; Cooke, Fl. Pres. Bombay 2 : 272. 1958 (Repr. ed.).

Much branched, woody undershrubs, branches black, glabrate. Leaves 0.8—2.5 × 0.3—0.6 cm, oblong-lanceolate, glabrous, apex apiculate or rounded, base cuneate. Flowers pink to purple; in few-flowered cymes; calyx 0.4 cm long, corolla 0.6-0.8 cm long. Fruits 0.3 cm across, 4-lobed and 4-seeded.

Fls. & Frts. : November-February.

Illus. : Wight, Icon. 1. 1385. 1848.

Distrib. : Frequent, on river beds among rocks in plains; Kankavli-Achre Road, Nandgaon-Belachi Rai. Sawantwadi-Gavata, Karnyachi Rai near Bhedshi.

TRICHODESMA R. Br. (*nom. cons.*)

Trichodesma sedgwickianum Banerjee in Bull. Bot. Soc. Bengal 16 : 10. 1962; Banerjee & Pramanik in Bull. Bot. Surv. India 17 : 116. 1975 (1978). *T. amplexicaule* A. DC. in DC. Prodr. 10 : 172. 1846; Clarke in Hook. f. Fl. Brit. India 4 : 154. 1883, *p. p.* (*non* Roth, 1821). *T. indicum* R. Br. var. *amplexicaule* Cooke, Fl. Pres. Bombay 2 : 215. 1904 et 2 : 282. 1958 (Repr. ed.), *p. p.*

Herbs, 30-50 cm tall, branches grey hairy. Leaves 3—6 × 1.5—3.0 cm, sessile, ovate-oblong, scabrid on both sides (sparsely above), apex obtuse, base cordate, subamplexicaul. Flowers pale pink or pale lilac; solitary or few-flowered, leaf-opposed cymes; calyx upto 1.3 cm long, lobes 5, bases of lobes broad, obtuse-auriculate, corolla irregular, 5-lobed. Fruits of 4 nutlets, nutlets smooth, 0.8 cm broad.

Fls. & Frts. : February-March.

Illus. : Banerjee et Pramanik l. c. 117. figs. A-D.

Distrib. : Scattered in and along the ghats and in plains in open situations; Kankavli-Nandgaon, Phondaghat.

CONVOLVULACEAE

1. Styles absent, stigmas-1, 5 - 10 rayed; corolla lobes bifid .. *Erycibe*
1. Styles present, stigmas-1 or more; corolla lobes not bifid :
 2. Styles-2, free from the base :
 3. Stigmas-4; corolla glabrous .. *Evolvulus*
 3. Stigmas-2; corolla hairy .. *Banania*
 2. Styles-1 :
 4. Outer 2-3 sepals enlarged, much longer than the inner .. *Hewittia*
 4. Outer and inner sepals equal or unequal but not markedly longer and broader than the inner :
 5. Sepals much accrescent in fruits, scarious, spreading, falling off with the fruits .. *Porana*
 5. Sepals accrescent or not, not falling off with fruits :
 6. Corolla campanulate or broad funnel-form; pollens smooth :
 7. Anthers mostly twisted when dehiscent; seeds rounded or truncate apically .. *Metremia*
 7. Anthers straight when dehiscent ; seeds obtuse to rounded apically .. *Xenostegia*
 6. Corolla funnel to salver-form, rarely campanulate; pollens spinulose :
 8. Calyx accrescent, enclosing fruits completely; flowers scarlet or reddish-purple .. *Stictocardia*
 8. Calyx not accrescent nor enclosing the fruits; flowers purple or purplish, less commonly white or red :
 9. Fruits dehiscent; corolla glabrous .. *Ipomoea*
 9. Fruits indehiscent; corolla pubescent outside or inside :
 10. Stigmas linear-oblong; fruits nearly dry .. *Rivea*
 10. Stigmas bi-globose; fruits fleshy or mealy .. *Argyrea*

ARGYREIA LOUR.

1. Bracts 1.5-3.5 cm long; ovary 4-celled :
 2. Peduncles 10-16 cm long; bracts caducous .. *A. hookeri*
 2. Peduncles 4-8 cm long; bracts persistent .. *A. involucrata*
1. Bracts up to 0.6 cm long; ovary 2-celled :
 3. Leaves acute or rounded at base; peduncles 8-16 cm long .. *A. strigosa*
 3. Leaves cordate at base; peduncles 4-8 cm long .. *A. elliptica*

Argyreia elliptica (Roth) Choisy in Mem. Soc. Phys. Geneve 6 : 417. 1834; Gandhi in Saldanha & Nicolson, Fl. Hassan Distt. 466. 1976. *Ipomoea elliptica* Roth, Nov. Pl. Sp. 113. 1821. *Lettsomia elliptica* (Roth) Wight ex Clarke in Hook. Fl. Brit. India 4 : 192. 1883; Cooke, Fl. Pres. Bombay 2 : 329. 1958 (Repr. ed.).

Woody climbers, stems grey puberulous. Leaves 5—8 × 3—5 cm, oblong-lanceolate or ovate-lanceolate, scattered appressed hairy on both sides, apex acute or acuminate. Flowers purple, 2.0-3.5 cm long; in corymbose cymes; sepals 0.3-0.4 cm long, corolla hairy on midpetaline bands, funnel-form. Fruits 0.8-1.0 cm across, globose, orange-yellow.

Fls. & Frts. : October-April.

Illus. : Wight, Icon. t. 1356. 1848.

Distrib. : Frequent along the ghats and in plains; Kankavli-Humbrat, Phondaghat. Kudal-Slopes of Rangan fort. Sawantwadi-Amboli R. F. and Mahadeogad and Nangartas, Ramghat.

A. hookeri Clarke in Hook. f. Fl. Brit. India 4 : 185. 1883; Cooke, Fl. Pres. Bombay 2 : 325. 1958 (Repr. ed.).

Climbing shrubs, stems fluted, twisted or even flattened, sparsely grey pubescent. Leaves 10—20 × 7—18 cm, broadly ovate or ovate-orbicular, glabrous above, sparsely pubescent beneath, apex acuminate. Flowers pinkish-purple; in few-flowered, capitate cymes; sepals unequal, 0.8-1.2 cm long, corolla 6-8 cm long. Fruits 1.5-2.0 cm across, globose, yellow.

Fls. & Frts. : October-February.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 285. fig. 485. 1911.

Distrib. : Scattered, along the lower slopes of the ghats; Kudal-Ghotge. Sawantwadi-Tirali.

A. involucrata Clarke in Hook. f. Fl. Brit. India 4 : 187. 1883; Cooke, Fl. Pres. Bombay 2 : 325. 1958 (Repr. ed.).

Scandent or twining shrubs, branches appressed grey pubescent. Leaves 10—18 × 4—8 cm, ovate, sparsely hairy or glabrous above, appressed white hairy, especially on nerves beneath, apex acuminate. Flowers purple; in capitate cymes; sepals unequal, strigose, corolla 4-5 cm long, infundibuliform. Fruits 1.0-1.5 cm across, globose, yellow.

Fls. & Frts. : August-December.

Distrib. : Frequent along the ghats and in plains; Kankavli-Phonda-Devichi Rai, Phondaghat. Kudal-Akeri Road, Nerur, Malwan-Dhamapur. Sawantwadi-Amboli-Mahadeogad, Ambolighat-Nanapani and Temple point, Danoli, Kolgaon, Ramghat.

A. strigosa (Roth) Sant. & Patel in Trans. Bose Res. Inst. Calcutta 22 : 41. 1958; Raizada in Indian For. 92 : 302. 1966. *Ipomoea strigosa* Roth, Nov. Pl. Sp. 113. 1821. *Lettsomia setosa* Roxb. Fl. Ind. 2 : 80. 1824; Clarke in Hook. f. Fl. Brit. India 4 : 194. 1883; Cooke, Fl. Pres. Bombay 2 : 330. 1958 (Repr. ed.).

Climbing shrubs, young branches appressed strigose hairy. Leaves 6—15 × 5—12 cm, ovate, sparsely hairy or glabrous on both sides, apex acuminate. Flowers pale purple or rose-coloured; in strigose hairy, corymbose cymes; sepals thick, densely hairy, orbicular, corolla 2-3 cm long, bands hairy. Fruits 1 cm long, ovoid, red.

Fls. & Frts. : November-December.

Illus. : Wight, Icon. t. 1360. 1848.

Distrib. : Scattered, in deciduous forest in plains; Kudal-Varad.

BONAMIA Thou. (*nom. cons.*)

Bonamia semidigyna (Roxb.) Hall. f. Bot. Jahrb. Syst. 16 : 528. 1893; Austin in Dassanyake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 303. 1980. *Convolvulus semidigynus* Roxb. Fl. Ind. 2 : 47. 1824. *Breweria cordata* Bl. Bijdr. 722. 1825; Clarke in Hook. f. Fl. Brit. India 4 : 223. 1883; Cooke, Fl. Pres. Bombay 2 : 298. 1958 (Repr. ed.).

Twining undershrubs, stems herbaceous or suffruticose, densely brown to reddish-brown tomentose. Leaves 5—10 × 3—6 cm, ovate, pubescent on both sides, more densely below, apex shortly acuminate. Flowers white; in umbellate cymes; sepals unequal, ovate, tomentose, corolla campanulate

to funnel-shaped, 3-4 cm long. Fruits 1.0-1.2 cm long, broadly ovoid, apically pubescent.

Fls. & Frts. : October-December.

Illus. : Wight, Icon. t. 1370. 1848.

Distrib. : This species is reported by Cooke (*l. c.*) from 'Vengurla' based on collection by Dalzell and P. S. Kanitkar. Two sheets are present in BSI herbarium, collection by P. S. Kanitkar (Dec. 1890) from Vengurla.

ERYCIBE Roxb.

Erycibe paniculata Roxb. Pl. Cor. 2 : 31. t. 159. 1802; Clarke in Hook. f. Fl. Brit. India 4 : 180. 1883; Cooke, Fl. Pres. Bombay 2 : 293. 1958 (Repr. ed.). *E. paniculata* Roxb. var. *wightiana* (Grah.) Clarke in Hook. f. *l. c.* 181; Cooke, *l. c.* 294.

Large climbers, young parts covered with reddish-brown indumentum. Leaves 6—12 × 3.5—5.0 cm, ovate-oblong, or oblong-lanceolate, glabrous, apex abruptly acuminate. Flowers white; in terminal, pendulous panicles, much longer than leaves; sepals subequal, hairy, orbicular, corolla 0.5-0.6 cm long. Fruits 1.5 × 0.6 cm, ellipsoid, black.

Fls. & Frts. : November-February.

Distrib. : This species (var. *wightiana*) is reported by Cooke, (*l. c.*) from 'S. M. Country : Ramghat' in Sawantwadi taluka based on collection by Gibson and Ritchie; so it is included here.

EVOLVULUS L.

Evolvulus alsinoides (L.) L. Sp. Pl. ed. 2, 392. 1762; Clarke in Hook. f. Fl. Brit. India 4 : 220. 1883; Cooke, Fl. Pres. Bombay 2 : 297. 1958 (Repr. ed.); Ooststr. in van Steenis, Fl. Males. Ser. 1, 4 : 395. 1953; Austin in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 309. 1980. *Convolvulus alsinoides* L. Sp. Pl. 157. 1753.

Spreading herbs, rootstock woody, stems and branches appressed silky pubescent. Leaves 0.6—2.0 × 0.3—0.8 cm, elliptic to linear-oblong, sessile or shortly petioled, silky pilose on both sides, apex acute or rounded. Flowers pale blue; solitary or in pairs on filiform peduncles; corolla 0.6-0.8 cm across, rotate to campanulate. Fruits 0.3 cm across, globose, glabrous.

Fls. & Frts. : August-February.

Distrib. : Frequent, in open, moist situations along road sides and on sandy soil along coast; Deogad-Naringre. Kankavli-Nandgaon. Malwan- Achre coast, Kunkavle, Kuperighati.

HEWITTIA Wight & Arn.

Hewittia sublobata (L. f.) Kuntze, Rev. Gen. Pl. 2 : 441. 1891; Ooststr. in van Steenis, Fl. Males. Ser. 1, 4 : 438. 1953; Austin in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 312. 1980. *Convolvulus sublobatus* L. f. Suppl. 135. 1781. *Hewittia bicolor* (Vahl.) Wight & Arn. in Madras J. Sci. 5 : 22. 1837; Clarke in Hook. f. Fl. Brit. India 4 : 215. 1883; Cooke, Fl. Pres. Bombay 2 : 299. 1958 (Repr. ed.).

Trailing or twining herbs, occasionally rooting at nodes, pubescent. Leaves variable, 3—10 × 2—6 cm, ovate, hairy on both sides, apex acuminate or obtuse, base cordate, hastate or sometimes truncate. Flowers pale yellow to white, throat purple; in few-flowered, bracteate cymes; sepals somewhat pubescent, corolla 2.0-2.5 cm long, campanulate. Fruits 0.8-1.0 cm long, globose, pilose.

Fls. & Frts. : December-February.

Illus. : Wight, Icon. t. 835. 1844-1845.

Distrib. : Occasional, in deciduous forest in hilly areas in plains; Sawantwadi-Akeri-Mangaon forest.

IPOMOEA L.

1. Plants of aquatic or marshy habitat, with trailing and rooting or floating stems .. *I. aquatica*
1. Plants of terrestrial habitat :
 2. Leaves entire, rarely lobed :
 3. Inflorescence subsessile; flowers less than 1 cm long .. *I. eriocarpa*
 3. Inflorescence distinctly peduncled; flowers more than 1 cm long :
 4. Corolla tube 6 - 8 (—10) cm long .. *I. macrantha*
 4. Corolla tube less than 6 cm long :
 5. Corolla scarlet or red .. *I. hederifolia*
 5. Corolla white, yellow, lilac or pink :

- 6. Sepals coriaceous; seeds long hairy along margins .. *I. campanulata*
- 6. Sepals membranous; seeds tomentose or pubescent :
 - 7. Corolla salver-form, up to 3.0-3.5 cm long .. *I. septaria*
 - 7. Corolla campanulate, up to 2.5 cm long .. *I. obscura*
- 2. Leaves lobed :
 - 8. Glabrous perennials, growing in coastal dunes and beaches or inland waterway-margins; rooting at nodes .. *I. pes-caprae*
 - 8. Glabrous or pubescent annuals or perennials of various habitats, not usually rooting at nodes :
 - 9. Leaves palmately lobed; segments entire :
 - 10. Plants hairy; flowers with involucre bracts .. *I. pes-tigridis*
 - 10. Plants glabrous; flowers without involucre bracts .. *I. mauritiana*
 - 9. Leaves 5-7 partite, segments serrate or pinnatifid .. *I. diversifolia*

Ipomoea aquatica Forsk. Fl. Aegypt.-Arab. 44. 1775; Clarke in Hook. f. Fl. Brit. India 4 : 210. 1883; Cooke, Fl. Pres. Bombay 2 : 315. 1958 (Repr. ed.); Oostr. in van Steenis, Fl. Males. Ser. 1, 4 : 473. 1953; Austin in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 318. 1980.

Prostrate, trailing herbs, stems hollow, glabrous. Leaves 4—10 × 3—6 cm, broadly or narrowly triangular-ovate or oblong-lanceolate, glabrescent, apex acute or obtuse, base cordate-hastate. Flowers purple or white; in 1-few flowered cymes; sepals glabrous, subequal, corolla 4 cm long, funnel-form. Fruits 0.8-1.0 cm long, globose, glabrous or grey pubescent.

Fls. & Frts. : December-March.

Distrib. : Occasional, along coastal areas in moist, sandy places; Deogad-Tar-mumbri.

I. campanulata L. Sp. Pl. 160. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 211. 1883 (incl. var. *illustris*); Cooke, Fl. Pres. Bombay 2 : 316. 1958 (Repr. ed.); Austin in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 327. 1980.

Woody climbers, young parts pubescent or glabrous. Leaves 6—15 × 5—12 cm, ovate to orbicular, sometimes ovate-oblong, glabrous above, pubescent beneath, apex acute or obtuse, margins undulate or entire. Flowers purple with darker throat; in cymes; sepals accrescent in fruits, coriaceous, very unequal, corolla campanulate or funnel-form, 0.8-1.0 cm long. Fruits 1.5 cm long, ovoid, brown.

Fls. & Frts. : October-March.

Illus. : Wight Icon. t. 1375. 1848.

Distrib. : This species is reported by Cooke (*l. c.*) from Wari country (Sawantwadi) based on collection by Dalzell; hence it is included here.

I. diversifolia R. Br. Prodr. 487. 1810; Ooststr. in van Steenis, Fl. Males Ser. 1, 4 : 479. 1953. *I. lucinata* (Dalz.) Clarke in Hook f. Fl. Brit. India 4 : 200. 1883; Cooke, Fl. Pres. Bombay 3 : 319. 1958 (Repr. ed.).

Prostrate, trailing herbs, stems glabrous, angled. Leaves 2.5—5.0 cm across, orbicular, 5-7 partite, segments elliptic or linear, dissected, teeth unequal, glabrous. Flowers white; in few-flowered, axillary cymes; sepals succulent, elliptic, 0.6-0.8 cm long, corolla 4-5 cm long, cylindric, lobes spreading. Fruits 0.8 cm across, globose, glabrous.

Fls. & Frts. : August-November.

Distrib. : Scattered in open, moist situations; Malwan-Kuperighati. Sawantwadi-Sherle near Banda.

I. eriocarpa R. Br. Prodr. 484. 1810; Clarke in Hook. f. Fl. Brit. India 4 : 204. 1883; Cooke, Fl. Pres. Bombay 2 : 312. 1958 (Repr. ed.); Ooststr. in van Steenis, Fl. Males. Ser. 1, 4 : 462. 1953; Austin in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 325. 1980.

Twining, stems pubescent or hispid. Leaves 4—6 × 1.0—3.0 cm, ovate-cordate to linear-oblong, pilose to glabrescent, apex acuminate. Flowers pink; in axillary cymes; sepals hispid-pilose, ovate, corolla 1.3 cm across, campanulate, pilose outside. Fruits 0.5-0.6 cm across, subglobose, pubescent.

Fls. & Frts. : December-February.

Illus. : Wight, Icon. t. 169. 1839.

Distrib. : Uncommon, in open areas in deciduous forest; Malwan (Cooke, *l. c.*). Sawantwadi-Akeri-Mangaon forest.

I. hederifolia L. Syst. Nat. ed. 10, 925. 1759; Austin in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 325. 1980. *I. angulata* Lamk. Ill. 1 : 464. 1793; Ooststr. in van Steenis, Fl. Males. Ser. 1, 4 : 481. 1953. *I. coccinea* Clarke in Hook. f. Fl. Brit. India 4 : 199. 1883 (*non* L. 1753). *Quamoclit coccinea* (Clarke) Cooke, Fl. Pres. Bombay 2 : 261. 1905 et 2 : 330. 1958 (Repr. ed.), (*non* Moench. 1795).

Slender climbers, stems glabrescent, herbaceous. Leaves 4—10 × 3—6 cm, ovate to suborbicular, 5-7 angled or shallowly lobed, glabrous or sparsely

pubescent, apex acute or acuminate. Flowers 0.1-0.2 cm across; in few or many-flowered cymes; sepals 0.3-0.6 cm long, glabrous, with subterminal arista, corolla 2.5-4.0 cm long, salver-form. Fruits 0.6-0.8 cm long, globose.

Fls. & Frts. : September-December.

Distrib. : An exotic found as an escape along road sides; Kankavli-Digwal Road.

L. macrantha Roem. & Schult. Syst. Veg. 4 : 251. 1819; Austin in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 331. 1980. *I. tuba* (Schlecht.) G. Don, Gen. Syst. 4 : 271. 1837; Ooststr. in van Steenis, Fl. Males. Ser. 1, 4 : 487. 1953. *I. grandiflora* Clarke in Hook. f. Fl. Brit. India 4 : 198. 1883, *p. p.* (non Lamk. 1791, nec. Roxb. 1832). *I. longiflora* Cooke, Fl. Pres. Bombay 2 : 246. 1905 et 2 : 315. 1958 (Repr. ed.), (non R. Br. 1810).

Large climbers, perennial, stems glabrous, terete, tubercled. Leaves 6—16 × 5—12 cm, broadly ovate to reniform-ovate, glabrous, apex acute to broadly acuminate, base broadly cordate. Flowers white; in solitary or 2-3 in cymose clusters; sepals 1.5-2.0 cm long, ovate, corolla lobes campanulate to rotate. Fruits 2.5 cm across, ovoid, glabrous.

Fls. & Frts. : September-December.

Distrib. : Occasional along the bank of lake; Malwan-Dhamapur.

L. mauritiana Jacq. Collect. 4 : 216. 1791; Ooststr. in van Steenis, Fl. Males. Ser. 1, 4 : 487. 1953; Austin in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 331. 1980. *I. digitata* Clarke in Hook. f. Fl. Brit. India 4 : 202. 1883; Cooke, Fl. Pres. Bombay 2 : 318. 1958 (Repr. ed.), (non L. 1759).

Perennial, twining shrubs, stems woody at base, herbaceous near tips, glabrous. Leaves 5-7 lobed, lobes 5-8 cm long, ovate, glabrous, apex acuminate. Flowers purple to rose-pink; in many-flowered, corymbose cymes; sepals 0.6-1.2 cm long, convex, glabrous, corolla 4-6 cm. long. Fruits 1.2-1.4 cm long, ovoid, glabrous, surrounded by sepals.

Fls. & Frts. : August-October,

Distrib. : Infrequent in plains near villages (sometimes cultivated); Deogad-Naringre. Sawantwadi-Satarda. Venguria-Near harbour.

L. obscura (L.) Ker-Gawl. Bot. Reg. 3 : t. 239. 1817; Clarke in Hook. f. Fl. Brit. India 4 : 207. 1883; Cooke, Fl. Pres. Bombay 2 : 377. 1958 (Repr. ed.); Ooststr. in van Steenis, Fl. Males. Ser. 1, 4 : 471. fig. 44. 1953; Austin

in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 333. 1980. *Convolvulus obscurus* L. Sp. Pl. ed. 2, 220. 1762.

Annual, slender climbers, stems pilose or usually glabrescent. Leaves 2.5—6.0 × 2—4 cm, ovate, thin, glabrescent on both surfaces, apex acute or acuminate. Flowers pale yellow to white, throat purplish; 1—few flowered cymes; sepals ovate or ovate-lanceolate, glabrous or pilose, corolla 1.5-2.0 cm long, infundibuliform. Fruits 0.8 cm long, ovoid, glabrous.

Fls. & Frts. : September-April.

Distrib. : Frequent in open situations and in deciduous forest in plains; Deogad-Naringre. Kankavli-Phonda Rai. Kudal-Ghotge, Kochre-river bank.

I. pes-caprae (L.) R. Br. in Turkey, Narr. Exped. R. Zaire 477. 1818; Oostr. in van Steenis, Fl. Males, Ser. 1, 4 : 475. 1953; Austin in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 334. 1980. *Convolvulus pes-caprae* L. Sp. Pl. 159. 1753. *Ipomoea biloba* Forsk. Fl. Aegypt.-Arab. 44. 1775; Clarke in Hook. f. Fl. Brit. India 4 : 212. 1883; Cooke, Fl. Pres. Bombay 2 : 317. 1958 (Repr. ed.).

Long trailing herbs, perennial, with thickened tap roots. Leaves 3.0—5.5 × 4—6 cm, ovate, obovate, orbicular to reniform, broader than long, glabrous, apex emarginate, base cuneate or attenuate. Flowers pink to lavender-purple, throat darker; in 1-flowered (rarely 2-3 flowered) cymes; sepals unequal, ovate to elliptic or orbicular, corolla 4-6 cm long, infundibuliform. Fruits 1.2-1.5 cm long, ovoid, glabrous.

Fls. & Frts. : September-February.

Distrib. : Scattered, on coastal sandy areas; Malwan-Deobag, Kolamb on Kalawli Road.

I. pes-tigridis L. Sp. Pl. 162. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 204. 1883; Cooke, Fl. Pres. Bombay 2 : 320. 1958 (Repr. ed.); Oostr. in van Steenis, Fl. Males, Ser. 1, 4 : 467. 1953; Austin in Dassanayake, & Fosberg, Rev. Handb. Fl. Ceylon 1 : 336. 1980.

Twining herbs, stems covered with spreading hairs. Leaves palmately 5-9 lobed, lobes 6-8 cm long, ovate to obovate, strigose on both sides, apex acute or acuminate. Flowers pale pink or white; in few-flowered, bracteate heads; sepals unequal, densely hairy, corolla 2.5-3.0 cm long, funnel-form. Fruits 0.5-0.7 cm long, ovoid, glabrous.

Fls. & Frts. : September-December.

Illus. : Wight, Icon. t. 836. 1844-1845.

Distrib. : Infrequent, in open situations and along hedges in plains; Kankavli-Phonda-Devichi Rai. Malwan-Sindhudurg.

I. sepiaria Roxb. Fl. Ind. 2 : 90. 1824; Clarke in Hook. f. Fl. Brit. India 4 : 209. 1883; Cooke, Fl. Pres. Bombay 2 : 315. 1958 (Repr. ed.); Austin in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 338. 1980. *I. maxima* Ooststr. in van Steenis, Fl. Males. Ser. 1, 4 : 472. 1953 (non (L. f.) G. Don ex Sweet, 1830).

Perennial twiners, stems slender, glabrous or hairy, rootstock woody, tuberous. Leaves 2.5—6.5 × 2—5 cm, ovate-cordate or triangular, glabrous except for pubescent margin, apex acute or acuminate, base sagittate, hastate or with rounded lobes at base. Flowers pale pink, lavender or almost white; in subumbellate cymes; sepals glabrous, 0.4-0.6 cm long, corolla 3-4 cm long, salver or funnel-form. Fruits 0.6-0.8 cm long, ovoid, glabrous.

Fls. & Frts. : September-February.

Illus. : Wight, Icon. t. 838. 1844-1845.

Distrib. : Frequent, in open situations and deciduous forest in plains; Deogad-Rest House Campus. Kankavli-Janoli river bank. Kudal-Dukanwad. Malwan-Achre.

MERREMIA Dennst. ex Endl.

1. Leaves palmately 5-7 lobed; seeds glabrous	..	<i>M. vitifolia</i>
1. Leaves entire or at the most 3-lobed; seeds hairy :		
2. Corolla pilose on upper portion of plicae	..	<i>M. umbellata</i> ssp. <i>orientalis</i>
2. Corolla glabrous	..	<i>M. hederacea</i>

Merremia hederacea (Burm. f.) Hall. f. in Engl. Bot. Jahrb. Syst. 18 : 118. 1893; Ooststr. in van Steenis, Fl. Males. Ser. 1, 4 : 441. 1953; Austin in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 350. 1980. *Evolvulus hederaceus* Burm. f. Fl. Ind. 77. t. 30. fig. 2. 1768. *Ipomoea chryseides* Ker-Gawl. Bot. Reg. 4. t. 270. 1818; Clarke in Hook. f. Fl. Brit. India 4 : 206. 1883. *Merremia chryseides* Hall. f. in Engl. Bot. Jahrb. 16 : 552. 1893; Cooke, Fl. Pres. Bombay 2 : 307. 1958 (Repr. ed.).

Twiners, if trailing rooting at nodes, stems minutely tubercled, glabrous or sparsely pubescent. Leaves 2—6 × 1.2—5.0 cm, ovate, glabrous or sparsely pubescent, apex obtuse or mucronulate, base cordate, margins entire, crenate or 3-lobed. Flowers yellow; in axillary, mono or dichasial cymes; sepals

glabrous, 0.5 cm long, broadly notched at apex, corolla 0.6-1.0 cm long, campanulate. Fruits 4-angled, globose, 0.5 cm long.

Fls. & Frts. : October-November.

Distrib. : This species is reported by Cooke (f. c.) from Maneri in Wari country (Maneri in Sawantwadi) based on collection by Dalzell; so included here.

M. umbellata (L.) Hall. f. ssp. *orientalis* (Hall. f.) Ooststr. in van Steenis, Fl. Males. Ser. 1, 4 : 449. 1953. *M. umbellata* var. *orientalis* Hall. f. Verst. 'slands Pl. - Tuin 1895 : 132. 1896. *M. umbellata* (L.) Hall. f. in Engl. Bot. Jahrb. 16 : 552. 1893; Cooke, Fl. Pres. Bombay 2 : 305. 1958 (Repr. ed.); Austin in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon, 1 : 354. 1980. *Ipomoea cymosa* (Desr.) Roem. & Schult. Syst. Nat. 4 : 241. 1819; Clarke in Hook. f. Fl. Brit. India 4 : 211. 1883.

Perennial, climbing undershrubs or shrubs, stems herbaceous above, older parts woody. Leaves 3.5-6.0 × 1.5-4.5 cm, elliptic or oblong or ovate, glabrescent or hairy, apex acuminate, base cordate or hastate. Flowers white; in umbelliform cymes; sepals 0.6-0.8 cm long, glabrous, corolla 3.0-3.5 cm long, funnel-form. Fruits 1.1-2.0 cm long, globose, glabrous.

Fls. & Frts. : February-April.

Distrib. : Frequent, in deciduous forest in plains; Kankavli-Naradave-Girachi Rai, Phonda- Bhairy Pathar, Sangwe. Kudal-Dukanwad- Pulas jungle, Ghotge, Kerude. Sawantwadi-Khanale.

M. vitifolia (Burm. f.) Hall. f. in Engl. Bot. Jahrb. 16 : 552. 1893; Cooke, Fl. Pres. Bombay 2 : 307. 1958 (Repr. ed.); Ooststr. in van Steenis, Fl. Males. Ser. 1, 4 : 448. 1953; Austin in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 355. 1980. *Convolvulus vitifolius* Burm. f. Fl. Ind. 45. t. 18. fig. 1. 1768. *Ipomoea vitifolia* (Burm. f.) Bl. Bijdr. 709. 1825; Clarke in Hook. f. Fl. Brit. India 4 : 213. 1883.

Twining, perennial, stems herbaceous at tips, woody at base, fulvous hairy, glabrous at length. Leaves 5-12 cm as long as broad, palmately 5-7 lobed, lobes broad-triangular or ovate, apex acuminate or acute, margins coarsely dentate to crenate, sparsely to densely pubescent. Flowers yellow; in few-flowered, axillary cymes; sepals 1.2-2.0 cm long, hairy, corolla 4-6 cm long, campanulate. Fruits 1.2 cm across, globose, yellow.

Fls. & Frts. : February-April.

Distrib. : Frequent along the lower slopes of the ghats; Kankavli-Naradave. Kudal-Ghotge, Wasuli. Sawantwadi-Danoli, Gavata, Konal R. F. near Bhedshi.

PORANA Burm. f.

Porana racemosa Roxb. Fl. Ind. 1 : 466. 1832; Clarke in Hook. f. Fl. Brit. India 4 : 222. 1883; Ooststr. in van Steenis, Fl. Males. Ser. 1, 4 : 433. 1953; Sant. & Patel in Prof. Agharkar Comm. Vol. 14. 1961 *P. malabraica* Clarke in Hook. f. l. c. 223; Cooke, Fl. Pres. Bombay 2 : 294. 1958 (Repr. ed.).

Climbing shrubs, stems glabrous. Leaves 5—12 × 3—9 cm, ovate, thin, glabrous on both sides, sometimes sparsely hairy above, apex acuminate. Flowers white; in racemose-panicles with persistent leafy bracts; sepals 0.3-0.5 cm long, pubescent, enlarged in fruits, corolla 1.2 cm long, 5-lobed, funnel-form. Fruits 0.8-1.0 cm long, ovoid.

Fls. & Frts. : October-November.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 298. fig. 432. 1911.

Distrib. : Occasional, in deciduous forest along the lower slopes of the ghats; Kankavli-Phondaghat.

RIVEA Choisy

Rivea hypocrateriformis (Desr.) Choisy in Mem. Soc. Phys. Geneve 6 : 408. 1834; Clarke in Hook. f. Fl. Brit. India 4 : 184. 1883; Cooke, Fl. Pres. Bombay 2 : 323. 1958 (Repr. ed.). *Convolvulus hypocrateriformis* Desr. in Lamk. Encycl. 3 : 561. 1792.

Climbing shrubs, young parts covered with appressed silky-white indumentum. Leaves 3—6 2.5 × 5.0 cm, ovate to reniform, as broad as long, glabrous above, silky hairy beneath, apex obtuse, sometimes emarginate. Flowers white; in few-flowered cymes; sepals 0.6-0.8 cm long, silky hairy, corolla 4-5 cm long, salver-form, pilose within. Fruits 1.2 cm across, globose, glabrous, brown.

Fls. & Frts. : August-September.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 282. fig. 427. 1911.

Distrib. : Scattered, in open situations in plains on sandy soil; Sawantwadi-Ajgaon.

STICTOCARDIA Hall. f.

Stictocardia filifolia (Desr.) Hall. f. in Engl. Bot. Jahrb. 18 : 159. 1894; Ooststr. in van Steenis, Fl. Males. Ser. 1, 4 : 491. 1953; Austin in

Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 360. 1980. *Convolvulus tiliaefolius* Desr. in Lamk. Encycl. 3 : 544. 1792. *Argyreia tiliaefolia* (Desr.) Wight, Icon. t. 1358. 1848; Clarke in Hook. f. Fl. Brit. India 4 : 184. 1883.

Climbing shrubs, stems woody below, herbaceous at tips, glabrescent. Leaves 8—16 × 6—10 cm, ovate or cordate-ovate, glabrous on both sides, apex acute or shortly acuminate. Flowers reddish-purple with darker centre; in few-flowered, axillary cymes; sepals 1-2 cm long, puberulent, corolla 0.8-1.0 cm long, funnel-form. Fruits 2-3 cm long, globose.

Fls. & Frts. : June-March.

Illus. : Wight, l. c.

Distrib. : Scattered in deciduous forest along lower slopes of the ghats; Kankavli-Naradave-Dirbyachi Rai. Kudal-Dukanwad-Pulas jungle.

XENOSTEGIA Austin & Staples

Xenostegia tridentata (L.) Austin & Staples in Brittonia 32 : 533. 1980. *Convolvulus tridentatus*, L. Sp. Pl. 157. 1753. *Ipomoea tridentata* (L.) Roth in Roem. Arch. Bot. 1, 2 : 38. 1798; Clarke in Hook. f. Fl. Brit. India 4 : 205. 1883. *Merremia tridentata* (L.) Hall. f. in Engl. Bot. Jahrb. 16 : 552. 1893; Cooke, Fl. Pres. Bombay 2 : 306. 1958 (Repr. ed.); Ooststr. in van Steenis, Fl. Males. Ser. 1, 4 : 445. 1953.

Perennial herbs, with woody rootstock, stems prostrate or twining, glabrous or pubescent. Leaves 1.2—3.0 × 0.2—0.8 cm, linear-oblong to oblong-obovate, glabrous on both sides, apex obtuse, deeply emarginate and 3-toothed, base hastate or auriculate. Flowers pale yellow to white; in few flowered, axillary cymes; sepals 0.4-0.8 cm long, sometimes winged and crisped, corolla 1-2 cm long. Fruits 0.4-0.6 cm long, globose.

Fls. & Frts. : September-February.

Distrib. : Frequent in open situations, among grasses; Deogad-Tar-mumbri. Kankavli-Humbrat, Nandgaon. Malwan-Kuperighati. Sawantwadi-Bhedshi, Sherle near Banda.

Cultivated species :

Ipomoea carnea Jacq. esp. *fistulosa* (Mart. ex Choisy) Austin in Taxon 26 : 237. 1977 et in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1 : 322. 1980. *I. crassicaulis* (Benth.) Rob. in Proc. Amer. Acad. Arts 51 : 530. 1916.

Shrubs, woody at base, tips herbaceous, glabrous or minutely pubescent. Leaves 8—20 × 4—12 cm, ovate to lanceolate, pubescent on both sides, apex long acuminate. Flowers pink to rose-purple, throat darker; in cymose-paniculate clusters; sepals 0.5 cm long, subcoriaceous, corolla 4-6 cm long, finely tomentose outside. Fruits 2 cm long, subglobose.

Fls. & Frts. : March-April.

Distrib. : Planted in the back yards; Kankavil-Ghonsari Rai.

SOLANACEAE

1. Fruits capsular, prickly	..	<i>Datura</i>
1. Fruits berries, not prickly :		
2. Anthers connivent into a cone around style, dehiscing by pores :		
3. Calyx cupular; apical pores of anthers facing inwards	..	<i>Lycium</i>
3. Calyx lobed or with distinct teeth; apical pores of anthers facing upwards and outwards	..	<i>Solanum</i>
2. Anthers not connivent, dehiscing longitudinally	..	<i>Physalis</i>

DATURA L.

Datura metel L. Sp. Pl. 179. 1753; Sant. Fl. Khandala ed. 3, 174. 1967. *D. fastuosa* L. Syst. Nat. ed. 10, 2 : 932. 1759; Clarke in Hook. f. Fl. Brit. India 4 : 242. 1883; Cooke, Fl. Pres. Bombay 2 : 343. 1958 (Repr. ed.).

Annual undershrubs, stems glabrous to shortly hairy. Leaves 6—12 × 3—5 cm, triangular-ovate, oblique, margins entire, angled or irregularly toothed, grey pubescent. Flowers white; axillary, solitary; calyx tubular, 5-lobed at apex, corolla 10-16 cm long, funnel-shaped. Fruits ovoid, with deltoid spines on recurved pedicel, dehiscing irregularly.

Fls. & Frts. : June-August.

Illus. : Wight, Icon. t. 1396. 1848.

Distrib. : Scattered, in waste places and along road sides in plains; Deogad-Rest House campus. Sawantwadi-Satarda. Vengurla-Mill near harbour.

LYCIANTHES Hassler

Lycianthes laevis (Dunal) Bitter, Abh. Nat. Ver. Bremen 24 : 484. 1920; Gandhi in Saldanha & Nicolson, Fl. Hassan Dist. 459. 1976. *Solanum laeve* Dunal, Solan. Synop. 22. 1816. *S. bigeminatum* Nees in Trans. Linn. Soc. London 17 : 42. 1837; Clarke in Hook. f. Fl. Brit. India 4 : 231. 1883; Cooke, Fl. Pres. Bombay 2 : 334. 1958 (Repr. ed.).

Straggling or erect undershrubs, branches zig-zag, quadrangular. Leaves 8—12×4-6 cm, elliptic-lanceolate, thin, sparsely pubescent above, glabrous beneath, apex acuminate, base decurrent. Flowers white (or purple); in axillary fascicles; calyx 0.2-0.3 cm long, glabrous, teeth obscure, corolla 0.6-0.8 cm long. Fruits 0.7 cm across, subglobose, reddish turning black.

Fls. & Frts. : May-June.

Distrib. : Occasional in open places along the ghats; Kankavli-Phondaghat (Cooke, l. c.). Kudal-Hanumanghat.

PHYSALIS L.

Physalis minima L. Sp. Pl. 183. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 238. 1883; Cooke, Fl. Pres. Bombay 2 : 340. 1958 (Repr. ed.).

Herbs, 10-20 cm tall, stems pubescent. Leaves 2—6×1.2—3.0 cm, ovate, thin, sparsely pubescent on both sides, apex acute, margins entire, sinuate or toothed. Flowers yellow; axillary, solitary; calyx 0.3-0.5 cm long, campanulate, 5-toothed, fruiting calyx 1.5-2.0 cm long, scarious, corolla 0.5-0.7 cm long. Fruits 0.5 cm across, globose, enclosed in bladder like calyx.

Fls. & Frts. : August-April.

Distrib. : Frequent in open situations and along road sides as weed in plains; Deogad-Dahibav. Kudal-Kerude. Malwan-Sindhudurg. Sawantwadi-Kolgaon, Ramghat, Sherle.

SOLANUM L.

1. Plants unarmed, glabrous or with simple hairs	..	<i>S. nigrum</i>
1. Plants armed, stellately hairy :		
2. Petiole and midrib prickly; ovary and style hairy	..	<i>S. indicum</i>
2. Petiole and midrib not prickly; ovary and style glabrous	..	<i>S. giganteum</i>

Solanum giganteum Jacq. Collect. 4 : 125. 1790; Clarke in Hook. f. Fl. Brit. India 4 : 233. 1883; Cooke, Fl. Pres. Bombay 2 : 336. 1958 (Repr. ed.).

Shrubs, 2-3 m tall, prickles triangular, young parts densely white-tomentose. Leaves $10-20 \times 3-6$ cm, oblong-lanceolate, glabrous above, white hairy beneath, apex acute, base tapering. Flowers pale purple to violet; in corymbose, white-woolly cymes; calyx lobes thick, floccose, corolla 1.0-1.2 cm across. Fruits 0.8-1.0 cm across, globose, scarlet-red.

Fls. & Frts. : February-May.

Illus. : Wight, Icon. t. 893. 1844-1845.

Distrib. : Scattered, in semi-evergreen forest along the ghats; Sawantwadi-Ramghat.

S. indicum L. Sp. Pl. 187. 1753. Clarke in Hook. f. Fl. Brit. India 4 : 234. 1883; Cooke, Fl. Pres. Bombay 2 : 336. 1958 (Repr. ed.).

Herbs or undershrubs, 0.5-1.5 m tall, densely, stellately pubescent, spines slightly recurved. Leaves $4-12 \times 2-6$ cm, ovate-oblong, oblique, entire in outline or shallowly lobed, hairy on both sides, apex acute. Flowers blue, 1.5-2.0 cm across; in few-flowered cymes; calyx hairy, sometimes prickly, corolla 1.0-1.5 cm long, slightly stellately hairy. Fruits 1 cm across, glabrous, yellowish-red.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Icon. t. 346. 1840.

Distrib. : Common, in deciduous and moist deciduous forests; Kankavli-Osargaon, Phondaghat. Kudal-Ghotge, Wasuli. Malwan-Dhamapur, Kuperi ghati. Sawantwadi-Akeri-Mangaon forest, Amboli R. F., Ramghat, Terwan.

S. nigrum L. Sp. Pl. 186. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 229. 1883; Cooke, Fl. Pres. Bombay 2 : 332. 1958 (Repr. ed.). *Mar.* : 'Kangani'.

Herbs, 30-100 cm tall, stems green, much branched. Leaves $2-7 \times 1.5-4.0$ cm, ovate, membranous, except for puberulous midrib and veins, margins entire or toothed, apex acute, base decurrent into petiole. Flowers white, 0.6-0.8 cm across; in umbellate cymes; calyx glabrous or puberulous, 0.5 cm long, corolla 0.5 cm long, Fruits 0.7 cm across, globose, blackish-purple.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Icon. t. 344. 1840.

Distrib. : This species is reported by Cooke (*l. c.*) from 'S. M. Country : Ramghat' (Sawantwadi taluka) based on collection by Ritchie; so it is included here.

SCROPHULARIACEAE

1. Corolla distinctly bilabiate, lobes unequal, tube cylindric :

Perfect stamens 2 and 2-stamnodes :

3. Anther cells parallel; seeds tuberculate .. *Dopatrium*
 3. Anther cells divergent; seeds rugose .. *Lindernia*

2 Perfect stamens 4 :

4. Calyx lobes dissimilar, posterior lobe largest; anther cells parallel .. *Bacopa*
 4. Calyx lobes subequal or bilabiate; anther cells divergent :
 5. Anther cells stipitate; fruits 4-valved *Limnophila*
 5. Anther cells not stipitate; fruits 2-valved :
 6. Plants root parasites; calyx ribbed .. *Striga*
 6. Plants not parasites; calyx not ribbed :
 7. Calyx 2-lipped, gamo-sepalous, oblique at mouth .. *Torenia*
 7. Calyx subequal, almost poly-sepalous, not oblique at mouth .. *Lindernia*

1. Corolla not bilabiate, tube enlarged at throat :

8. Perfect stamens 2; plants rooting at nodes :

9. Calyx tubular, 5-ribbed and 5-toothed; seeds oblong .. *Peplidium*
 9. Calyx campanulate, not ribbed, 3-4 lobed; seeds ellipsoid .. *Glossostigma*

Perfect stamens 4; plants not rooting at nodes :

10. Corolla 2.5-3.5 cm long :

11. Calyx ribbed; anthers meeting in pairs, 2-celled, one of the cells barren .. *Sopubia*
 11. Calyx not ribbed; anthers not in pairs, 1-celled .. *Rhamphicarpa*

10. Corolla less than 2 cm long :

12. Calyx spathaceous, split on side .. *Centranthera*
 12. Calyx tubular, 4-5-partite .. *Scoparia*

BACOPA Aubl. (nom. cons.)

- Calyx glabrous; seeds yellowish brown, acute at ends .. *B. hamiltoniana*

1. Calyx pubescent; seeds brown, truncate at ends .. *B. floribunda*

Bacopa floribunda (R. Br.) Wettst. in Engl. & Prantl, Pflanzenfam. 4(3b)
 77. 1895; Kulkarni & Wadhwa in J. Bombay nat. Hist. Soc. 70 : 236. 1973.

Herpestis floribunda R. Br. Prodr. 442. 1810; Hook. f. Fl. Brit. India 4 : 273. 1884. *Moniera floribunda* (R. Br.) Cooke, Fl. Pres. Bombay 2 : 286. 1904 et 2 : 357. 1958 (Repr. ed.).

Erect herbs, stems slender, 10-15 cm tall. Leaves 1.2-3.2 $\times$ 0.15-0.30 cm, linear-lanceolate or lanceolate, sessile or subsessile, glabrous, apex acute or rounded, margins entire or shallowly serrate. Flowers whitish-purple; in few-flowered, axillary cymes; calyx imbricate, outer sepals more than 4 times as long as the inner, corolla 0.3-0.4 cm long. Fruits 0.3 cm long, subglobose.

Fls. & Frts. : September-October.

Distrib. : Occasional, on moist sandy soil; Malwan-Deobag.

B. hamiltoniana (Benth.) Wettst. in Engl. & Prantl, Pflanzenfam. 4(3b) 77. 1895. *Herpestis hamiltoniana* Benth. Scroph. Ind. 30. 1835; Hook. f. Fl. Brit. India 4 : 272. 1884. *Moniera hamiltoniana* (Benth.) Cooke, Fl. Pres. Bombay 2 : 286. 1905 et 2 : 357. 1958 (Repr. ed.).

Procumbent-ascending or erect, slender herbs, 10-20 cm tall, glabrous. Leaves 1.2-2.5 $\times$ 0.3-0.5 cm, linear-lanceolate, subsessile, glabrous, apex acute, base attenuate, margins entire or remotely serrate. Flowers blue or purple; axillary, solitary, sessile; calyx 5-partite, lobes unequal, corolla 0.4 cm long, equalling the calyx. Fruits 0.3 across, globose, glabrous.

Fls. & Frts. : September-October.

Distrib. : This species is reported by Cooke (*l. c.*), based on collection by Dalzell from 'Malwan'; so it is included here.

CENTRANTHERA R. Br.

Centranthera indica (L.) Gamble, Fl. Pres. Madras 971. 1924 et 2 : 683. 1957 (Repr. ed.). *Rhinanthus indica* L. Sp. Pl. 603. 1753. *Centranthera hispida* R. Br. Prodr. 438. 1810; Hook. f. Fl. Brit. India 4 : 301. 1884; Cooke, Fl. Pres. Bombay 2 : 381. 1958 (Repr. ed.).

Erect, scabrid hairy herbs, 10-20 cm tall, stems 4-angled. Leaves 1.2-3.0 $\times$ 0.3-0.8 cm, oblong-lanceolate, nearly sessile, hispid hairy on both sides, apex acute or obtuse. Flowers pale or reddish-purple; axillary, solitary or in terminal spikes; calyx 0.6-0.8 cm long, densely hairy, corolla 1.2-1.5 cm long. Fruits 0.9 cm long, oblong.

Fls. & Frts. : September-November.

Distrib. : Frequent in open, moist situations, amongst grasses from ghats to plains; Kankavli-Nandgaon, Phonda Rai, Malwan-Dhamapur. Sawantwadi-Amboli R. F., Ambolighat, Danoli-Kesari R. F. Vengurla-Math. forest.

DOPATRIUM Buch.-Ham. ex Benth.

Dopatrium junceum (Roxb.) Buch.-Ham. ex Benth. Scroph. Ind. 31. 1835; Hook. f. Fl. Brit. India 4 : 274. 1884; Cooke, Fl. Pres. Bombay 2 : 363. 1958 (Repr. ed.). *Gratiola juncea* Roxb. Pl. Cor. 2 : 16. t. 129. 1798.

Glabrous, slightly fleshy herbs, 10-20 cm tall. Leaves basal : 1.2-2.5 × 0.4-0.6 cm, elliptic-oblong or obovate, sessile, upper leaves small, bract-like, apex obtuse, glabrous. Flowers violet; axillary, solitary; calyx 0.15 cm long, 5-partite, corolla 0.3-0.5 cm long, dilated upwards. Fruits 0.2 cm across, globose.

Fls. & Frts. : August - September.

Distrib. : Uncommon, in water-logged areas in plains; Sawantwadi-Akeri-Mangaon forest.

GLOSSOSTIGMA Wight & Arn. (*nom. cons.*)

Glossostigma diandrum (L.) Kuntze, Rev. Gen. Pl. 461. 1891; Sant. Fl. Khandala ed. 3, 186. 1967. *Limosella diandra* L. Mant. Alt. 252. 1771. *Glossostigma spathulatum* (Hook.) Wight & Arn. ex Arn. in Nov. Actorum Acad. Cacs. Leop.-Carol. Nat. Cur. 18 : 355. 1836; Hook. f. Fl. Brit. India 4 : 288. 1884; Cooke, Fl. Pres. Bombay 2 : 371. 1958 (Repr. ed.).

Tiny, creeping, tufted herbs. Leaves 0.2-0.6 × 0.2-0.4 cm, linear-spathulate, glabrous, base narrowed into petiole. Flowers pinkish-white; axillary, solitary; calyx campanulate, 3-4 lobed, corolla tubular, lobes subequal and 5. Fruits 0.2 cm across, globose, enclosed in persistent calyx.

Fls. & Frts. : October-November.

Distrib. : This species is reported by Cooke (*l. c.*) from 'Malwan' based on collection by Woodrow; hence it is included here.

LIMNOPHILA R. Br. (*nom. cons.*)

1. Leaves pinnately nerved, submerged leaves not multifid	..	<i>L. repens</i>
1. Leaves palmately nerved, submerged leaves multifid :		
2. Submerged stems glabrous; leaves 1-3 nerved	..	<i>L. indica</i>
2. Submerged stems hairy; leaves 3-5 nerved	..	<i>L. aquatica</i>

Limnophila aquatica (Roxb.) Alston, in Ann. Roy. Bot. Gard. Peradeniya 11; 205. 1929; Philcox in Kew Bull. 24 : 129. 1970. *Cyrtilla aquatica* Roxb. Pl. Cor. 2 : 47. t. 189. 1798. *Limnophila racemosa* Benth. Scroph. Ind. 26. 1835; Hook. f. Fl. Brit. India 4 : 271. 1884; Cooke, Fl. Pres. Bombay 2 : 362. 1958 (Repr. ed.).

Semi-aquatic herbs, stems stout. Leaves on aerial stems opposite or 3-nately verticillate, 3—5 × 0.6—1.2 cm, linear-lanceolate to elliptic-lanceolate, glabrous, punctate, sessile, base subamplexicaul, margins serrate-crenate, submerged leaves multifid, segments capillary. Flowers pale violet to white; in axillary or terminal racemes; calyx glabrous to sessile-glandular, corolla infundibuliform, 1.2 cm long, hairy inside. Fruits 0.3-0.4 cm long, subglobose.

Fls. & Frts. : October-April.

Illus. : Wight, Icon. t. 861. 1844-1845.

Distrib. : Infrequent in open, moist and water-logged areas along the ghats; Sawantwadi-Amboli-Nangartas, Ramghat.

L. indica (L.) Druce in Rep. Bot. Exch. Club. Brit. Isles 3 : 420. 1914; Philcox in Kew Bull. 24 : 115. 1970. *Hottonia indica* L. Syst. Nat. ed. 10, 919. 1759. *Limnophila gratioloides* R. Br. Prodr. 442. 1810; Hook. f. Fl. Brit. India 4 : 271. 1884; Cooke, Fl. Pres. Bombay 2 : 362. 1958 (Repr. ed.).

Aquatic or marshy, perennial herbs, aromatic, stems angular, rooting from the lower nodes. Leaves on aerial stems verticillate, variously dissected, 0.6-1.9 × 0.15-0.30 cm, linear-elliptic, sessile, glandular to subglabrous, margins crenate-serrate, base broad tapering, upper most undivided; submerged leaves verticillate in whorls of 6-12, pinnatisect. Flowers pale pink to pale purple; axillary, solitary; calyx sessile-glandular, corolla tubular, 0.6-0.9 cm long, glabrous. Fruits 0.3 cm long, ellipsoid to subglobose.

Fls. & Frts. : November-February.

Distrib. : Scattered in marshy and swampy areas in plains; Kudal-Bhadgaon. Sawantwadi-Akeri-Mangaon forest, Danoli.

L. repens (Benth.) Benth. in DC. Prodr. 10 : 387. 1846; Philcox in Kew Bull. 24 : 154. 1970. *Stemodia repens* Benth. in Lindl. Bot. Reg. 17 : subt. 1470. Sp. 11. 1832. et Scroph. Ind. 24. 1835. *Limnophila conferta* Benth. *l.c.*; Hook. f. Fl. Brit. India 4 : 266. 1884; Cooke, Fl. Pres. Bombay 2 : 361. 1958 (Repr. ed.).

Erect or procumbent herbs, stems branched from the base. Leaves opposite, 1.9—3.2 × 0.3—0.9 cm, narrowly elliptic or elliptic-lanceolate, glabrous or hairy, punctate, base narrowed into petiole, margins serrate to crenate. Flowers pale purple; in axillary racemes or solitary; calyx divided to the base, hairy or glabrous, corolla 0.7-0.9 cm long, hairy inside. Fruits 0.3 cm long, ovoid, enclosed in persistent calyx.

Fls. & Frts. : December-February.

Distrib. : Uncommon in open, wet, muddy areas in plains; Kudal-Nileli. Malwan-Achre.

LINDERNIA Allioni

1. Capsules as long as or shorter than the calyx :
 2. Leaves palmately nerved .. *L. rotundifolia*
 2. Leaves pinnately nerved :
 3. Calyx divided upto 1/2 the length or less .. *L. crustacea*
 3. Calyx divided 3/4th the length or more :
 4. Posterior lip of corolla entire; seeds straw coloured, ridged .. *L. viscosa*
 4. Posterior lip of corolla narrow, emarginate; seeds yellow, not ridged .. *L. pusilla*
1. Capsules twice as long as or longer than the calyx :
 3. Fertile stamens 4, lower pair of anthers with appendages .. *L. anagallis*
 5. Fertile stamens 2, lower pair of anthers represented by staminodes :
 6. Leaves palmately nerved :
 7. Corolla 3-4 times as long or as long as calyx .. *L. hyssopoides*
 7. Corolla twice as long as calyx .. *L. parviflora*
 6. Leaves pinnately nerved :
 8. Leaves aristate-dentate; staminodes pubescent .. *L. ciliata*
 8. Leaves shallowly and distantly toothed; staminodes glabrous .. *L. oppositifolia*

Lindernia anagallis (Burm. f.) Pennell in J. Arnold Arb. 24 : 252. 1943; Mukerjee in J. Indian Bot. Soc. 24 : 133. 1945; Philcox in Kew Bull. 22 : 45. 1968. *Ruellia anagallis* Burm. f. Fl. Ind. 135. 1768. *Vandellia pedunculata* Benth. Scroph. Ind. 37. 1835; Hook. f. Fl. Brit. India 4 : 282. 1884; Cooke, Fl. Pres. Bombay 2 : 367. 1958 (Repr. ed.).

Decumbent herbs, rooting at nodes, stems glabrous or hairy. Leaves subsessile to shortly petiolate, 1.2—1.9 × 0.4—1.0 cm, ovate, margins obscurely serrate or entire, apex acute or obtuse, base cuneate or truncate-cordate. Flowers pale pink; axillary, solitary; calyx 0.4-0.6 cm long, lobes lanceolate, glabrous, corolla 1 cm long. Fruits 1.0-1.2 cm long, cylindrical, beaked with persistent style.

Fls & Frts. : May-June.

Distrib. : Infrequent in open, moist situations along the ghats and in plains; Sawantwadi-Danoli, Hewale, Ramghat, Vengurla (Cooke, l. c.).

L. ciliata (Colsm.) Pennell in Brittonia 2 : 182. 1936; Mukerjee in J. Indian Bot. Soc. 24 : 133. 1945; Philcox in Kew Bull. 22 : 51. 1968. *Gratiola ciliata* Colsm. Prodr. Descr. Grat. 14. 1793. *Bonnaya brachiata* Link & Otto, Ic. Pl. Select. 25. t. 11. 1820; Hook. f. Fl. Brit. India 4 : 284. 1884; Cooke, Fl. Pres. Bombay 2 : 369. 1958 (Repr. ed.).

Erect, simple or branched herbs, 4-10 cm tall. Leaves 1.2—4.0 × 0.6—1.2 cm, oblong, sessile, glabrous, apex obtuse or rounded, base cuneate. Flowers white or pinkish-white; in terminal, lax racemes; calyx 0.4 cm long, keeled, lobes linear-lanceolate, corolla 0.6-0.8 cm long. Fruits 0.7-1.2 cm long, cylindrical.

Fls. & Frts. : August-October.

Distrib. : Frequent in open, moist situations from ghats to plains; Kankavli-Osargaon, Phonda-Harkool forest, Phondaghat, Sawantwadi-Ajgaon, Mazgaon (Cooke l. c.), Satarda.

L. crustacea (L.) F. v. Muell. Syst. Census Austr. Pl. 1 : 97. 1882; Mukerjee in J. Indian Bot. Soc. 24 : 130. 1945; Philcox in Kew Bull. 22 : 17. 1968. *Capraria crustacea* L. Mant. 87. 1767. *Vandellia crustacea* (L.) Benth. Scroph. Ind. 35. 1835; Hook. f. Fl. Brit. India 4 : 279. 1884; Cooke, Fl. Pres. Bombay 2 : 366. 1958 (Repr. ed.).

Erect or decumbent herbs, rooting at nodes, branches glabrous or hairy. Leaves 0.9-1.0 × 0.6—1.2 cm, ovate, glabrous or hairy on midrib, apex acute or subobtuse, base subcordate, margins bluntly serrate. Flowers purple; axillary,

solitary; calyx 0.4-0.5 cm long, shortly lobed, corolla 0.6 cm, long, lower lip with a yellow spot at base. Fruits 0.4 cm long, ellipsoid-oblong, glabrous.

Fls. & Frts. : July-October.

Illus. : Wight, Icon. t. 863. 1844-1845.

Distrib. : Common in open, moist places from ghats to plains; Kankavli-Achre Road, Phonda-Harkool forest, Sawantwadi-Ajgaon, Ambolighat-Nanapani, Danoli, Gavata, Padwe-Majhgaon, Ramghat. Vengurla-Vagiri forest.

L. hyssopoides (L.) Haines, Bot. Bihar & Orissa 635. 1922; Mukerjee in J. Indian Bot. Soc. 24 : 132. 1945; Philcox in Kew Bull. 22 : 50. 1968. ('hyssopioides'). *Gratiola hyssopoides* L. Mant. Alt. 174. 1771. *Ilysanthes hyssopoides* (L.) Benth. in DC. Prodr. 10 : 419. 1846; Hook. f. Fl. Brit. India 4 : 283. 1884; Cooke, Fl. Pres. Bombay 2 : 368. 1958 (Repr. ed.).

Slender, annual herbs, stems simple or branched, glabrous. Leaves 0.6—1.9 × 0.3—0.6 cm, oblong or oblong-lanceolate, sessile, distant, glabrous, 1-3 nerved. Flowers pale purple to white; axillary, solitary on filiform pedicels; calyx 0.15-0.2 cm long, glabrous, corolla 0.5-1.0 cm long. Fruits 0.4-0.6 long, ovoid or ellipsoid.

Fls. & Frts. : February-March.

Illus. : Wight, Icon. t. 857. 1844-1845.

Distrib. : Occasional in open, moist situations on river bed; Sawantwadi-Gavata.

L. oppositifolia (Retz.) Mukerjee in J. Indian Bot. Soc. 24 : 134. 1945. *Gratiola oppositifolia* Retz. Obs. Bot. 4 : 8. 1786. *Bonnaya oppositifolia* (Retz.) Spreng. Syst. Veg. 1 : 41. 1825; Hook. f. Fl. Brit. India 4 : 286. 1884; Cooke, Fl. Pres. Bombay 2 : 370. 1958 (Repr. ed.).

Annual, erect or suberect herbs. Leaves 1.2—3.0 × 0.2—0.4 cm, elliptic-lanceolate or linear-oblong, sessile, glabrous, apex acute or obtuse, margins crenate-serrate. Flowers pale blue or pale purple; in axillary or terminal racemes; calyx 0.35 cm long, glabrous, corolla 0.4-0.6 cm long, tube included in calyx. Fruits 0.6-0.8 cm long, ellipsoid.

Fls. & Frts. : August-March.

Distrib. : Frequent in open situations along the ghats and in plains among grasses; Kankavli-Achre Road, Kudal-Chapheli-Pulas jungle, Songad paz, Varad. Sawantwadi-Akeri-Mangaon forest, Amboli, Danoli.

L. parviflora (Roxb.) Haines, Bot. Bihar & Orissa 635. 1922; Mukerjee in J. Indian Bot. Soc. 24 : 132. 1945. *Gratiola parviflora* Roxb. Pl. Cor. 3 : 3. t. 203. 1811. *Hysanthes parviflora* (Roxb.) Benth. in DC. Prodr. 10 : 419. 1846; Hook. f. Fl. Brit. India 4 : 283. 1884; Cooke, Fl. Pres. Bombay 2 : 368. 1958 (Repr. ed.).

Erect or decumbent, annual herbs, stems much branched, glabrous. Leaves 1.2—2.0 × 0.6—0.8 cm, ovate or ovate-lanceolate, sessile, glabrous, apex subacute, margins entire. Flowers white; axillary, solitary, forming into leafy racemes; calyx 0.3-0.5 cm long, lobes linear-lanceolate, corolla 0.5—0.7 long. Fruits 0.4 cm long, elongated.

Fls. & Frts. : August-February.

Distrib. : Frequent in moist, open situations from ghats to plains; Kankavli-Phonda-Harkool forest. Sawantwadi-Akeri-Mangaon forest, Amboli, Ambolighat.

L. pusilla (Willd.) Boldingh, Zakfl. Landbouwstr. Java 165. 1916; Philcox in Kew Bull. 22 : 41. 1968. *Gratiola pusilla* Willd. Sp. Pl. 1 : 105. 1797. *Vandellia scabra* Benth. Scroph Ind. 36. 1835; Hook. f. Fl. Brit. India 4 : 281. 1884. *Lindernia hirta* (Cham. & Schlecht.) Pennell in J. Arnold Arb. 24 : 250. 1943; Mukerjee in J. Indian Bot. Soc. 24 : 131. 1945.

Spreading, annual herbs, stems and branches densely to sparsely pubescent with long hairs. Leaves 0.8—1.9 × 0.5—1.0 cm, ovate to suborbicular, subsessile to shortly petiolate, hairy on both sides, sparsely above, margins crenate. Flowers white; axillary, solitary, sometimes in pairs; calyx 0.3 cm long, hispid, corolla 0.5 cm long. Fruits globose, equalling the calyx.

Fls. & Frts. : February-March.

Distrib. : Occasional, in moist, open situations, in paddy fields in plains; Sawantwadi-Akeri-Mangaon forest.

L. rotundifolia (L.) Mukerjee in J. Indian Bot. Soc. 24 (3) : 132. 1945. *Gratiola rotundifolia* L. Mant. 174. 1767; Hook. f. Fl. Brit. India 4 : 284. 1884.

Procumbent herbs, 10-15 cm tall, rooting at nodes. Leaves 0.6 × 0.3 cm, ovate, thin, apex acute, base rounded with 3-parallel nerves. Flowers pale blue or white (or pink); axillary, solitary or terminal. Capsules 0.1-0.2 cm across, globose. Seeds small.

Fls. & Frts. : October-February.

Distrib. : Occasional, in open, moist situations; Kankavli-Achre Road. Sawantwadi-Gavata near Bhedshi.

L. viscosa (Hornem.) Merr. Bur. Sci. Publ. Manila 12 : 14. 1918 (= *Sp. Blanc.*); Philcox in Kew Bull. 22 : 38. 1968. *Gratiola viscosa* Hornem. Enum. Pl. Hort. Hafn. 19. 1807. *Vandellia hirsuta* Benth. Scroph. Ind. 36. 1835; Hook. f. Fl. Brit. India 4 : 280. 1884; Cooke, Fl. Pres. Bombay 2 : 367. 1958 (Repr. ed.). *Lindernia hirsuta* (Benth.) Wettst. in Engl. & Prantl, Pflanzenfam. 4 (3b) : 79. 1891; Mukerjee in J. Indian Bot. Soc. 24 : 131. 1945.

Erect or decumbent herbs, branching from the base, stems angular, hairy. Leaves 1—3 × 0.5—1.5 cm, ovate or oblong-elliptic, hairy on both sides, apex obtuse, margins crenate-serrate. Flowers pale purple to white; in lax racemes; calyx 0.3-0.5 cm long, hairy, with prominent nerves, corolla 0.5 cm long. Fruits 0.2-0.3 cm long, globose.

Fls. & Frts. : August-October.

Distrib. : Infrequent, in open, moist areas, on old, wet house walls and in waste places; Sawantwadi-Ajgaon, Danoli, Kolgaon, Vengurla (Cooke, *l. c.*).

PEPLIDIUM Delile

Peplidium maritimum (L. f.) Wettst. in Engl. & Prantl, Pflanzenfam. 4 (3b) : 78. 1891. *Hedyotis maritima* L. f. Suppl. 119. 1781. *Peplidium humifusum* Delile, Fl. Egypt. 148. 1813; Hook. f. Fl. Brit. India 4 : 287. 1884; Cooke, Fl. Pres. Bombay 2 : 371. 1958 (Repr. ed.).

Decumbent herbs, stems glabrous, 8-16 cm long, slender. Leaves 0.6-1.2 × 0.3—0.6 cm, obovate-oblong or spatulate, glabrous, subsessile, apex rounded, base tapering. Flowers white; axillary, solitary or 1-3 in a fascicle; calyx 0.2 cm long, ribbed, membranous, corolla tube short. Fruits 0.2-0.4 cm long, globose, glabrous.

Fls. & Frts. : November-December.

Distrib. : Occasional, in open, moist situations in plains; Malwan-Revatala.

RHAMPHICARPA Benth.

Rhamphicarpa longiflora (Arn.) Benth. in Hook. Comp. Bot. Mag. 1 : 368. 1836; Hook. f. Fl. Brit. India 4 : 300. 1884; Cooke, Fl. Pres. Bombay 2 : 377. 1958 (Repr. ed.). *Buchnera longiflora* Arn. in Nov. Act. Nat. Cur. 18 : 356. 1836.

Erect, slender herbs, 6-20 cm tall, simple or branched. Leaves 2.5-3.5 cm long, pinnatisect, segments linear, filiform. Flowers white; axillary, solitary; calyx campanulate, with 5 acuminate, subulate lobes. corolla 2.5-3.5 cm long. Fruits 1.6 cm long, obliquely ovoid, beaked.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 1415. 1849.

Distrib. : Frequent in open, moist situations and among grasses from ghats to plains; Deogad-Naringre. Kankavli-Nandgaon, Phondaghat. Malwan-Kuperighati.

SCOPARIA L.

Scoparia dulcis L. Sp. Pl. 116. 1753; Hook. f. Fl. Brit. India 4 : 289. 1884; Cooke, Fl. Pres. Bombay 2 : 383. 1958 (Repr. ed.).

Much branched, erect herbs, stems angular, ribbed, glabrous. Leaves opposite or whorled, $2-3 \times 0.5-1.0$ cm, obovate or oblanceolate, glabrous, punctate on lower surface, margins crenate-serrate. Flowers white; in axillary fascicles; calyx lobes-4, subequal, corolla 0.2 cm long, white hairy on the throat. Fruits 0.2-0.4 cm across, globose.

Fls. & Frts. : February-June.

Distrib. : Frequent in open situations in nurseries and in cultivated fields; Kudal-Chapheli forest nursery. Sawantwadi-Danoli, Gavata, Hewale.

SOPUBIA Hamilton ex D. Don

Sopubia delphinifolia (L.) G. Don, Gen. Syst. 4 : 560. 1837; Hook. f. Fl. Brit. India 4 : 302. 1884; Cooke, Fl. Pres. Bombay 2 : 378. 1958 (Repr. ed.). *Gerardia delphinifolia* L. in Juslenius, Cent. I. Pl. 21. 1756.

Erect, branched herbs, 20-70 cm tall, stems glabrous or hairy, angled. Leaves 2.5-4.0 cm long, pinnatifid with filiform segments. Flowers 0.3-0.4 cm across, white, tinged pale purple; axillary, solitary or in racemes; calyx lobes linear, corolla 2-3 cm long, funnel-shaped. Fruits 0.6-0.8 cm long, oblong.

Fls. & Frts. : August-October.

Distrib. : Scattered, in open, moist areas among grasses from ghats to plains; Deogad-Naringre. Malwan-Sindhudurg. Sawantwadi-Amboli-Mahadeogad.

STRIGA Lour.

1. Plants hairy; calyx 10-ribbed	..	<i>S. asiatica</i>
1. Plants glabrous; calyx 5-ribbed	..	<i>S. gesnerioides</i>

Striga asiatica (L.) Kuntze, Rev. Gen. Pl. 1 : 466. 1891; Hepper in Rhodora 76 : 46. 1974. *Buchnera asiatica* L. Sp. Pl. 630. 1753. *Striga lutea* Lour. Fl. Cochinch. 22. 1790; Hook. f. Fl. Brit. India 4 : 299. 1884; Cooke, Fl. Pres. Bombay 2 : 375. 1958 (Repr. ed.).

Erect, simple or sparingly branched herbs, 5-20 cm tall, stems ribbed, hispid hairy. Leaves 1.0—1.8 × 0.1—0.15 cm, linear, sessile, pilose on both sides, apex subacute or obtuse. Flowers white or yellow; in lax, leafy, terminal spikes; calyx 0.5-0.6 cm long, hispid with tubercle-based hairs, corolla 1.0-1.5 cm long, tube hairy outside. Fruits 0.35 cm long, oblong-ellipsoid.

Fls. & Frts. : August-October.

Distrib. : Frequent in open, moist areas, among grasses from lower slopes of the ghats to plains; Kankavli-Osargaon, Phonda-ghat. Malwan-Deobag. Sawantwadi-Dantoli. Vengurla. Math. forest.

S. gesnerioides (Willd.) Vatke, Oesterr. Bot. Z. 11. 1875; Saldanha in Bull. Bot. Surv. India 5 : 68. 1963. *Buchnera gesnerioides* Willd. Sp. Pl. 3 : 338. 1800. *Striga orobanchoides* (Endl.) Benth. in Hook. Comp. Bot. Mag. 1 : 361. 1836; Hook. f. Fl. Brit. India 4 : 299. 1884; Cooke, Fl. Pres. Bombay 2 : 374. 1958 (Repr. ed.).

Simple or branched, purple, annual herbs. Leaves scale like 0.4—0.7 × 0.15—0.2 cm, ovate-lanceolate, reddish-brown, upper leaves passing gradually into bracts. Flowers purple or lilac; in terminal spikes; calyx 0.4—0.5 cm long, corolla tube 0.8-1.2 cm long, curved in the middle. Fruits 0.5 cm long, ovoid-oblong.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 1414. 1849.

Distrib. : Scattered in open situations on the roots of *Lepidagathis lutea* Dalz., from ghats to plains; Deogad-Rest House campus. Sawantwadi-Amboli.

TORENIA L.

1. Fruiting calyx ribbed; seeds foveolate	..	<i>T. bicolor</i>
1. Fruiting calyx winged; seeds pitted	..	<i>T. indicum</i>

Torenia bicolor Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 38. 1851; Hook. f. Fl. Brit. India 4 : 278. 1884; Cooke, Fl. Pres. Bombay 2 : 364. 1958 (Repr. ed.); Saldanha in Bull. Bot. Surv. India 8 : 128. fig. 3. 1966.

Procumbent, annual herbs, stems angled, rooting at basal nodes. Leaves 1—2 × 0.5—1.2 cm, ovate or deltoid-ovate, sparingly hairy, margins serrate. Flowers dark violet, lower lip white; axillary, solitary or 1-3 together; calyx tubular, obliquely 2-lipped, corolla 2-3 cm long, tube curved. Fruits 0.8-1.2 cm long, oblong, included in calyx.

Fls. & Frts. : September-October.

Distrib. : Infrequent in open, moist places along the ghats and in plains; Sawantwadi-Amboli, Danoli. Vengurla (Cooke, l. c.).

T. indica Saldanha in Bull. Bot. Surv. India 8 : 126. fig. 1. 1966. *T. cordifolia* auct. non Roxb. (Pl. Cor. 2 : 32. t. 161. 1802); Hook. f. Fl. Brit. India 4 : 276. 1884; Cooke, Fl. Pres. Bombay 2 : 364. 1958 (Repr. ed.).

Herbs, annual, 8-20 cm tall, stems simple or branched. Leaves 1.5—3.5 × 0.6—1.0 cm, ovate or ovate-lanceolate, glabrous, base cuneate, margins serrate. Flowers pale blue or white; crowded in axils of upper leaves, rarely solitary; calyx much enlarged, broadly winged, ciliate on wings, corolla 0.8-1.5 cm long. Fruits oblong-elliptic, enclosed in persistent calyx.

Fls. & Frts. : August-October.

Distrib. : Frequent in open areas from ghats to plains; Kankavli-Phondaghat. Sawantwadi-Akeri-Mangaon forest, Ambolighat-Nanapani. Danoli. Vengurla (Cooke, l. c.).

OROBANCHACEAE

AEGINETIA L.

Aeginetia indica L. Sp. Pl. 632. 1753; Hook. f. Fl. Brit. India 4 : 320. 1884; Cooke, Fl. Pres. Bombay 2 : 384. 1958 (Repr. ed.).

Leafless, purple coloured, glabrous, root parasites, drying brown, stems simple or branching, subterranean portion emitting rootlike stolons bearing haustoria. Flowers purple; solitary in axils of bracts in racemes; calyx spathaceous, split on anterior side, partly enclosing corolla tube, corolla 2.5-3.5 cm, long, lobes suborbicular or reniform. Fruits 1.5-2.0 cm long, ovoid.

Fls. & Frts. : August-September.

Illus. : Wight, Icon. t. 895. 1844-1845.

Distrib. : Frequent in the forest undergrowth in shady, moist situations on roots of several plants; Kankavli-Phonda-Harkool forest, Malwan-Adari-Nandruk. Sawantwadi-Ambolighat-Nanapani. Gavata, Satarda.

LENTIBULARIACEAE

UTRICULARIA L.

1. Aquatic, floating herbs	..	<i>U. stellaris</i>
1. Terrestrial herbs :		
2. Sepals unequal; seeds glochidiate	..	<i>U. striatula</i>
2. Sepals equal ; seeds reticulate :		
3. Scales and bracts attached at the middle	..	<i>U. caerulea</i>
3. Scales and bracts attached at the base :		
4. Scapes twining, flexuose	..	<i>U. reticulata</i>
4. Scapes erect, not flexuose :		
5. Upper lip of corolla white and notched at apex; pedicels recurved in fruits	..	<i>U. albo-caerulea</i>
5. Upper lip of corolla not white, entire at apex; pedicels not recurved in fruits	..	<i>U. uliginosa</i>

Utricularia albo-caerulea Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 279. 1851; Clarke in Hook. f. Fl. Brit. India 4 : 330. 1884; Cooke, Fl. Pres. Bombay 2 : 391. 1958 (Repr. ed.).

Erect, 8-16 cm tall herbs, stolons bearing a few bladders. Leaves deciduous, 0.2-0.4 cm long, spatulate, obscurely 3-nerved, bearing bladders. Scapes with acute scales and ternate bracts; pedicels flat, 0.3-0.4 cm long in flowers; flowers bluish-purple, calyx lobes 0.25 cm long, corolla : upper lip 0.4-0.5 cm long and lower one 0.8-1.0 cm long, spur curved. Fruits bag-shaped, enclosed in persistent calyx.

Fls. & Frts. : September-November.

Distrib. : This species is reported by Cooke (*l. c.*) from 'Venguria' based on collection by Dalzell; hence it is included here.

U. caerulea L. Sp. Pl. 18. 1753; Abraham et al. in Curr. Sci. 43 : 572. 1974. *U. racemosa* Wall. (Cat. 1496. 1829, *nom. nud.*) ex DC. Prodr. 8 : 21. 1844; Clarke in Hook. f. Fl. Brit. India 4 : 333. 1884. *U. nivea* sensu Cooke, Fl. Pres. Bombay 2 : 393. 1958 (Repr. ed.), (*non* Vahl, 1805).

Herbs, with numerous stolons from the base of scapes, branched, bladders ovoid, dimorphic. Leaves few, up to 1.9 cm long, linear-spathulate, 1-nerved, rounded at apex. Scapes 8-10 cm tall, with 1-nerved scales; flowers blue or purple; in congested racemes; calyx lobes 0.3-0.5 cm long, minutely papillose, corolla with 0.4-0.6 cm long upper lip, spur 0.7-0.8 cm long, curved. Fruits up to 0.3 cm long, ovoid.

Fls. & Frts. : August-September.

Illus. : Wight, Icon. t. 1583. 1850.

Distrib. : Occasional, in moist, open situations along road sides in plains; Sawantwadi-Banda. Vengurla (Cooke, *l.c.*).

U. reticulata Sm. Exot. Bot. 2 : t. 119. 1805; Clarke in Hook. f. Fl. Brit. India 4 : 331. 1884; Cooke, Fl. Pres. Bombay 2 : 393. 1958 (Repr. ed.).

Elegant, annual, robust, gregarious herbs, forming pure patches, very showy. Leaves 1.2-2.0 cm long, linear-oblong, deciduous. Scapes 15-30 cm tall; flowers bright pinkish-purple; in racemes; calyx lobes ovate, acuminate, enlarged and decurrent in fruits, corolla more than 1.9 cm across, upper lip obovate, spur 0.6 cm long, slightly curved. Fruits 0.4-0.6 cm long, ellipsoid.

Fls. & Frts. : August-October.

Distrib. : Frequent in moist, open places, in rice fields from ghats to plains; Kankavli-Osargaon, Phonda-Devichi Rai. Malwan-Adari-Nandruk. Sawantwadi-Amboli.

U. stellaris L. f. Suppl. 86. 1781; Clarke in Hook. f. Fl. Brit. India 4 : 328. 1884; Cooke, Fl. Pres. Bombay 2 : 389. 1958 (Repr. ed.). *U. inflexa* Forssk. var. *stellaris* (L. f.). Taylor in Mitt. Bot. Staats. Munchen 4 : 96. 1961 et Kew Bull. 18 : 189. 1964.

Free floating herbs by means of a whorl of spongy floats; stolons, slender, not much branched. Leaves in whorls of 4, pinnatipartite, segments capillary, bladders numerous. Scapes 6-12 cm long; flowers yellow; in 5-8 flowered racemes; calyx subequal, lobes suborbicular, upper lip of corolla truncate-emarginate, lower oblong, spur appressed to lower lip, blunt. Fruits globose.

Fls. & Frts. : October-November.

Illus. : Wight, Icon, t. 1567. 1850.

Distrib. This species is reported by Cooke (*l. c.*) from 'Malwan' based on collection by Woodrow, so included here.

U. striatula Sm. in Rees, Cyclop. 37. n. 17. 1819; Cooke, Fl. Pres. Bombay 2 : 393. 1958 (Repr. ed.); Taylor in Kew Bull. 18 : 91. fig. 30-31. 1964. *U. orbiculata* Wall. ex DC. Prodr. 8 : 18. 1844; Clarke in Hook. f. Fl. Brit. India 4 : 334. 1884.

Small, erect epiphytes, stolons filiform bearing minute bladders. Leaves in a rosette, 0.15-0.25 cm long, orbicular-reniform, long petioled. Scapes 3-8 cm tall, filiform; flowers pale blue, often with white and orange spots; in 6-8 flowered racemes; calyx unequal, accrescent, upper lip of corolla sub-orbicular, emarginate, lower obovate, 5-toothed or lobed. Fruits globose.

Fls. & Frts. : July-September.

Illus. : Wight, Icon. t. 1518. 1850.

Distrib. : Frequent on wet rocks and on tree trunks along the ghats; Kankavli-Phondaghat. Sawantwadi-Ambolighat

U. uliginosa Vahl, Enum. Pl. 1 : 203. 1804.; Sant. in J. Bombay nat. Hist. Soc. 49 : 218. 1950. *U. affinis* Wight in Hook. J. Bot. & Kew Gard. Misc. 1 : 373. 1849 et Icon. t. 1580. fig. 1. 1850; Clarke in Hook. f. Fl. Brit. India 4 : 330. 1884; Cooke, Fl. Pres. Bombay 2 : 392. 1958 (Repr. ed.).

Erect herbs, stolons not much branched, with few bladders. Leaves 0.5-0.8 cm long, linear-oblong, or spatulate, apex obtuse, 1-nerved. Scapes 4-8 cm long, with scales and bracts basifixed; flowers pale blue or bluish-violet; in 3-6-flowered racemes; calyx subequal, minutely denticulate, upper lip of corolla obovate-oblong, notched, lower suborbicular, 2-3 crenulate at apex, spur short. Fruits depressed-globose.

Fls. & Frts. : August-February.

Illus. : Wight, *l. c.*

Distrib. : Frequent, in open, moist situations, among grasses from ghats to plains; Kankavli-Naradave, Osargaon. Sawantwadi-Ambolighat-top, Nemle. Vengurla (Cooke *l. c.*).

GESNERIACEAE

1. Leaves opposite; seeds tipped by hairs at either ends

..

Aeschynomene

1. Leaves alternate (upper leaves in *Epithema* opposite); seeds not tipped by hairs : ..
2. Leaf bases oblique; fruits dehiscing loculicidally .. *RhynchosGLOSSUM*
2. Leaf bases not oblique; fruits dehiscing circumscissaly .. *Epithema*

AESCHYNANTHUS Jack. (*nom. cons.*)

Aeschynanthus perrottetii A. DC. in DC. Prodr. 9 : 261. 1845; Clarke in Hook. f. Fl. Brit. India 4 : 339. 1884; Cooke, Fl. Pres. Bombay 2 : 395. 1958 (Repr. ed.).

Epiphytic, woody undershrubs, rooting at nodes. Leaves 4—9 × 2—3 cm, lanceolate, fleshy, subsessile, glabrous, apex acuminate, venation obscure. Flowers 4-5 cm long, scarlet, showy; in cymes; calyx narrowly 5-partite, corolla tube curved. Fruits 10-18 cm long, linear, loculicidally 2-valved.

Fls. & Frts. : October-March.

Distrib. : This species is reported by Cooke (*l. c.*) based on collection by Ritchie from Ramghat in Sawantwadi taluka; so it is included here.

EPITHEMA Bl.

Epithema carnosum Benth. var. *hispida* Clarke in Hook. f. Fl. Brit. India 4 : 369. 1884; Cooke, Fl. Pres. Bombay 2 : 399. 1958 (Repr. ed.).

Succulent herbs, stems not or slightly branched, bristly. Leaves 1-3, basal, 3-10 cm, as long as broad, ovate-cordate, bristly on both sides, apex obtuse, upper smaller, subsessile, crenate. Flowers blue; in capitate cymes; calyx campanulate, corolla 0.4-0.6 cm long. Fruits globose, enclosed in accrescent calyx.

Fls. & Frts. : August-September.

Illus. : Wight, Icon. t. 1354. 1848.

Distrib. : Frequent in clefts of tree-trunks or rock crevices during monsoon along the ghats; Sawantwadi-Ambolighat-Temple point, Danoli.

RHYNCHOGLOSSUM Bl.

1. Calyx winged; perfect stamens-4 .. *R. notonianum*
1. Calyx not winged; perfect stamens-2 .. *R. obliquum*

Rhynchosglossum notonianum (Wall.) Burt in Notes Roy. Bot. Gard. Edinburgh 24 : 170. 1962. *Wulffenia notoniana* Wall. Tent. Fl. Nep. 46. 1826. *Klugia notoniana* (Wall.) A. DC. in DC. Prodr. 9 : 276. 1845; Clarke in Hook. f. Fl. Brit. India 4 : 366. 1884; Cooke, Fl. Pres. Bombay 2 : 397. 1958 (Repr. ed.).

Succulent annual herbs, stems watery, shining, glabrous or hispid. Leaves 4—8 × 3—5 cm, obliquely ovate-oblong, glabrous, apex acuminate, lateral nerves prominent. Flowers blue; in racemes; calyx glabrous, one of the 5 wings enlarged into a crestlike structure, corolla 0.6 cm long, tube pale blue to white. Fruits 0.4 cm across, ellipsoid, enclosed in calyx.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 1353. 1848.

Distrib. : Frequent in moist, shady places along the ghats and in plains; Kankavli-Phonda-Devichi Rai, Phondaghat. Sawantwadi-Akeri-Mangaon forest, Ambolighat-top, Danoli.

R. obliquum Bl. Bijdr. 741. 1826; Clarke in Hook. f. Fl. Brit. India 4 : 367. 1884; Burt in Notes Roy. Bot. Gard. Edinburgh 24 : 170. 1962. *R. obliquum* Bl. var. *parviflorum* Clarke in DC. Mon. Phan. 5 : 162. 1883 et in Hook. f. Fl. Brit. India 4 : 367. 1884; Cooke, Fl. Pres. Bombay 2 : 398. 1958 (Repr. ed.).

Succulent, annual herbs, stems watery, glabrous. Leaves 4—8 × 2—5 cm, ovate-oblong, glabrous, or puberulous on both sides, apex acuminate, base oblique. Flowers bluish-violet; in racemes; calyx 0.4-0.5 cm long, tube angular, corolla tube 0.5-0.6 cm long with a ring of hairs. Fruits 0.4 cm across, ovoid.

Fls. & Frts. : August-October.

Distrib. Uncommon in moist, shady places along the ghats; Kankavli-Phondaghat. Kudal-Shivapur paz. Sawantwadi-Ambolighat-Nanapani.

BIGNONIACEAE

1. Leaves 1-pinnately compound :

2. Calyx glabrous; fruits linear, terete, angular	..	<i>Stereospermum</i>
2. Calyx hairy; fruits elongate-oblong, more or less compressed, slightly angular	..	<i>Heterophragma</i>

1. Leaves 2 or 3-pinnately compound :

3. Stamens 5; seeds 6-7 cm long	..	<i>Oroxylum</i>
3. Stamens 4; seeds 3-4 cm long	..	<i>Radermachera</i>

HETEROPHRAGMA DC.

Heterophragma quadriloculare (Roxb.) K. Schum. in Engl. & Prantl, Pflanzenfam. 4 (3b) : 243. 1895; Sant. Fl. Khandala, ed. 3, 191. 1967. *Bignonia quadriloculare* Roxb. Pl. Cor. 2 : 24. t. 145. 1800. *Heterophragma roxburghii* A. DC. in DC. Prodr. 9 : 210. 1845; Clarke in Hook.f. Fl. Brit. India 4 : 381. 1884; Cooke, Fl. Pres. Bombay 2 : 404. 1958 (Repr. ed.). Mar. : 'Varas'.

Moderate-sized trees, 5-10 m tall, young parts pubescent. Leaves 20-30 cm long, leaflets 3-5 pairs, with an odd one, 8-10 × 3-4 cm, elliptic-oblong, hairy when young, glabrous when old, margins entire or serrulate. Flowers white to pale rose, fragrant; in tawny tomentose panicles; calyx 1.5 cm long, irregularly 3-5 lobed, corolla 5 cm long, velvety when young, glabrous at length.

Fls. & Frts. : January-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 311. fig. 437. 1911.

Distrib. : Frequent in deciduous forest from ghats to plains; Kankavli-Phonda-Mhatardeo Rai, Phondaghat, Sangwe, Kudal-Ghotge. Sawantwadi-Akeri-Mangaon forest, Amboli, Bhedshi, Ramghat.

OROXYLUM Vent.

Oroxylum indicum (L.) Vent. Dec. Gen. Nov. 9. 1808; Clarke in Hook. f. Fl. Brit. India 4 : 378. 1884; Cooke, Fl. Pres. Bombay 2 : 401. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 190. 1967. *Bignonia indica* L. Sp. Pl. 625. 1753. Mar. : 'Shivan', 'Tetu'.

Trees, 8-15 m tall, soft wooded, bark light brown. Leaves 1.0-1.5 m long, leaflets 2-4 pairs, 5-15 × 3-8 cm, ovate or ovate-elliptic, glabrous, apex acuminate. Flowers purple; in large, terminal racemes; calyx 2.5 cm long, glabrous, obscurely toothed, corolla 4-6 cm long, lobes with crisp margins. Fruits 40-70 cm long, straight, flat, woody, tapering at both ends.

Fls. & Frts. : June-December.

Illus. : Wight, Icon. tt. 1337-1338. 1848.

Distrib. : Infrequent in deciduous forest in plains; Sawantwadi-Bhedshi, Danoli.

RADERMACHERA Zoll. & Moritz.

Radermachera xylocarpa (Roxb.) K. Schum. in Engl. & Prantl, Pflanzenfam. 4 (3b) : 243. 1895; Cooke, Fl. Pres. Bombay 2 : 407. 1958 (Repr. ed.); van Steenis in Blumea 23 : 131. 1976. *Bignonia xylocarpa* Roxb. Fl. Ind. 3 : 108. 1832. *Stereospermum xylocarpum* (Roxb.) Benth. & Hook. f. ex Clarke in Hook. f. Fl. Brit. India 4 : 383. 1884. *Mar.* : 'Kharasheng'.

Trees, 10-15 m tall, bark light grey. Leaves bipinnate, 30-90 cm long, leaflets 2-4 pairs with odd one, 4—8 × 3—5 cm, elliptic-oblong, glabrous, unequal sided, apex acuminate or acute. Flowers yellowish-white; in terminal panicles; calyx 1.2 cm long, pubescent, corolla 3-5 cm long. Fruits 30-80 cm long, woody, curved, rough with numerous tubercles.

Fls. & Frts. : April-January.

Illus. : Wight, Icon. tt. 1335-1336. 1848.

Distrib. : This species is reported by Cooke, (*l. c.*) from 'S. M. Country : Ramghat' (in Sawantwadi taluka) based on collection by Ritchie; hence it is included here.

STEREOSPERMUM Cham.

Stereospermum personatum (Hassk.) Chatterjee in Bull. Bot. Soc. Bengal 2 : 70. 1948; Santisuk in Kew Bull. 28. 178. 1973. *Dipterosperma personatum* Hassk. Flora 25 (2) Beibl. 28: 1842. *Stereospermum chelonoides* auct. non (L. f.) DC. (1845); Clarke in Hook. f. Fl. Brit. India 4 : 382. 1884; Cooke, Fl. Pres. Bombay 2 : 405. 1958 (Repr. ed.). *Mar.* : 'Padal'.

Trees, 10-15 m tall, young parts glabrous. Leaves once-pinnate, leaflets 7-11, 5—9 × 2.5—4.0 cm, elliptic, unequal sided, glabrescent, apex caudate-acuminate. Flowers yellow; in panicles; calyx 0.6 cm long, unequally lobed, corolla 2-3 cm long, pubescent. Fruits 40-60 cm long, angled or terete, falcate.

Fls. & Frts. : February-June.

Illus. : Wight, Icon. t. 1341. 1848.

Distrib. : Infrequent in deciduous forest along the ghats and in plains; Kankavli-Bhironde. Kudal-Tumbyachiwadi. Sawantwadi-Gavata, Ramghat.

PEDALIACEAE

1. Fruits spiny, indehiscent	..	<i>Pedaliaceae</i>
1. Fruits not spiny, dehiscent	..	<i>Sesuvium</i>

PEDALIUM Royen ex L.

Pedaliium murex L. Syst. Nat. ed. 10, 1123. 1759; Clarke in Hook. f. Fl. Brit. India 4 : 386. 1884; Cooke, Fl. Pres. Bombay 2 : 412. 1958 (Repr. ed.). Mar. : *Mothe-gokghru* 'Sarata'.

Erect herbs, simple or branched, pubescent. Leaves 2.5×1.9 — 3.5 cm, broadly ovate or orbicular, fleshy, glabrous above, glandular beneath, margins coarsely crenate. Flowers yellow; axillary, solitary; calyx 0.3 cm long, 5-partite, corolla 2.0-3.5 cm long. Fruits 1.2-1.5 cm across, pyramidal ovoid, 4-angled, spines horizontal, sharp.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 1615. 1850.

Distrib. : Occasional along the field edges in sandy soil; Malwan-Deobag.

SESAMUM L.

Sesamum orientale L. Sp. Pl. 634. 1753; Backer & Bakhuizen, Fl. Java 2 : 544. 1965. *S. indicum* L. Sp. Pl. 634. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 387. 1884; Cooke, Fl. Pres. Bombay 2 : 413. 1958 (Repr. ed.). *S. mulayanum* Nair in Bull. Bot. Surv. India 5 : 251. 1963 (1964).

Erect, glandular-pubescent, strongly smelling herbs, stems obtusely 4-angled, patently glandular-pubescent. Leaves lower 3-foliate or palmatisect, upper ones ovate-lanceolate, glabrous, clothed with mucilaginous hairs on lower surface. Flowers white or violet tinged; 1-3 in leaf-axils; calyx 0.5 cm long, glandular—pubescent, corolla 2-3 cm long, glandular hairy. Fruits 1.5-3.0 cm long, oblong, beaked, glandular hairy.

Fls. & Frts. : September-October.

Illus. : Nair l. c. 252. figs. 1-9.

Distrib. : Uncommon in open places in plains as an escape and also cultivated; Kankavli-Digwal Road, Nandgaon-Belachi Rai, Phonda Rai. Malwan-Deobag. Sawantwadi-Akeri-Mangaon forest.

Notes : Graham (Cat. Pl. Bombay 126. 1839) was the first to unite both *S. indicum* L. and *S. orientale* L. and adopted latter name for combined taxon. Unless there is an earlier synonymy Graham's choice should be followed (ICBN. Art. 57).

S. mulayanum Nair (*l. c.*) appears to be a seed variant of *S. orientale* in which the surface of the seed varies from smooth to rugose. Experimental studies are needed to throw light on the relationship among the two.

MARTYNIACEAE

MARTYNIA L.

Martynia annua L. Sp. Pl. 618. 1753; Backer in van Steenis, Fl. Males. Ser. 1, 4 : 221. 1951. *M. diandra* Gloxin, Obs. Bot. 14. t. 1. 1785; Clarke in Hook. f. Fl. Brit. India. 4 : 386. 1884; Cooke, Fl. Pres. Bombay 2 : 414. 1958 (Repr. ed.)

Viscid, branched herbs, densely glandular hairy. Leaves 3—25 × 4—30 cm, broadly ovate to orbicular, densely glandular hairy, apex subobtuse, base cordate, margins dentate. Flowers pale to bright rosy-purple; in axillary racemes; calyx yellowish-white, divided to the base, corolla 5.0-5.5 cm long, lobes broadly rounded. Fruits green, 2-3 cm long, ovoid, glandular pubescent, with up-turned beak.

Fls. & Frts. : August-October.

Distrib. : An introduced plant, native of Mexico, found as weed in open situations; Deogad-Near Rest House.

ACANTHACEAE (incl. THUNBERGIACEAE)

1. Climbing undershrubs; leaves palmately nerved	..	<i>Thunbergia</i>
1. Erect or prostrate herbs or shrubs; leaves pinnately nerved :		
2. Plants of salt marsh; leaf margins spinous toothed	..	<i>Acanthus</i>
2. Plants of inland, fresh water or terrestrial habitat; leaf margins not spinous :		
3. Seeds not supported on hard retinacula in fruits :		
4. Calyx 4-lobed; fertile stamens 2	..	<i>Nelsonia</i>
4. Calyx 5-lobed; fertile stamens 4 :		
5. Lower leaves pinnatifid; filaments glabrous	..	<i>Hygrophila</i>
5. Leaves not pinnatifid; filaments hairy	..	<i>Staurogyne</i>
3. Seeds supported on hard retinacula in fruits :		
6. Fertile stamens 4 :		

7. Corolla without upper lip; anthers 1-celled ..	<i>Blepharis</i>
7. Corolla with well developed upper lip; anthers 2-celled :	
8. Corolla lobes twisted to the left in buds :	
9. Corolla 2-lipped :	
10. Inflorescence spiny; seeds hygroscopical-ly white hairy ..	<i>Hygrophila</i>
10. Inflorescence not spiny; seeds yellow hairy ..	<i>Calacanthus</i>
9. Corolla lobes 5, subequal :	
11. Ovary 2-celled, ovules more than 2 in each cell ..	<i>Hemigraphis</i>
11. Ovary 2-celled, ovules 1 or 2 in each cell :	
12. Calyx lobes very unequal, posterior lobe leafy and bract like, other 4 linear-subulate ..	<i>Phaulopsis</i>
12. Calyx lobes subequal, not leafy and bract like :	
13. Pollen grains globose, echinulate ..	<i>Thelapetale</i>
13. Pollen grains ellipsoid, longitudinally ribbed :	
14. Bands on the grains septate :	
14. Bands on the grains not septate :	
15. Bracts hairy ..	<i>Pleocaulis</i>
15. Bracts glabrous ..	<i>Carvia</i>
16. Bands on grains only punctate ..	<i>Nilgirianthus</i>
16. Bands on grains punctate, often wavy ..	<i>Mackenzia</i>
8. Corolla lobes imbricate in buds :	
17. Corolla 2-lipped; anther cells placed at different levels ..	<i>Lepidagathis</i>
17. Corolla lobes 5, subequal; anther-cells parallel :	
18. Calyx 2-partite; seeds orbicular, densely silky ..	<i>Neuracanthus</i>
18. Calyx lobes 5, subequal; seeds ovoid-oblong, glabrous ..	<i>Asystasia</i>
6. Fertile stamens 2 :	
19. Corolla twisted to the left in buds :	
20. Bracteoles present; filaments glabrous ..	<i>Eranthemum</i>
20. Bracteoles absent; filaments hairy ..	<i>Nilgirianthus</i>

19. Corolla lobes imbricate in buds :

21. Corolla lobes 5, subequal :

22. Calyx lobes 4, outer pair much larger than inner pair .. *Barleria*

22. Calyx lobes 5, subequal .. *Pseuderanthemum*

21. Corolla 2-lipped

23. Anther cells placed at different levels :

24. Anther cells spurred :

25. Floral bracts often with white, scarious margins;
placenta separating elastically .. *Rungia*

25. Floral bracts not with white scarious margins;
placenta not separating elastically .. *Justicia*

24. Anther cells not spurred :

26. Bracts and bracteoles 0.2 cm long, shorter
than calyx .. *Rhinacanthus*

26. Bracts and bracteoles 0.6-2.2 cm long, equal
to or longer than calyx :

27. Bracteoles similar and equal to bracts;
filaments hairy at base .. *Adhatoda*

27. Bracteoles not similar and smaller than
bracts; filaments glabrous .. *Dicliptera*

23. Anther cells parallel :

28. Bracts foliaceous, 2.2 cm long; capsules
2-seeded .. *Ecbolium*

28. Bracts less than 0.5 cm long; capsules more than
2-seeded :

29. Flowers subtended by abortive, reduced
spinelike branchlets .. *Haplanthodes*

29. Flowers not subtended by reduced, spinelike
branchlets :

30. Anthers bearded; seeds hardly
compressed .. *Andrographis*

30. Anthers not bearded; seeds much
compressed .. *Gymnostachyum*

ACANTHUS L.

Acanthus Mifellius L. Sp. Pl. 639. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 481. 1884; Cooke, Fl. Pres. Bombay 2 : 427. 1958 (Repr. ed.).

Gregarious undershrubs or shrubs, 1.0-1.5 m tall, seldom branched. Leaves 7-14 × 14.5-6.0 cm, oblong, pinnatifid, rigid. Flowers blue; in terminal,

interrupted spikes; calyx 4-partite, glabrous, corolla 3.0-3.5 cm long. Capsules 2.5 cm long oblong, smooth.

Fls. & Frts. : February-April.

Illus. : Wight, Icon. t. 459. 1841.

Distrib. : Frequent in tidal swamps and creeks; Deogad-Tar-mumbri, Malwan-Achre creek, Kalavli creek. Vengurla-Harbour road, Kochre creek.

ADHATODA Miller

Adhatoda zeylanica Medic. Hist. & Commentat. Acad. Elect. Sci. Theod. Palat. 6 : 393. 1790. *A. vasica* Nees in Wall. Pl. As. Rar. 3 : 103. 1832; Clarke in Hook. f. 4 : 540. 1885; Cooke, Fl. Pres. Bombay 2 : 493. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 92. 1952. *Justicia adhatoda* L. Sp. Pl. 15. 1753. *Mar.* : *Adulsa*¹.

Shrubs, 2-4 m tall, young branches thickened above the nodes, appressed pubescent. Leaves 10—16 × 3.5—5.0 cm, oblong-lanceolate to ovate-lanceolate, glabrous or puberulous (mostly when young), apex acuminate, margins wavy. Flowers white; in elongate spikes; calyx lobes shorter than bracteoles, corolla 2.2-2.5 cm long. Fruits 1.5-2.0 cm long, clavate. Seeds orbicular-oblong, tuberculate.

Fls. & Frts. : September-February.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 339. fig. 448. 1911.

Distrib. : Uncommon mostly grown near temples in villages; Sawantwadi-Bhedshi, Satarda.

ANDROGRAPHIS Wall. ex Nees

Andrographis paniculata (Burm. f.) Wall. ex Nees in Wall. Pl. As. Rar. 3 : 116. 1832; Clarke in Hook. f. Fl. Brit. India 4 : 501. 1884; Cooke, Fl. Pres. Bombay 2 : 451. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 50. 1952. *Justicia paniculata* Burm. f. Fl. Ind. 9. 1768.

Branched, annual, rigid herbs, branches 4-angled, minutely hispid. Leaves 4—6 × 1.2—2.5 cm, lanceolate, glabrous, apex acute. Flowers pale pink to white; in repeatedly branched subpaniculate; calyx 0.3-0.4 cm long, glandular pubescent, corolla 1.0-1.5 cm long, hairy outside. Fruits 1.3-2.0 cm long, narrowly oblong, longitudinally furrowed.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 518. 1842.

Distrib. : Occasional, in open situations in hilly areas; Malwan-Adari.

ASYSTASIA Bl.

Asystasia dalzelliana Sant. in Kew Bull. 3 : 276. 1948 et in Univ. Bombay Bot. Mem. No. 2, 68. 1952. *Asystasia violacea* Dalz. ex Clarke in Hook. f. Fl. Brit. India 4 : 494. 1884; Cooke, Fl. Pres. Bombay 2 : 467. 1958 (Repr. ed.).

Straggling undershrubs, 0.5-1.5 m tall, branches thickened above the nodes, glabrescent. Leaves 4-12 × 3-5 cm, elliptic-oblongate, long petioled, membranous, glabrous, apex acuminate. Flowers bluish-violet or blue; in racemes; calyx deeply divided, hairy, corolla 2.5-3.5 cm long. Fruits clavate, 4-seeded, opening widely in reflexed curve

Fls. & Frts. : August-October.

Distrib. : Frequent in the undergrowth in partly shaded places along the ghats and in plains; Kankavli-Phondaghat. Malwan Adari-Nandruk, Anand val, Kuperighati. Sawantwadi-Danoli. Vengurla-Math forest.

BARLERIA L.

1. Plants armed with intrapetiole spines ..	<i>B. prionitis</i>
1. Plants not armed :	
2. Calyx and seeds glabrous ..	<i>B. prattensis</i>
2. Calyx and seeds hairy :	
3. Outer sepals spinous-ciliate; corolla pubescent outside ..	<i>B. cristata</i>
3. Outer sepals not spinous ciliate; corolla glabrous outside :	
4. Inflorescence including bracts, bracteoles and calyx glandular hairy and viscous ..	<i>B. courtallia</i>
4. Inflorescence, bracts, bracteoles and calyx not glandular hairy and viscous :	
5. Bracteoles 2.5 - 3.5 cm long; outer sepals 1.5 - 2.0 cm wide ..	<i>B. involucrata</i> var. <i>elata</i>
5. Bracteoles 0.9 - 1.2 cm long; outer sepals 0.6 - 0.8 cm wide ..	<i>B. terminalis</i>

Barleria courtallica Nees in DC. Prodr. 11 : 226. 1847; Clarke in Hook. f. Fl. Brit. India 4 : 489. 1884; Cooke, Fl. Pres. Bombay 2 : 462. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 61. 1952.

Glabrous shrubs, 1.5-2.0 m tall. Leaves 8—16 × 3—6 cm, broadly elliptic or elliptic-lanceolate, glabrous, apex acuminate, base cuneate. Flowers 3.5-5.0 cm long; in glandular hairy, tawny spikes; calyx silky inside, outer sepals 1.9-2.5 cm long, the inner 0.8-1.8 cm long, corolla tube yellow, lobes blue. Fruits 1.9-2.5 cm long, oblong, 4-seeded, pubescent.

Fls. & Frts. : February-March.

Illus. : Wight, Icon. t. 1529. 1850.

Distrib. : This species is recorded by Cooke (*f. c.*) from 'Baital' (Bhedshi, Sawantwadi taluka) based on collection by Ritchie, hence included here.

B. cristata L. Sp. Pl. 636. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 488. 1884; Cooke, Fl. Pres. Bombay 2 : 460. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 59. 1952.

Herbs or undershrubs, stems and branches appressedly hairy. Leaves 4—10 × 2.5—3.8 cm, ovate-lanceolate or elliptic-oblong, hairy on both sides, apex acute or acuminate. Flowers blue, sometimes pink; in axillary and terminal spikes; calyx hairy in the lower half, outer sepals 2.5 cm long, whitish, inner 0.8 cm long, raised nerves pubescent, corolla 2.5-4.0 cm long, tube cylindric, funnel-shaped in the upper part. Fruits 1.5 cm long, ellipsoid.

Fls. & Frts. : October-November.

Distrib. : Uncommon in deciduous forest in plains; Kankavli-Humbrat Road. Sawantwadi-Akeri-Mangaon forest.

B. inaequalata Nees var. *elata* (Dalz.) Clarke in Hook. f. Fl. Brit. India 4 : 486 1884; Cooke, Fl. Pres. Bombay 2 : 461. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 60. 1952. *B. elata* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 227. 1851.

Shrubs, 1.5-2.5 m tall, stems appressedly hairy, internodes long. Leaves 10—16 × 3—6 cm, broadly elliptic, drying black, pubescent on both sides, acuminate at both the ends. Flowers bluish-violet, throat pink or purple; in unilateral, racemelike helicoid cymes; calyx appressedly hairy, outer sepals 3.5 cm long, inner ones 2.5 cm long, corolla 8-10 cm long, tube funnel-shaped. Fruits 2.5-3.0 cm long.

Fls. & Frts. : October-February.

Distrib. : This species is reported by Cooke (*l. c.*) from 'Ambolighat' (Sawantwadi taluka) and Phunda ghat (Phondaghat, Kankavli taluka) based on collection by Woodrow and Dalzell respectively; hence it is included here.

B. prattensis Sant. in Kew Bull. 3 : 487. 1949 et in Univ. Bombay Bot. Mem. No. 2, 62. 1952.

Undershrubs, woody at base, stems and branches glabrous. Leaves 5—10 × 2.5—4.5 cm, ovate, glabrous, apex acute or acuminate, base cuneate. Flowers rosy-purple to blue; axillary, solitary or few-flowered, terminal cymes; calyx hairy at tips, outer sepals 3-5 cm long, ovate, inner linear, corolla 7-8 cm long. Fruits 2 cm long, brown, glabrous.

Fls. & Frts. : September-October.

Illus. : Sant. opp. page 64. *l. c.*

Distrib. : Occasional in open situations in plains; Malwan-Nandruk.

B. prionitis L. Sp. Pl. 636. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 482. 1884; Cooke, Fl. Pres. Bombay 2 : 457. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 57. 1952.

Mar. : *Pivali Koranti* '.

Shrubs or undershrubs, up to 2 m tall, 3-6 spines in axils. Leaves 3—10 × 2.5—4.5 cm, elliptic or oblong-elliptic, glabrous above, more or less pubescent beneath, apex acuminate, usually bristle tipped. Flowers yellow or creamy; axillary, solitary, spicate above due to stunting of floral leaves; calyx lobes bristle tipped, outer sepals more than 1.2 cm long, corolla 3.0-3.5 cm long. Fruits 1.5-2.0 cm long, ovoid, 2-seeded.

Fls. & Frts. : October-February.

Illus. : Wight Icon. t. 452. 1841.

Distrib. : Frequent in open areas in deciduous forest from ghats to plains, also cultivated around temples; Deogad-Tar-mumbrj. Kankavli-Phondaghat. Sawantwadi-Ramghat. Vengurla (Cooke, *l. c.*).

B. terminalis Nees *emend.* Malhotra et Moorthy in Indian For. 107 : 448-449, 450. plate 1, fig. a-j. 1981. *B. terminalis* Nees in DC. Prodr. 11 : 225. 1847; Dalz. & Gibs. Bombay Fl. Suppl. 188. 1861. *B. strigosa* Willd. var. *terminalis* (Nees) Clarke in Hook. f. Fl. Brit. India 4 : 490. 1884; Cooke, Fl. Pres. Bombay 2 : 462 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 61. 1952.

Undershrubs or shrubs, 1-2 m tall, stems and branches strigose hairy. Leaves 8—20 × 3—6 cm, elliptic-lanceolate or ovate-elliptic, strigose hairy on both sides, apex acuminate. Flowers blue; terminal, occasionally axillary short spikes; calyx densely strigose hairy, outer sepals ± 2 cm long, inner narrow, corolla 6—7 cm long. Fruits 2 cm long, 4-seeded.

Fls. & Frts. : November-May.

Illus. : Malhotra & Moorthy, *l. c.*

Distrib. : Frequent along the ghats as undergrowth; Kankavli-Phondaghat, Sawantwadi-Ambolighat-Nanapani, Ramghat, Vengurla (Cooke, *l. c.*).

BLEPHARIS JUSS.

Blepharis asperrima Nees in DC. Prodr. 11 : 267. 1847; Clarke in Hook. f. Fl. Brit. India 4 : 478. 1884; Cooke, Fl. Pres. Bombay 2 : 424. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 14. 1952.

Prostrate herbs with ascending branches, stems glabrescent to hirsute. Leaves 3—6 × 2—3 cm, ovate-lanceolate, glabrous or with scattered bulbous based hairs, apex acute or acuminate. Flowers blue or white, apparently solitary by decrease of floral leaves; calyx 4-lobed, outer sepals 2.5 cm long, one of them bifid, inner linear, corolla up to 2 cm long, lower lip 3-fid. Fruits oblong, 4-seeded.

Fls. & Frts. : October-February.

Illus. : Wight Icon. t. 1534. 1850.

Distrib. : Frequent, along the ghats and in plains in partially shaded areas; Kankavli-Phondaghat, Kudal-Chapheli-Pulasjungle, Kadaval, Sawantwadi-Amboli, Ambolighat-Nanapani.

CALACANTHUS ANDERS.

Calacanthus grandiflorus (Dalz.) Radlk. in Sitz Math. Phys. Acad. Muench. 13 : 279. 1883; Sant. in Univ. Bombay Bot. Mem. No. 2, 50. 1952. *Lepidagathis grandiflora* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 138. 1850. *Calacanthus dalzelliana* Anders. ex Clarke in Hook. f. Fl. Brit. India 4 : 478. 1884; Cooke, Fl. Pres. Bombay 2 : 450. 1958 (Repr. ed.).

Shrubs, 1.5-2.0 m tall, (turns black when dry), stems 4-angled. Leaves 10—20 × 5—8 cm, elliptic-lanceolate, or ovate, lower petiolate, upper sub-

sessile, glabrous, apex acuminate, base tapering. Flowers purple or bluish-purple, sessile, showy; in interrupted spikes; calyx 5-partite, lobes unequal, corolla 2.5-3.5 cm long, hairy outside. Fruits elliptic-ovoid.

Fls. & Frts. : November-February.

Illus. : Bedd. Icon. t. 226. 1874.

Distrib. : Scattered, along the higher slopes of the ghats; Kankavli-Phondaghat. Sawantwadi-Amboli, Ramghat.

CARVIA Bremek.

Carvia callosa (Nees) Bremek. Monogr. Strobilanthisae in Verh. Ned. Akad. Wet. (II) 41 (1) : 187. 1944; Sant. in Univ. Bombay Bot. Mem. No. 2. 46. 1952. *Strobilanthes callosus* Nees in Wall. Pl. As. Rar. 3 : 85. 1832; Clarke in Hook. f. Fl. Brit. India 4 : 451. 1884; Cooke, Fl. Pres. Bombay 2 : 444. 1958 (Repr. ed.). *Mar.* : Karvi'.

Shrubs, 1-3 m tall, glabrous, rough due to small protruberances. Leaves 8-20 × 3.5-6.5 cm, oblanceolate or elliptic-lanceolate, scabrous above, hairy on nerves below, apex acute or acuminate, margins crenate-serrate or dentate. Flowers pale purple; axillary, simple or branched, glabrous spikes; calyx persistent and enlarged in fruits, lobes coriaceous, elliptic-lanceolate, corolla 3.5-4.0 cm long, tube paler or white, cylindric. Fruits 1.5-2.0 cm long, ellipsoid, 2-seeded.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 1520. 1850.

Distrib. : Common along the ghats forming thick patches; Kankavli-Phondaghat. Sawantwadi-Amboli-Mahadeogad.

DICLIPTERA Juss. (*nom. cons.*)

Dicliptera zeylanica Nees in DC. Prodr. 11 : 474. 1847; Clarke in Hook. f. Fl. Brit. India 4 : 552. 1885; Cooke, Fl. Pres. Bombay 2 : 482. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 79, 1952.

Trailing herbs, stems weak, densely white-woolly, swollen above nodes. Leaves 3-8 × 1.9-4.5 cm, ovate-lanceolate, membranous, glabrous on both sides or hairy on upper surface, apex acuminate. Flowers rose coloured; in axillary and terminal umbels; calyx 0.6 cm long, hairy, 5-partite, corolla 1.8 cm long, tube slender below, enlarged above, pubescent outside. Fruits 0.6 cm long, ellipsoid, pubescent all over.

Fls. & Frts. : February-March.

Illus. : Wight, Icon. t. 1551. 1850.

Distrib. : Frequent in deciduous forest in shady places in plains and along the ghats; Kudal-Chapheli-Pulas jungle, Nerur. Malwan-Kalawli. Sawantwadi-Ramghat. Tirali.

ECBOLIUM Kurz

Ecboium viride (Forsk.) Alston var. *laetevirens* (Clarke) Sant. Fl. Khandala ed. 2, 185. 1960 et ed. 3, 208. 1967. *E. linneanum* Kurz var. *laetevirens* (Vahl) Clarke in Hook. f. Fl. Brit. India 4 : 545. 1885; Cooke, Fl. Pres. Bombay 2 : 484. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 82. 1952.

Undershrubs, 0.5-1.0 m tall, branches glabrous, swollen above the nodes. Leaves 6—14 × 3—6 cm, lanceolate or elliptic-lanceolate, glabrous, apex acuminate. Flowers bluish-green; in dense, terminal spikes, bracts leafy, 2.2 cm long; calyx 0.6 cm long, hairy, corolla 3.5-4.0 cm long, easily caducous. Fruits 2.5 cm long, ovoid, compressed, hairy.

Fls. & Frts. : August-February.

Distrib. : Frequent in the undergrowth and in shady places in deciduous forest from ghats to plains; Deogad-Dahibav. Kankavli-Naradave, Phonda-Devichi Rai. Sawantwadi-Amboli, Ambolighat-top, Gavata, Ramghat.

ERANTHEMUM L.

Eranthemum roseum (Vahl) R. Br. Prodr. 477. 1810; Sant. in Univ. Bombay Bot. Mem. No. 2, 34. 1952. *Justicia rosea* Vahl, Enum. Pl. 1 : 165. 1804. *Daedalacanthus roseus* Anders. in J. Linn. Soc. 9 : 487. 1867; Clarke in Hook. f. Fl. Brit. India 4 : 419. 1884; Cooke, Fl. Pres. Bombay 2 : 439. 1958 (Repr. ed.).

Woody herbs or undershrubs, 0.5-1.5 m tall. Leaves 9—16 × 3—6 cm, lanceolate to oblong-lanceolate, glabrous, apex acuminate, base narrowed into petiole, nerves prominent beneath. Flowers blue, fading to purple; in terminal spikes, bracts obovate, glandular-strigose; calyx 0.5 cm long, hairy, corolla 2-3 cm long, sparsely hairy outside. Fruits 1.6 cm long, clavate, 4-seeded.

Fls. & Frts. : October-February.

Distrib. : Frequent in the undergrowth in deciduous forest from ghats to plains; Kankavli-Naradave, Phondaghat. Kudal-Ghotge, Nerur. Sawantwadi-Akeri-Mangaon forest, Amboli, Khanale, Ramghat.

GYMNOSTACHYUM Nees *emend.* Benth.

Gymnostachyum glabrum (Dalz.) Anders. in J. Linn. Soc. 9 : 506. 1867; Clarke in Hook. f. Fl. Brit. India 4 : 509. 1884; Cooke, Fl. Pres. Bombay 2 : 454. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 54. 1952. *Cryptophragmum glabrum* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 338. 1850.

Undershrubs, 1.0-1.5 m tall, stems glabrous, obtusely 4-angled. Leaves 8—16 × 4—7 cm, elliptic-lanceolate or oblong-lanceolate, glabrous, apex acuminate, margins undulate or sometimes dentate. Flowers white; in terminal, glandular-pubescent panicles of racemes; calyx glandular hairy, 0.5 cm long, corolla 1.5 cm long, glandular hairy outside. Fruits 1.5 cm long, glandular hairy, many seeded.

Fls. & Frts. : February-May.

Illus. : Bedd. Icon. t. 251. 1874.

Distrib. : Scattered, in shady places in deciduous forest along the ghats; Sawantwadi-Hewale, Ramghat.

HAPLANTHODES Kuntze

1. Axillary spines more than 2 cm long, stout ending with 2 sharp naked spinous teeth	..	<i>H. verticillatus</i>
1. Axillary spines less than 2 cm long, slender, ending with 2 or 3 villous teeth	..	<i>H. neilgherryensis</i>

Haplanthodes neilgherryensis (Wight) Majumdar in Bull. Bot. Soc. Bengal, 25 : 76. 1971. *Haplanthus neilgherryensis* Wight, Icon. t. 1556. 1850; Sant. in Univ. Bombay Bot. Mem. No. 2, 52. 1952. *H. tentaculatus* Nees var. *neilgherryensis* (Wight) Clarke in Hook. f. Fl. Brit. India 4 : 507. 1884. *H. tentaculatus* Nees in DC. Prodr. 11 : 513. 1847; Cooke, Fl. Pres. Bombay 2 : 453. 1958 (Repr. ed.).

Herbs, 40-80 cm tall, profusely branched, stems pubescent. Leaves 4—8 × 2.5—3.5 cm, ovate to elliptic-lanceolate, hairy on both sides, apex acuminate, base tapering. Flowers dark blue or lilac, sessile; in axillary or

sometimes terminal pseudowhorls; calyx 0.4 cm long, divided almost up to base, densely hairy, corolla 1.5-1.8 cm long, broadest at tip. Fruits 0.6-0.8 cm long, oblong, 6-12 seeded.

Fls. & Frts. : February-April.

Illus. : Wight, *l. c.*

Distrib. : Frequent in open situations in deciduous forest in plains and along lower slopes of the ghats; Kudal-slopes of Rangana fort from Chapheli, Ghotge. Malwan-Achre. Sawantwadi-Akeri-Mangaon forest, Ambolighat-Kumbheshwar, Gavata, Hewale, Khanale, Konal R. F. near Bhedshi.

H. verticillatus (Roxb.) Majumdar in Bull. Bot. Soc. Bengal 25 : 76. 1971. *Justicia verticillata* Roxb. Fl. Ind. 1 : 135. 1832. *Haplanthus verticillatus* (Roxb.) Nees in DC. Prodr. 11 : 513. 1847; Clarke in Hook. f. Fl. Brit. India 4 : 506. 1884; Cooke, Fl. Pres. Bombay 2 : 452. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 51. 1952.

Rigid herbs or undershrubs, 30-80 cm tall, branches and upper part of stems pubescent. Leaves 5-8 × 3-5 cm, elliptic-oblong, or ovate-oblong, glabrescent, apex acute to acuminate, base cuneate. Flowers dark lilac, sessile; in the axils of spines in pseudowhorls; calyx 0.4 cm long, glandular hairy, corolla 1.5 cm long, slightly hairy outside. Fruits 1.0-1.5 cm long, oblong, grooved.

Fls. & Frts. : February-March.

Distrib. : Occasional in the undergrowth of deciduous forest along the slopes; Kudal-slopes of Rangana fort, Chapheli.

HEMIGRAPHIS Nees

Hemigraphis latebrosa (Roth) Nees in DC. Prodr. 11 : 723. 1847; Clarke in Hook. f. Fl. Brit. India 4 : 423. 1884; Cooke, Fl. Pres. Bombay 2 : 434. 1958 (Repr. ed.). *Ruellia latebrosa* Heyne ex Roth, Nov. Pl. Sp. 307. 1821.

Straggling, pubescent herbs, stems obtusely quadrangular. Leaves 2.5-6.0 × 1.9-4.0 cm, ovate, hairy on both sides, margins crenate. Flowers blue, tube yellowish or even white with brown spots; in capitate spikes; calyx 0.6-0.8 cm long, hairy, unequal, corolla 1.5 cm long, funnel-shaped. Fruits 0.6 cm long, oblong, pubescent.

Fls. & Frts. : February-March.

Illus. : Wight, Icon. t. 1504. 1850.

Distrib. : Scattered in shady places in deciduous forest in plains; Kudal-Chapheli-Pulas jungle, Ghotge. Sawantwadi-Akeri-Mangaon forest, Khanale.

HYGROPHILA R. Br.

1. Flowers surrounded by rigid spines; calyx 4-partite .. *H. auriculata*
1. Flowers not surrounded by rigid spines; calyx 5-partite :
 2. Bracts and bracteoles glandular hairy; filaments glabrous .. *H. pinnatifida*
 2. Bracts and bracteoles hispid-ciliate; filaments hairy at base .. *H. salicifolia*

Hygrophila auriculata (K. Schum.) Heine in Kew Bull. 16 : 172. 1962. *Barleria auriculata* K. Schum. Besk. Guin. Pl. 285. 1827. *Asteracantha longifolia* (L.) Nees in Wall. Pl. As. Rar. 3 : 90. 1832; Cooke, Fl. Pres. Bombay 2 : 428. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 17. 1952. *Hygrophila spinosa* Anders. in Thw. Enum. Pl. 225. 1860; Clarke in Hook. f. Fl. Brit. India 4 : 408. 1884. *Mar.* : 'Talinikhana'.

Hispid, foetid smelling, gregarious herbs, 0.5-1.0 m tall, stems swollen above the nodes, spines yellow. Leaves in spurious whorls of 6, outer longest 6-14 × 1.6-3.0 cm, lanceolate to oblanceolate, hairy on both sides. Flowers blue-purplish tinged, throat yellow; in axillary whorls, surrounded by thorns; calyx with upper lobe largest, all hairy, corolla 2.5 cm long, tube cylindric. Fruits 0.6-0.8 cm long, linear-oblong.

Fls. & Frts. : November-February.

Distrib. : Frequent around ponds, also in marshes in plains; Kudal-Ghotge, Varad.

H. pinnatifida (Dalz.) Sreemadhavan in Bull. Bot. Surv. India 10 : 222. 1968 (1969). *Nomaphila pinnatifida* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 38. 1851. *Cardanthera pinnatifida* (Dalz.) Clarke in Hook. f. Fl. Brit. India 4 : 405. 1884; Cooke, Fl. Pres. Bombay 2 : 423. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 13. 1952.

Biennial, glandular-pubescent herbs, 20-50 cm long, erect or procumbent. Leaves 3-8 × 1.6-2.5 cm, oblong, or elliptic, deeply pinnatifid, especially lower ones, glandular-pubescent, apex obtuse or acute. Flowers bluish-purple; axillary, solitary or sometimes in lax spikes; calyx 0.6 cm long, divided

nearly to the base, corolla 1.0-1.5 cm long, tube expanded below the lobes. Fruits 0.6 cm long, oblong, glabrous.

Fls. & Frts. : February-May.

Distrib. : Frequent on moist rocks along the streams or in streams from ghats to plains; Malwan-Anand val. Sawantwadi-Amboli-Linga sakhal, Chaukul-Soliya jungle, Mulas (Cooke. *l. c.*), Ramghat.

H. salicifolia (Vahl) Nees in Wall. Pl. As. Rar. 3 : 81. 1832; Clarke in Hook. f. Fl. Brit. India 4 : 407. 1884; Sant. in Univ. Bombay Bot. Mem. No. 2, 20, 1952. *Ruellia salicifolia* Vahl, Symb. Bot. 3 : 84. 1794. *Hygrophila angustifolia* auct. non R. Br. (1810); Cooke, Fl. Pres. Bombay 2 : 354. 1902 et 2 : 430. 1958 (Repr. ed.).

Erect, branched herbs, stems appressedly hairy or glabrous. Leaves 3—7 × 0.6—1.5 cm, linear-elliptic, glabrous, apex acute or rounded. Flowers pale blue to purple; in axillary whorls, bracts and bracteoles oblong, acute, hairy; calyx 5-partite, lobes lanceolate, hispid-ciliate, corolla 2 cm long, 2-lipped, tube inflated below the lobes. Fruits 1.2-1.8 cm long, ellipsoid, many seeded.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 1490. 1849.

Distrib. : Occasional in open, moist situations along the coast; Malwan-Deobag.

JUSTICIA L.

1. Calyx 4-lobed :

2. Cystoliths along leaf-margins transversely arranged; bracts and bracteoles with long arista at tip .. *J. neesii*

2. Cystoliths irregularly arranged; bracts and bracteoles without long arista at tip :

3. Bracts and bracteoles similar, 0.5 cm long .. *J. procumbens*

3. Bracts and bracteoles 0.3-0.4 cm long, bracteoles narrower than bracts .. *J. simplex*

1. Calyx 5-partite :

4. Flowers 2.5 cm across .. *J. santapani*

4. Flowers less than 2.5 cm across :

5. Bracts white with green nerves, glabrous :

6. Upper lip of corolla erect, emarginate; seeds densely tuberculately rugose when wetted	..	<i>J. betonica</i>
6. Upper lip of corolla broadly ovate, concave; not emarginate; seeds tuberculate	..	<i>J. trinervia</i>
5. Bracts green, glandular pubescent	..	<i>J. wynadensis</i>

Justicia betonica L. Sp. Pl. 15. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 525. 1885; Sant. in Univ. Bombay Bot. Mem. No. 2, 85. 1952. *J. betonica* L. var. *ramosissima* Clarke in Hook. f. l. c.; Cooke, Fl. Pres. Bombay 2: 486. 1958 (Repr. ed.).

Scandent or erect undershrubs, stems terete, glabrous, swollen above the nodes. Leaves 5—10 × 2—4 cm, ovate-elliptic, pale green, glabrous, apex acute or acuminate, margins sometimes remotely toothed otherwise entire. Flowers white, with pink spots; in spikes, with white, foliaceous bracts; calyx 0.5 cm long, 5-lobed, corolla 1.5 cm long, nerves on corolla hairy. Fruits 1.5-2.0 cm long, clavate.

Fls. & Frts. : August-February.

Distrib. : Frequent in open situations, along road sides, in hilly areas from ghats to plains; Deogad-Near Rest House. Kankavli-Phondaghat. Kudal-Chapheli-Pulas jungle. Malwan-Achre-Kaziwada sada. Sawantwadi-Amboli-Mahadogad, Khanale.

J. neesii Ramam. in Saldanha & Nicolson, Fl. Hassan Distt. 351. 1976. *J. micrantha* Wall. ex Clarke in Hook. f. Fl. Brit. India 4 : 536. 1885; Cooke, Fl. Pres. Bombay 2 : 489. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 87. 1952.

Erect, branched herbs, young parts hairy. Leaves 1.8—3.5 × 1.0—1.5 cm, elliptic or ovate, hairy on both sides. Flowers pink; in spikes, bracts and bracteoles similar to calyx lobes; calyx 0.4-0.5 cm long, hispid with white bristles, corolla 0.6 cm across, upper lip entire, lower 3-lobed. Fruits 4-seeded. Seeds rugose.

Fls. & Frts. : August-February.

Distrib. : This species is reported by Cooke (l. c.) from 'Vingoria (Vengurla) based on collection by Dalzell; hence it is included here.

J. procumbens L. Sp. Pl. 15. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 539. 1885; Cooke, Fl. Pres. Bombay 2 : 491. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 90. 1952.

Suberect herbs, rooting at lower nodes, stems angled, sparsely hairy. Leaves $1.2-3.5 \times 0.6-1.8$ cm, elliptic or ovate-elliptic, hairy on both sides, apex rounded, acute or obtuse. Flowers pale purple; in cylindric, terminal spikes, bracts and bracteoles hairy; calyx 0.4 cm long, lobes scarious with ciliate margins, corolla 0.5-0.6 cm long, tube funnel-shaped. Fruits 0.4 cm long, ellipsoid.

Fls. & Frts. : August-October.

Distrib. : Infrequent, in open, moist situations in plains; Kankavli-Osargaon, Phonda-Devichi Rai. Malwan-Adari-Nandruk.

J. santapaui Bennet, in J. Bombay nat. Hist. Soc. 67 : 358. 1970. *J. montana* (Nees) Wall. ex Anders. in J. Linn. Soc. Bot. 9 : 509. 1867 (*non* Roxb. 1805); Clarke in Hook. f. Fl. Brit. India 4 : 525. 1885; Cooke, Fl. Pres. Bombay 2 : 485. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 85. 1952.

Large undershrubs 0.5-1.5 m tall, stems 4-angled, glabrous. Leaves $10-25 \times 5-7$ cm, elliptic or oblong-lanceolate, glabrous, apex acuminate, base narrowed into petiole. Flowers white; in sub-paniculate spikes; calyx 0.6 cm long, lobes lanceolate, corolla 2-lipped, divided 1/2 way down, tube hairy inside. Fruits 2.2-2.8 cm long, 4-seeded. Seeds suborbicular, corrugately wrinkled and rugose.

Fls. & Frts. : January-April.

Distrib. : This species is reported by Cooke (*l. c.*) from 'Phunda ghat' (Phondaghat in Kankavli taluka), based on collection by Ritchie; so it is included here.

J. simplex D. Don, Prodr. Fl. Nep. 118. 1825; Clarke in Hook. f. Fl. Brit. India 4 : 539. 1885; Cooke, Fl. Pres. Bombay 2 : 490. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 89. 1952.

Procumbent-ascending or erect herbs, stems angled, hairy. Leaves $2-4 \times 0.5-2.0$ cm, ovate or oblong, subsessile, sparsely hairy or glabrous, apex subacute or obtuse. Flowers pink; in cylindric spikes, bracts and bracteoles ciliate; calyx 0.3-0.5 cm long, strongly nerved, ciliate, corolla 0.5-0.6 cm long, hairy outside. Fruits 0.3-0.6 cm long, ellipsoid. Seeds rugose.

Fls. & Frts. : August-November.

Distrib. : Frequent in open, moist situations from ghats to plains; Kankavli-Phondaghat. Kudal-Chapheli-Pulas jungle. Sawantwadi-Akeri-Mangaon forest. Amboli, Banda, Ramghat.

J. trinervia Vahl, Enum. Pl. 1 : 156. 1804; Clarke in Hook. f. Fl. Brit. India 4 : 526. 1885; Cooke, Fl. Pres. Bombay 2 : 487. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 86. 1952.

Prostrate or procumbent herbs, with woody rootstock, stems terete, glabrous. Leaves 1.5—3.5 × 0.6—1.5 cm, ovate or oblong, glabrous apex subacute or rounded. Flowers white with bluish tinge; in lax, terminal spikes; calyx 0.5 cm long, lobes lanceolate, 3-nerved, corolla 0.8-0.9 cm long, pubescent. Fruits 1.0-1.8 cm long, clavate. Seeds orbicular, brown.

Fls. & Frts. : January-March.

Distrib. : Occasional in open situations in plains; Sawantwadi-Akeri Mangaon forest. Vengurla (Cooke, l. c.).

J. wynandensis (Nees) Anders. in J. Linn. Soc. Bot. 9 : 515. 1867; Clarke in Hook. f. Fl. Brit. India 4 : 533. 1885; Cooke, Fl. Pres. Bombay 2 : 488. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 87. 1952. *Gendarussa wynandensis* Nees in Wall. Pl. As. Rar. 3 : 104. 1832.

Straggling undershrubs, up to 2 m tall. stems with long internodes, glabrous. Leaves 6—10 × 3—4 cm, elliptic or elliptic-lanceolate, glabrous or pubescent, apex acuminate. Flowers white, tinged with purple; in interrupted, glandular hairy spikes; calyx 0.5 cm long, lobes linear-lanceolate, corolla 1 cm long, pubescent outside. Fruits 0.8-1.2 cm long, clavate, villous. Seeds black, orbicular.

Fls. & Frts. : January-April.

Illus. : Wight, Icon. t. 1545. 1850.

Distrib. : Occasional, along the outskirts of moist deciduous forest at ghat base and along the ghats; Sawantwadi-Gavata, Ramghat.

LEPIDAGATHIS Willd.

1. Calyx 4-lobed :

2. Leaves longitudinally folded; bracts 0.9 - 1.2 cm long, softly silky	..	<i>L. rigida</i>
2. Leaves not longitudinally folded; bracts 0.8 cm long	..	<i>L. mitis</i>

1. Calyx 5-lobed :

3. Bracts and calyx lobes not spinous pointed	..	<i>L. fasciculata</i>
3. Bracts and calyx lobes spinous pointed :		

4. Bracts 1.2-4.2 cm long, silky hairy; seeds hygroscopically long hairy .. *L. lutea*
4. Bracts up to 1.2 cm long, glandular hairy; seeds hygroscopically short hairy :
5. Upper lip of corolla 2 toothed .. *L. prostrata*
5. Upper lip of corolla entire or notched at tip .. *L. cuspidata*

Lepidagathis cuspidata Nees in Wall. Pl. As. Rar. 3 : 97. 1832; Clarke in Hook. f. Fl. Brit. India 4 : 519. 1885; Cooke, Fl. Pres. Bombay 2 : 474. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 73. 1952.

Undershrubs, 60-100 cm tall, branches 4-angled, viscid glandular pubescent. Leaves 4-8 × 2-4 cm, elliptic or oblong-lanceolate, hairy, apex sharp pointed. Flowers white with brownish streaks; in villous spikes; calyx 1.2 cm long, glandular hairy, outer segments longer than 2-inner, corolla 1.0-1.5 cm long, pubescent. Fruits 0.6-0.8 cm long, 4-seeded.

Fls. & Frts. : February-March.

Illus. : Bedd. Icon. t. 227. 1874.

Distrib. : Occasional along the ghats; Kankavli-Naradave.

L. fasciculata (Retz.) Nees in Wall. Pl. As. Rar. 3 : 95. 1832; Clarke in Hook. f. Fl. Brit. India 4 : 519. 1885; Cooke, Fl. Pres. Bombay 2 : 476. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 74. 1952. *Ruellia fasciculata* Retz. Obs. Bot. 4 : 28. 1786.

Procumbent, weak herbs, rooting at nodes, stems quadrangular, hairy. Leaves in unequal pairs, 2-5 × 1.2-2.5 cm, ovate or elliptic, hairy on both sides, apex acute, margins crenate-serrate. Flowers white to creamy in tube and lobes pale blue; in terminal spikes, bracts leafy; calyx 0.6 cm long, softly hairy, lobes subequal, corolla 1.2 cm long. Fruits 0.6 cm long, oblong-lanceolate, 2-seeded.

Fls. & Frts. : March-May.

Illus. : Bedd. Icon. t. 228. 1874.

Distrib. : Frequent, in deciduous forest in the undergrowth; Kudal-Narur, Wasuli. Sawantwadi-Bhedshi, Hewale, Ramghat.

L. lutea Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 139. 1850; Clarke in Hook. f. Fl. Brit. India 4 : 517. 1885; Cooke, Fl. Pres. Bombay 2 : 471. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 73. 1952.

Creeping herbs from woody rootstock, branches ascending, tomentose, filiform. Leaves 1.5-3.5 × 0.3-0.5 cm, linear, sessile, pubescent on both

sides, apex acute. Flowers yellow; in yellowish-pubescent, globular spikes with bracts-outer ovate, 3-nerved, inner shorter; calyx much shorter than bracts, outer lobes longer than 2 inner ones, silky hairy, corolla 1.2 cm long, upper lip entire or shallowly notched, lower lip 3-lobed. Fruits 0.8-1.0 cm long, 2-seeded.

Fls. & Frts. : February-March.

Distrib. : Frequent along rocky plains in open situations; Deogad-Near Rest House, Tar-mumbri. Malwan-Achre.

L. mitis Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 226. 1851; Clarke in Hook. f. Fl. Brit. India 4 : 516. 1885; Cooke, Fl. Pres. Bombay 2 : 470. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 71. 1952.

Diffuse herbs, branches trichotomous, glabrous, sub-tetragonous, purple. Leaves 2—4 × 0.6—1.2 cm, linear-oblong, sessile, glabrous, apex acute, margins ciliate. Flowers white, hairy outside, pale pink and punctate inside; in globose spikes with rigid bracts not sharp pointed and membranous bracteoles; calyx hairy, 1.6-1.8 cm long, lobes unequal, not sharp pointed, corolla 1.2-1.5 cm long. Fruits ovoid, glabrous.

Fls. & Frts. : October-November.

Distrib. : This species is reported by Cooke (*l. c.*) from 'Phunda ghat' (Phonda ghat in Kankavli taluka) based on collection by Dalzell; so it is included here.

L. prostrata Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 138. 1850; Clarke in Hook. f. Fl. Brit. India 4 : 518. 1885; Cooke, Fl. Pres. Bombay 2 : 473. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 73. 1952.

Woody undershrubs, stems creeping, glabrous, rooting at basal nodes. Leaves 1.5—2.0 × 0.6—0.8 cm, elliptic or oblong-elliptic, sessile, hairy on both sides, apex sharp pointed. Flowers rosy or pale pink; in terminal, glandular hairy spikes; calyx 0.8 cm long, glandular hairy, lobes subequal, outer—3 3-nerved, inner—2 1-nerved, corolla 1.5-1.8 cm long. Fruits 0.8 cm long, ellipsoid, glabrous.

Fls. & Frts. : February-March.

Distrib. : Occasional in open situations on rocky slopes; Malwan-Achre-Kaziwadasada.

L. rigida Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 341. 1850; Clarke in Hook. f. Fl. Brit. India 4 : 518. 1885; Cooke, Fl. Pres. Bombay 2 : 473. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 73. 1952.

Erect, suffruticose herbs, stems obtusely quadrangular, clothed with simple and glandular hairs. Leaves 4—8 × 0.6—1.6 cm, linear-lanceolate, longitudinally folded, glandular hairy on both sides, apex acute. Flowers yellowish-white; in terminal, cylindric, glandular hairy spikes; calyx 1.2 cm long, simple and glandular hairy, corolla 0.6-0.8 cm long. Fruits 0.6 cm long, ellipsoid, glabrous.

Fls. & Frts. : December-March.

Distrib. : This species is reported by Cooke (*l. c.*) from 'S. M. Country : Ramghat' (in Sawantwadi taluka) based on collections by Dalzell and Ritchie; hence it is included here.

MACKENZIA Nees

Mackenzia integrifolia (Dalz.) Bremek. in Verh. Ned. Akad. Wet. (2) 41 (1) : 182. 1944; Sant. in Univ. Bombay Bot. Mem. No. 2, 43. 1952. *Endopogon integrifolius* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 343. 1850. *Strobilanthes perfoliatus* Anders. in J. Linn. Soc. 9 : 471. 1867; Clarke in Hook. f. Fl. Brit. India 4 : 458. 1884; Cooke, Fl. Pres. Bombay 2 : 448. 1958 (Repr. ed.).

Undershrubs or shrubs, 1.5-2.0 m tall, stems and branches glabrous. Leaves in unequal pairs, 6—16 × 3—6 cm, elliptic or lanceolate, glabrous and green above, grey beneath, apex acuminate, base tapering, decurrent and amplexicaul. Flowers pale blue, purple tinged, sessile; in viscous hairy, simple or compound spikes, bracts and bracteoles linear-lanceolate, glandular hairy; calyx 1.2 cm long, lobes 5, subequal, corolla 2.5-3.5 cm long, hairy outside. Fruits 0.8-1.2 cm long, linear.

Fls. & Frts. : February-April.

Illus. : Wight, Icon. t. 1527. 1850.

Distrib. : Infrequent along the ghats and at base; Kudal-Ghotge. Sawantwadi-Akeri-Mangaon forest.

NELSONIA R. Br.

Nelsonia canescens (Lamk.) Spreng. Syst. Veg. 1 : 42. 1825; Bremek. in Reinwardia 3 : 248. 1955. *Justicia canescens* Lamk. Encycl. 1 : 41. 1791. *Nelsonia campestris* R. Br. Prodr. 1 : 481. 1810; Clarke in Hook. f. Fl. Brit. India 4 : 394. 1884; Cooke, Fl. Pres. Bombay 2 : 420. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 11. 1952.

Trailing, villous herbs with decumbent, spreading branches, stems from woody base. Leaves basal form rosette at base, lower cauline 4-10 cm long, obovate-elliptic, petiolate (petiole up to 2.5 cm long), higher ones 1.5-3.5 × 1-2 cm, elliptic-ovate to obovate, sessile, villous on both sides, apex acute or obtuse. Flowers purple; in axillary or terminal spikes, with glandular ciliate bracts; calyx 0.5 cm long, lobes unequal, largest one bifid, corolla 0.7 cm long. Fruits 0.5 cm long, ovoid.

Fls. & Frts. : February-May.

Distrib. : Frequent in the undergrowth and in open situations along the slopes of the ghats; Kudal-Chapheli-Pulas jungle, Kerude jungle. Sawantwadi-Chaukul, Hewale, Ramghat.

NEURACANTHUS Nees

Neuracanthus sphaerostachyus (Nees) Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 140. 1850; Clarke in Hook. f. Fl. Brit. India 4 : 491. 1884; Cooke, Fl. Pres. Bombay 2 : 465. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 66. 1952. *Lepidagathis sphaerostachya* Nees in DC. Prodr. 11 : 254. 1847.

Undershrubs, 60-70 cm tall, stems quadrangular, swollen above the nodes, pubescent. Leaves 4-10 × 3-5 cm, elliptic, subsessile, scabrous, apex subacute or obtuse, base subcordate. Flowers blue; in axillary, globose, sessile spikes, bracts suborbicular to broadly elliptic; calyx 1.2 cm long, 2-lipped, corolla 1.2 cm long, funnel-shaped. Fruits ovoid, glabrous, 4-seeded.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 1531. 1850.

Distrib. : Infrequent in deciduous forest in plains along exposed slopes; Deogad-Naringre. Kankavli-Phonda-Ghonsari forest. Malwan-Adari.

NILGIRIANTHUS Bremek.

1. Stems winged	..	<i>N. barbatus</i>
1. Stems not winged :		
2. Bracts glabrous :		
3. Stamens long exserted; bracts whitish-green	..	<i>N. ciliatus</i>
3. Stamens included; bracts pink	..	<i>N. heyneanus</i>

2. Bracts hairy :

4. Fertile stamens 2; bracts hairy inside	..	<i>N. reticulatus</i>
4. Fertile stamens 4; bracts hairy outside :		
5. Bracteoles present; seeds striate	..	<i>N. warreensis</i>
5. Bracteoles absent; seeds not striate	..	<i>N. lupulinus</i>

Nilgirianthus barbatus (Nees) Bremek. in Verh. Ned. Akad. Wet. 2, 41 (1) : 172. 1944; Sant. in Univ. Bombay Bot. Mem. No. 2, 39. 1952. *Strobilanthes barbatus* Nees in Wall. Pl. As. Rar. 3 : 85. 1832; Clarke in Hook. f. Fl. Brit. India 4 : 437. 1884; Cooke, Fl. Pres. Bombay 2 : 445. 1958 (Repr. ed.).

Shrubs, 1-2 m tall, stems and branches glabrous, 4-angled. Leaves 8—18 × 4—8 cm, elliptic-lanceolate or obovate-lanceolate, glabrous, strongly lineolate above, apex acuminate, base decurrent into petiole. Flowers white with blue tinge; in dense, capitate spikes, with ovate bracts; calyx 0.7 cm long, lobes acuminate, corolla lobes ovate, sparsely hairy. Fruits 1.2-1.5 cm long, clavate.

Fls. & Frts. : October-December.

Illus. : Bedd. Fl. Sylv. t. 212. 1872.

Distrib. : This species is reported by Cooke (*l. c.*) from 'Wari country' (Sawantwadi), based on collection by Dalzell (this species is observed by the author in Ambolighat), so it is included here.

N. ciliatus (Nees) Bremek. in Verh. Ned. Akad. Wet. 2, 41 (1) : 172. 1944; Sant. in Univ. Bombay Bot. Mem. No. 2, 40, 1952. *Strobilanthes ciliatus* Nees in Wall. Pl. As. Rar. 3 : 85. 1832; Clarke in Hook. f. Fl. Brit. India 4 : 439. 1884; Cooke, Fl. Pres. Bombay 2 : 446. 1958 (Repr. ed.).

Shrubs, 1-2 m tall, stems and branches glabrous. Leaves 8—14 × 3—5 cm, ovate or lanceolate, glabrous, lineolate above, apex acuminate, base attenuate, margins crenate. Flowers bluish-purple with dark purple throat; in axillary, deflexed (at maturity) spikes, with orbicular bracts; calyx 0.6 cm long, lobes linear-spathulate, corolla 1.0-1.5 cm long, tube cylindrical.

Fls. & Frts. : October-November.

Illus. : Bedd. Icon. t. 211. 1874.

Distrib. : Occasional in deciduous forest along the ghats and at base; Sawantwadi-Ramghat, Tirali.

N. heyneanus (Nees) Bremek. var. *neesii* Bremek. in Verh. Ned. Akad. Wet. 2, 41 (1) : 173. 1944; Sant. in Univ. Bombay Bot. Mem. No. 2, 40, 1952. *Strobilanthes heyneanus* Nees in Wall. Pl. As. Rar. 3 : 85. 1832; Clarke in Hook. f. Fl. Brit. India 4 : 443. 1884; Cooke, Fl. Pres. Bombay 2 : 444. 1958 (Repr. ed.).

Gregarious shrubs or undershrubs, 50-150 cm tall, young stems and branches hairy. Leaves 6—15 × 3—5 cm, broadly ovate, hairy on both sides, strongly lineolate, apex acuminate, margins crenate. Flowers blue with purple throat; in ovoid spikes, with orbicular-rounded, concave bracts; calyx 0.6-0.7 cm long, lobes linear-oblong, corolla 1.5-1.8 cm long. Fruits 0.6-0.8 cm long, ovoid, 4-seeded.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 1619. 1850.

Distrib. : Frequent along the ghats; Sawantwadi-Ambolighat, Ramghat.

N. lupulinus (Nees) Bremek. in Verh. Ned. Akad. Wet. 2, 41 (1) : 173. 1944; Sant. in Univ. Bombay Bot. Mem. No. 2, 41. 1952. *Strobilanthes lupulinus* Nees in Wall. Pl. As. Rar. 3 : 85. 1832; Clarke in Hook. f. Fl. Brit. India 4 : 443. 1884; Cooke, Fl. Pres. Bombay 2 : 443. 1958 (Repr. ed.).

Undershrubs or shrubs, 0.5-1.5 m tall, stems woody below, branches glabrous, warty. Leaves 8—12 × 5—7 cm, ovate or broadly elliptic, hairy on both sides, strongly lineolate above, apex acuminate, margins crenate. Flowers bluish-purple; in axillary and terminal spikes, with ovate bracts; calyx 0.7 cm long, lobes oblong, corolla 1.5-2.0 cm long, funnel-shaped, base narrow. Fruits 0.8-1.0 cm long, ellipsoid or obovoid, 4-seeded.

Fls. & Frts. : November-February.

Distrib. : Scattered along the ghats; Sawantwadi-Chaukul, Ramghat.

N. reticulatus (Stapf) Bremek. in Verh. Ned. Akad. Wet. 2, 41 (1) : 173. 1944; Sant. in Univ. Bombay Bot. Mem. No. 2, 41. 1952. *Strobilanthes reticulatus* Stapf in Kew Bull. 1894 : 347. 1894; Cooke, Fl. Pres. Bombay 2 : 442. 1958 (Repr. ed.).

Undershrubs or small shrubs, up to 1.5 m tall, stems angled in young parts. Leaves 4—8 × 2.5—3.5 cm, hairy on both sides, especially on nerves beneath, lineolate on both sides, apex acute, margins entire or crenate. Flowers blue; in axillary spikes, with broadly ovate bracts; calyx 0.6-0.8 cm

long, lobes oblong-linear, corolla 2.0-2.5 cm long, tube at base narrow, broad in upper part. lobes rounded.

Fls. & Frts. : September.

Distrib. : Occasional along the ghats; Sawantwadi-Ambolighat-Temple point.

N. warreensis (Dalz.) Bremek. in Verh. Ned. Akad. Wet. 2, 41 (1) : 173. 1944; Sant. in Univ. Bombay Bot. Mem. No. 2, 41. 1952. *Strobilanthes warreensis* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 341. 1850; Clarke in Hook. f. Fl. Brit. India 4 : 439. 1884; Cooke, Fl. Pres. Bombay 2 : 447. 1958 (Repr. ed.).

Undershrubs or shrubs, 1-2 m tall, stems woody, dichotomously branched, glabrous, obtusely angled. Leaves 5-10 × 3-5 cm, lanceolate or ovate, lineolate on both sides, apex acuminate, base decurrent, margins crenate. Flowers white; in axillary spikes with two basal bracts, floral bracts oblong, hairy; calyx 1 cm long, lobes nearly free, corolla 0.8-1.2 cm long, tube cylindric below, inflated, infundibuliform above. Fruits 1.2-1.9 cm long, ovoid, 4-seeded.

Fls. & Frts. : February-April.

Distrib. : Scattered in deciduous forest in plains; Sawantwadi-Khanale, Konal R. F. near Bhedshi, Mulas (Cooke, l.c.).

PHAULOPSIS Willd. (*nom. cons.*)

Phaulopsis imbricata (Forssk.) Sweet, Hort. Brit. 327. 1827; Bennet in Indian J. For. 1 : 23. 1978. *Ruellia imbricata* Forssk. Fl. Aegypt.—Arab. 133. 1775. *Phaulopsis dorsiflora* (Retz.) Sant. in Kew Bull. 3 : 276. 1948 et Univ. Bombay Bot. Mem. No. 2, 30. 1952. *Micranthus oppositifolius* Wendl. Bot. Beobacht. t. 39. 1798; Cooke, Fl. Pres. Bombay 2 : 436. 1958 (Repr. ed.). *Phaulopsis* ('*Phaylopsis*') *parviflora* Willd. Sp. Pl. 3 : 342. 1801; Clarke in Hook. f. Fl. Brit. India 4 : 417. 1884.

Prostrate or suberect herbs, much branched, rooting at basal nodes. Leaves in unequal pairs, 1.2-5.0 × 0.9-3.0 cm, ovate, sparsely hairy, apex acute or acuminate, base tapering. Flowers white; in secund spikes, with orbicular, leafy bracts; calyx lobes hairy, unequal, 1-ovate, the rest linear, corolla 0.5-0.7 cm long, tube contracted in the middle. Fruits 0.6 cm long, obovate, 4-seeded.

Fls. & Frts. : January-February.

Illus. : Wight, Icon. t. 1533. 1850.

Distrib. : Scattered in deciduous forest as forest undergrowth; Sawantwadi-Banda (Cooke, l. c.), Tirali.

PLEOCAULIS Bremk.

Pleocaulis ritchiei (Clarke) Bremk. in Verh. Ned. Akad. Wet. 2, 41 (1) : 185. 1944; Sant. in Univ. Bombay Bot. Mem. No. 2, 45. 1952. *Strobilanthes sessilis* Nees var. *ritchiei* Clarke in Hook. f. Fl. Brit. India 4 : 452. 1884; Cooke, Fl. Pres. Bombay 2 : 443. 1958 (Repr. ed.).

Herbs or undershrubs, 30-60 cm tall, gregarious, stems subquadrangular, white-hispid. Leaves 3-5 cm, as long as broad, ovate, sessile, strigose above, on the nerves beneath, apex acute. Flowers blue or bluish-purple; in dense, elongate, glandular hairy spikes, with ovate-acuminate bracts; calyx 1.2 cm long, divided to the base, corolla 2.0-2.5 cm long, densely hairy. Fruits 0.8-1.0 cm long, linear-oblong.

Fls. & Frts. : September-November.

Distrib. : This species is represented in the BSI herbarium by specimens collected by P. S. Kunitkar (Jan. 1889) from Amboli-ghat in Sawantwadi taluka. It is also reported by Cooke, (l. c.), from Phunda ghat (Phondaghat, Kankavli taluka).

PSEUDERANTHEMUM Radlk.

Pseuderanthemum malabaricum (Clarke) Gamble, Fl. Pres. Madras 1064 1924 et 2 : 745. 1957 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 70. 1952. *Eranthemum malabaricum* Clarke in Hook. f. Fl. Brit. India 4 : 497. 1884; Cooke, Fl. Pres. Bombay 2 : 468. 1958 (Repr. ed.).

Herbs or undershrubs, stems woody at base, terete, glabrous. Leaves 6-10 × 3-5 cm, broadly elliptic, glabrous, apex acute or acuminate, margins entire or remotely crenate; petioles drying black. Flowers white; in interrupted, terminal spikes, axis drying black; calyx lobes longer than bracts, hairy, corolla 3.5-4.5 cm long, hairy inside, lobes oblong. Fruits 1.5-2.0 cm long, clavate. Seeds compressed, rugose.

Fls. & Frts. : November-May.

Distrib. : Frequent in deciduous forest from lower slopes of the ghats to coastal areas in shady places; Deogad-Vada-tar. Kankavli-Naradave-Dirbyachi Rai, Phonda ghat (Cooke, *l. c.*). Kudal-Nerur. Malwan-Achre.

RHINACANTHUS Nees

Rhinacanthus nasutus (L.) Kurz in J. Asiat. Soc. Bengal 39 : 79. 1870; Sant. in Univ. Bombay Bot. Mem. No. 2, 92. 1952. *Justicia nasuta* L. Sp. Pl. 16. 1753. *Rhinacanthus communis* Nees in Wall. Pl. As. Rar. 3 : 109. 1832; Clarke in Hook. f. Fl. Brit. India 4 : 541. 1885; Cooke, Fl. Pres. Bombay 2 : 494. 1958 (Repr. ed.).

Undershrubs, suffruticose, stems slightly angled, pubescent. Leaves 4—8 × 1.9—4.0 cm, elliptic-lanceolate, sparsely pubescent on both sides, apex acute. Flowers white; in axillary, lax cymes, combined into terminal, densely appressed pubescent panicles; calyx lobes ovate-lanceolate, viscid, corolla tube up to 2 cm long, lobes bilabiate. Fruits 1.5-1.8 cm long, clavate. Seeds black, tuberculate.

Fls. & Frts. : February-March.

Illus. : Wight, Icon. t. 464. 1841.

Distrib. : Occasional in open situations along ghats; Sawantwadi-Ambolighat-Temple point.

RUNGIA Nees

Rungia pectinata (L.) Nees in DC. Prodr. 11 : 469. 1847; Bremek. in Verh. Ned. Akad. Wet. Nat. 2, 45 (2) : 73. 1948; Sant. in Univ. Bombay Bot. Mem. No. 2, 77. 1952. *Justicia pectinata* L. in Torner, Cent. II. Pl. 3. 1756. *Rungia parviflora* Nees var. *pectinata* (L.) Clarke in Hook. f. Fl. Brit. India 4 : 550. 1885; Cooke, Fl. Pres. Bombay 2 : 478. 1958 (Repr. ed.).

Much branched, annual herbs, stems procumbent. Leaves 1.5—5.0 × 0.5—1.8 cm, ovate-elliptic or elliptic-lanceolate, subsessile, glabrous on both sides, linear-lanceolate, apex acute. Flowers bluish-purple or lilac; in short, one sided spikes, with fertile bracts ovate, much hyaline margined and barren ones reduced in size; calyx lobes linear-lanceolate, corolla up to 3.5 cm long, hairy. Fruits 1.8-2.0 cm long, compressed, 2-4-seeded.

Fls. & Frts. : November-May.

Illus. : Wight, Icon. t. 1547. 1850.

Distrib. : Common in deciduous forest in the undergrowth and also in open situations from ghats to plains; Deogad-Tar-mumbri. Kankavli-Naradave-Dirbyachi Rai. Kudal-Chapheli-Pulas jungle, Ghotge, Kerude jungle. Malwan-Achre-Kaziwadasada. Sawantwadi-Akeri-Mangaon forest, Ambolighat-Kumbheshwar, Danoli, Hewale, Khanale, Ramghat.

STAUROGYNE Wall.

Staurogyne zeylanica (Nees) Kuntze, Rev. Gen. Pl. 497. 1891; Cooke, Fl. Pres. Bombay 2 : 422. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 13. 1952. *Ebermalera zeylanica* Nees in DC. Prodr. 11 : 74. 1847; Clarke in Hook. f. Fl. Brit. India 4 : 397. 1884.

Hispid, glandular pubescent herbs, stems short, branches trailing. Leaves 3—6 × 1.5—2.5 cm, oblong-elliptic, or obovate, petiolate or sessile, brown pubescent, apex acute or subobtuse. Flowers pale rosy-purple or dark purple; in hairy spikes, with bracts foliaceous, obovate, hairy; calyx lobes linear-oblong, densely hairy, corolla 0.7-0.8 cm long, bilabiate. Fruits 0.4-0.5 cm long, narrowly oblong. Seeds pitted.

Fls. & Frts. : February-March.

Distrib. : Frequent in shady places in deciduous forest in plains; Kudal-Chapheli-Pulas jungle. Sawantwadi-Khanale.

THELEPAEPALE Bremek.

Thelepaepale ixiocephala (Benth.) Bremek. in Verh. Ned. Akad. Wet. 2, 41 (1) : 188. 1944; Sant. in Univ. Bombay Bot. Mem. No. 2, 48. 1952. *Strobilanthes ixiocephalus* Benth. in Flora 32 : 557. 1849; Clarke in Hook. f. Fl. Brit. India 4 : 444. 1884; Cooke, Fl. Pres. Bombay 2 : 448. 1958 (Repr. ed.).

Undershrubs up to 1 m tall, profusely branched. Leaves in unequal pairs, 5-14 × 3—5 cm, broadly elliptic or elliptic-lanceolate, sparsely hairy and also strongly lineolate on both sides, apex acute or acuminate, margins crenate. Flowers white or pale bluish tinged, purple streaked; in ovoid, viscid spikes, with ovate, viscous hairy bracts; calyx lobes linear, viscid, corolla, 3.5 cm long, tube cylindrical, ventricose above. Fruits 1.0-1.2 cm long, obovoid. Seeds hygroscopically hairy.

Fls. & Frts. : February-May.

Illus. : Wight, Icon. t. 1523. 1850.

Distrib. : Scattered in deciduous forest along the ghats and in plains; Kudal-Narur. Sawantwadi-Khanale, Ramghat. Vengurla (Cooke, l. c.).

THUNBERGIA Reiz. (*nom. cons.*)

Thunbergia laevis Nees in Wall. Pl. As. Rar. 3 : 77. 1832; Bremek. in Verh. Kon. Ned. Akad. Wet. A'dam sect. 2, 50 : 451. 1955. *T. fragrans auct. plur.* (non Roxb., 1795); Clarke in Hook. f. Fl. Brit. India 4 : 390. 1884; Cooke, Fl. Pres. Bombay 2 : 417. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 8. 1952. *T. fragrans* Roxb. var. *laevis* (Nees) Clarke in Hook. f. l. c. 391.

Slender, herbaceous twiners, stems appressed hairy. Leaves 4—8 × 2—5 cm, ovate-lanceolate or ovate, glabrous or sparsely hairy above, apex acute or subobtus, base truncate-cordate or hastate. Flowers white; axillary, solitary or in pairs; calyx 0.2-0.3 cm long, appressed hairy, with linear-subulate 12-15 teeth, corolla 3.5 cm long, lobes obovate. Fruits up to 1.8 cm long, dagger-shaped, 4-seeded.

Fls. & Frts. : August-November.

Distrib. : Occasional in road side thickets in plains; Ajgaon.

VERBENACEAE

(incl. AVICENNIACEAE)

1. Leaves compound	..	<i>Vitex</i>
1. Leaves simple :		
2. Inflorescence cylindric or capitate spikes, centripetal :		
3. Fruits fleshy; calyx not accrescent	..	<i>Lantana</i>
3. Fruits dry; calyx accrescent	..	<i>Phyla</i>
2. Inflorescence cymose, capitate or panicle, centrifugal		
4. Fruiting calyx much inflated	..	<i>Tectona</i>
4. Fruiting calyx not or slightly inflated		
5. Flowers sessile or subsessile (pedicels 0.2 cm)		
6. Fruits viviparous	..	<i>Avicennia</i>

6. Fruits not viviparous	..	<i>Callicarpa</i>
5. Flowers pedicellate (pedicels more than 0.5 cm)		
7. Calyx with glands on the anterior part; corolla limb distinctly 2-lipped	..	<i>Gmelina</i>
7. Calyx without any glands; corolla limb slightly oblique		
8. Exserted part of stamens over 1 cm long; pyrenes 1-seeded	..	<i>Cleodendrum</i>
8. Stamens not much exserted; pyrenes 4-seeded	..	<i>Prema</i>

AVICENNIA L.

1. Petioles 0.6-0.9 cm long; stamens exserted	..	<i>A. officinalis</i>
1. Petioles 0.3-0.4 cm long; stamens included	..	<i>A. marina</i>

Avicennia marina (Forsk.) Vierh. in Denksr. Akad. Wien. Math.-Nat. 71 : 435. 1907; Jaffri, Fl. West Pakistan no. 49 : 2-4. 1973. *Seeura marina* Forsk. Fl. Aegypti.—Arab. 37. 1775. *Avicennia alba* auct. non Bl. (1825) ; Cooke, Fl. Pres. Bombay 2 : 517. 1958 (Repr. ed.). *A. officinalis* var. *alba* (Bl.) Clarke in Hook. f. Fl. Brit. India 4 : 604. 1885. *A. marina* (Forsk.) Vierh. var. *acutissima* Stapf. ex Mold. in Phytologia 1 : 411. 1940 et 7 : 225. 1960.

Shrubs, 1-2 m tall with dark brown bark. Leaves 4-8 × 1.9—2.5 cm, lanceolate or ovate-lanceolate, glabrous and shining above, whitish-tomentose beneath, apex acute. Flowers yellow to reddish-yellow, sessile; in heads on peduncles in the axils of upper leaves; calyx lobes 0.3-0.4 cm long, ovate, corolla 0.4-0.6 cm across, lobes subequal. Fruits 1.5-2.0 cm long, ellipsoid, apiculate.

Fls. & Frts. : February-June.

Distrib. : Infrequent along the sea-coast; Deogad-Tar-mumbri. Malwan-Achre creek, Kolamb. Vengurla-Harbour Road.

A. officinalis L. Sp. Pl. 110. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 604. 1885; Cooke, Fl. Pres. Bombay 2 : 516. 1958 (Repr. ed.).

Small trees, 2-4 m tall, with blackish-brown, rough bark. Leaves 3—6 × 2.5—3.5 cm, elliptic-oblong or obovate-oblong, glabrous and shining above, white or grey-tomentose beneath, apex rounded or obtuse, base acute. Flowers reddish-yellow, sessile; in heads on peduncles in axils of upper leaves, sometimes in thyrses; calyx divided to the base, lobes 0.3-0.5 cm long, corolla, 0.8-1.0 cm across, lobes ovate. Fruits 2.5-3.5 cm long, ovoid, compressed, beaked.

Fls. & Frts. : February-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 362. fig. 456. 1911.

Distrib. : Occasional along sea coast; Deogad-Nadan-Vir. Kudal-Kochre.

CALLICARPA L.

Callicarpa tomentosa (L.) Murray, Syst. Veg. ed. 13, 130. 1774; Sant. Fl. Khandala ed. 3, 212. 1967. *Tomex tomentosa* L. Sp. Pl. 118. 1753. *Callicarpa lanata* L. Mant. Alt. 331. 1771; Clarke in Hook. f. Fl. Brit. India 4 : 567. 1885; Cooke, Fl. Pres. Bombay 2 : 502. 1958 (Repr. ed.).

Arborescent, stellately hairy shrubs, 2-6 m tall. Leaves 10—20 × 5—10 cm, ovate or elliptic-ovate, hirsute on the nerves above, densely white-tomentose beneath, apex acuminate, base rounded or cordate, margins minutely serrate. Flowers purple or bluish-violet, 4-merous, sessile; in axillary, tomentose, peduncled cymes; calyx 0.2-0.25 cm long, densely tomentose, corolla 0.4 cm long, lobes subequal. Fruits globular, black, pyrenes 4.

Fls. & Frts. : February-May.

Illus. : Wight, Icon. t. 1480. 1849.

Distrib. Common in semi-evergreen and deciduous forests from ghats to plains; Kudal-Wasuli Raj. Sawantwadi-Amboli-Hemkunj palace, Ambolighat-top and Kumbheshwar, Chaukul, Dangoli, Khanale, Ramghat.

CLERODENDRUM L.

1. Flowers in terminal panicles :

2. Flowers double .. *C. philippinum*

2. Flowers simple :

3. Calyx accrescent in fruits; filaments glabrous .. *C. viscosum*

3. Calyx not accrescent in fruits; filaments hairy at base .. *C. serratum*

1. Flowers in axillary cymes .. *C. inerme*

Clerodendrum inerme (L.) Gaertn. Fruct. 1 : 271. t. 75. 1788; Clarke in Hook. f. Fl. Brit. India 4 : 589. 1885; Cooke, Fl. Pres. Bombay 2 : 511. 1958 (Repr. ed.). *Volkameria inermis* L. Sp. Pl. 637. 1753.

Glabrescent, straggling shrubs. Leaves 0.5—2.5 × 0.2—1.0 cm, obovate-ovate, glabrous, apex obtuse, base cuneate. Flowers white; in 3-7 flowered,

pendulous cymes; calyx 0.6 cm long, dentate, corolla 3-4 cm long, tube hairy inside, lobes 6, spreading. Fruits 1.0-1.5 cm, pyriform, in persistent calyx.

Fls. & Frts. : December-May.

Distrib. : Infrequent along coastal plains, in back-water areas; Vengurla-Chibber s. n. (5-5-1911).

C. philippinum Schauer in DC. Prodr. 11 : 667. 1847; Howard & Powell in Taxon 17 : 54. 1968. *C. fragrans* auct. Dalz. & Gibs. Suppl. 69. 1861; Clarke in Hook. f. Fl. Brit. India 4 : 589. 1885; Cooke, Fl. Pres. Bombay 2 : 514. 1958 (Repr. ed.), (non Willd. 1809).

Shrubs, 1-2 m tall, young parts pubescent. Leaves 8-14 × 6-10 cm, broadly ovate, pubescent along the nerves beneath, apex shortly acuminate, margins remotely toothed. Flowers pale pinkish-white; in terminal, corymbose panicles; calyx divided to the middle, lobes 5-8, 0.6 cm long, corolla tube up to 1.6 cm long, lobes 1 cm long, stamens petaloid.

Fls. : February-May.

Distrib. : Planted for scented flowers from ghats to plains near villages; Deogad-Vada-tar. Sawantwadi-Chaukul.

C. serratum (L.) Moon, Cat. 46. No. 382. 1824; Clarke in Hook. f. Fl. Brit. India 4 : 592. 1885; Cooke, Fl. Press. Bombay 2 : 512 1958 (Repr. ed.). *Volkameria serrata* L. Mant. 90. 1767. *Mar.* : 'Bharang'

Undershrubs or shrubs, 1-2 m tall, stems many from woody base, young parts hairy. Leaves usually in whorls of 3, or opposite, 8-16 × 4-6 cm, oblong-elliptic or obovate, glabrous, apex acuminate, base cuneate, margins serrate. Flowers blue; in trichotomous cymes forming thyrsus; calyx 0.6 cm long, appressed hairy, dentate, corolla 2.0-2.5 cm long, lobes longer than tube. Fruits 0.6 cm long, obovoid, blackish-green.

Fls. & Frts. : June-November.

Illus. : Wight, Icon. 1. 1472. 1849.

Distrib. : Frequent along the forest edges, in deciduous forest in plains; Kankavli-Phonda-Harkool forest. Sawantwadi-Akeri, Banda.

C. viscosum Vent. Jard. Malm. 1 : t. 25. 1803; Sant. in Bull. Bot. Surv. India 3 : 14. 1961 (1962) et Fl. Khandala ed. 3, 214. 1967. *C. infortunatum* auct. non L. (1753); Clarke in Hook. f. Fl. Brit. India 4 : 594. 1885; Cooke, Fl. Pres. Bombay 2 : 513. 1958 (Repr. ed.).

Shrub 1-2 m tall, young part softly tomentose, branches quadrangular at apex. Leaves 8—20 × 7—16 cm. broadly ovate, hairy on both sides, glands on lower surface, apex acute to acuminate, base rounded or cordate, margins crenate-dentate. Flowers white; in rusty-pubescent cymes combined into terminal panicles; calyx pubescent, 1.0-1.2 cm long, corolla 3 cm long, lobes lanceolate. Fruits 4-lobed, reddish, turning black.

Fls. & Frts. : June-November.

Illus. : Wight, Icon. t. 1471. 1849.

Distrib. : Frequent along the forest edges, in deciduous forest in plains; Kankavli-Phonda-Harkool forest. Sawantwadi-Akeri, Banda, Danoli.

GMELINA L.

Gmelina arborea Roxb. Pl. Cor. 3 : 42. t. 246. 1815; Clarke in Hook. f. Fl. Brit. India 4 : 581. 1885; Cooke, Fl. Pres. Bombay 2 : 504. 1958 (Repr. ed.). *Mar.* : *Shivan*.

Medium-sized trees, 10-15 m tall, young parts tomentose. Leaves 8—16 × 6—12 cm, ovate, chartaceous, glabrous above, fulvous tomentose beneath, apex acuminate, base subcordate or truncate. Flowers brownish-yellow; in fulvous hairy, paniculate cymes; calyx 0.4-0.5 cm long, campanulate, densely fulvous hairy, corolla 3.5 cm long, densely hairy outside. Fruits 1 × 2 cm, obovate, fleshy, turning yellow with age.

Fls. & Frts. : February-May.

Illus. : Wight, Icon. t. 1470. 1849.

Distrib. : Infrequent in deciduous forest from lower slopes of the ghats to plains; Kudal-Ghotge, Nileli. Malwan-Achre. Sawantwadi-Ambolighat-Kumbheshwar, Bhedshi.

LANTANA L.

Lantana camara L. var. *aculeata* (L.) Mold. in Torrey 34 : 9. 1934; Sant. Fl. Khandala ed. 3, 211. 1967. *L. aculeata* L. Sp. Pl. 627. 1753. *L. camara* auct. non L. (1753); Clarke in Hook. f. Fl. Brit. India 4 : 562. 1885; Cooke, Fl. Pres. Bombay 2 : 498. 1958 (Repr. ed.).

Rambling shrubs with short, recurved prickles. Leaves 4—7 × 2—4 cm, ovate or oblong, pubescent on both sides, more on lower surface, apex acute or acuminate, base cordate, margins crenulate. Flowers peripheral reddish

or reddish-orange, inner yellowish; in corymbose-umbellate spikes; calyx scarious, hairy, truncate, corolla 0.8-1.0 cm long, tube curved. Fruits 0.4-0.6 cm across, bluish-violet.

Fls. & Frts. : More or less throughout the year.

Distrib. : Infrequent in open situations in plains and along ghats, native of America, runs wild, and naturalized; Kankavli-Osargaon. Sawantwadi-Ajgaon, Amboli-Nangartas, Hewale.

Phyla Lour.

Phyla nodiflora (L.) Greene in Pittonia 4 : 46. 1899; Sant. Fl. Khandala ed. 3, 211. 1967. *Verbena nodiflora* L. Sp. Pl. 20.1753. *Lippia nodiflora* (L.) A. Rich. in Michaux, Fl. Bor. Amer. 2 : 15. 1803; Clarke in Hook. f. Fl. Brit. India 2 : 563. 1885; Cooke, Fl. Pres. Bombay 2 : 499. 1958 (Repr. ed.).

Creeping, perennial herbs, stems prostrate, mostly rooting at nodes, branches slender, procumbent or ascending, appressed hairy. Leaves 0.8—3.5 × 0.4—2.0 cm, obovate, glabrous or hairy, base cuneate, margins coarsely serrate. Flowers white, bluish or lilac tinged; in terminal globose-ovoid or cylindric spikes; calyx 0.15 cm long, unequally divided, corolla 0.2-0.3 cm long, bilabiate. Fruits 0.2 cm long, enclosed by calyx, breaking up into 2-cocci.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 1463. 1849.

Distrib. : Infrequent in open, moist situations in plains; Malwan-Seacoast, Achre.

PREMNA L. (nom. cons.)

1. Calyx cup-shaped, membranous; fruits 1-seeded	..	<i>P. coriacea</i>
1. Calyx 2-lipped, thick; fruits 4-seeded	..	<i>P. obtusifolia</i>

Premna coriacea Clarke in Hook. f. Fl. Brit. India 4 : 573. 1885; Cooke, Fl. Pres. Bombay 2 : 506. 1958 (Repr. ed.).

Extensive climbers, stems and branches covered with corky lenticels. Leaves 8—18 × 6—10 cm, ovate to broadly elliptic, glabrous, apex bluntly caudate-acuminate, nerves 5-7 pairs, reddish. Flowers white; in corymbose,

pale purplish panicles; calyx puberulous, 0.15 cm long, 5-toothed, corolla 0.15 cm long, lobes oblong. Fruits 0.3 cm long, ovoid.

Fls. & Frts. : February-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 351. fig. 452. 1911.

Distrib. : Uncommon along the upper slopes of the ghats; Sawantwadi-Ambolighat-top, Chaukul, Ramghat.

P. obtusifolia R. Br. Prodr. 512. 1810; Fosberg in Taxon 2 : 88. 1953. *P. integrifolia* L. Mant. 2 : 252. 1771 (*nom. superfl.*); Clarke in Hook. f. Fl. Brit. India 4 : 574. 1885; Cooke, Fl. Pres. Bombay 2 : 506. 1958 (Repr. ed.).

Shrubs or small trees, 3-5 m tall, young parts glabrous or sparsely hairy. Leaves 4—7 × 3—5 cm, ovate or broadly elliptic, glabrous or hairy on nerves, apex acuminate, base subcordate or truncate, margins entire or dentate in the upper part. Flowers greenish-yellow; in terminal, corymbose panicles; calyx 0.2 cm long, much enlarged in fruits, corolla 0.3-0.4 cm long, throat hairy inside, lobes 4, oblong. Fruits 0.4 cm long, obovoid.

Fls. & Frts. : April-September.

Distrib. : Frequent in open scrub forest along coastal areas; Kudal-Wasuli. Malwan-Adari-Nandruk. Sawantwadi-Banda. Vengurla-Near harbour.

TECTONA L. f. (*nom. cons.*)

Tectona grandis L. f. Suppl. 151. 1781; Clarke in Hook. f. Fl. Brit. India. 4 : 570. 1885; Cooke, Fl. Pres. Bombay 2 : 503. 1958 (Repr. ed.). *Mar.* : *Sag.* 'Sagwan'

Trees, 15-20 m tall, branches angled. Leaves 30-50 × 16—30 cm, elliptic-ovate, rough above, densely stellate hairy beneath, coriaceous, apex acute or acuminate, truncate or shortly narrowed at base. Flowers white, 5-6-merous; in terminal, paniculate cymes; calyx 0.3 cm long, stellately tomentose, accrescent, corolla 1 cm across, lobes spreading. Fruits 1.2-1.5 cm across, stellately tomentose, enclosed in enlarged, inflated calyx.

Fls. & Frts. : May-September.

Illus. : Bedd. Fl. Sylv. 1. 250. 1872.

Distrib. : Largely cultivated in deciduous forest for valuable timber; Sawantwadi-Akeri-Mangaon forest.

VITEX L.

1. Leaflets grey tomentose beneath :
2. Leaflets sessile or subsessile; petioles 1.2-1.5 cm long .. *V. trifolia*
2. Leaflets petiolulate; petioles more than 2 cm long .. *V. negundo*
1. Leaflets not grey tomentose beneath :
3. Petioles winged; inflorescence terminal .. *V. altissima*
3. Petioles not winged; inflorescence axillary .. *V. leucoxyton*

Vitex altissima L. f. Suppl. 294. 1781; Clarke in Hook. f. Fl. Brit. India 4 : 584. 1885; Cooke, Fl. Pres. Bombay 2 : 509. 1958 (Repr. ed.).

Large trees, 10-20 m tall, young shoots villous. Leaflets 3, 6—14 × 2—5 cm, elliptic-lanceolate, sessile or subsessile, glabrous above, thinly pubescent beneath, apex acute. Flowers blue or lilac; in fulvous-tomentose panicles, with short cymose branches; calyx 0.3 cm long, bilabiate, woolly and ciliate along edges. Fruits 0.5 cm across, globular.

Fls. & Frts. : March-May.

Illus. : Wight, Icon. t. 1466. 1849.

Distrib. : Frequent in deciduous and semi-evergreen forests from ghats to plains; Kankavli-Natal, Phonda-Bhairi pathar. Sawantwadi-Ambolighat-Nanapani, Ramghat.

V. leucoxyton L. f. Suppl. 293. 1781; Clarke in Hook. f. Fl. Brit. India 4 : 587. 1885; Cooke, Fl. Pres. Bombay 2 : 510. 1958 (Repr. ed.).

Small to moderate-sized trees, 4-10 m tall, young shoots yellow tomentose. Leaflets 3-5, elliptic-lanceolate, petiolulate, the largest ones 6—8 × 2.5—3.5 cm, all glabrous above, sparsely pubescent beneath, apex bluntly acuminate to obtuse. Flowers pale blue to white; in trichotomous, corymbiform cymes; calyx 0.3 cm long, cup-shaped, pubescent, teeth triangular, corolla 1.2 cm long, 5-lobed, lowest lobe much longer, crisped, bearded. Fruits 2 cm long, ellipsoid, purple.

Fls. & Frts. : April-June.

Illus. : Wight, Icon. t. 1467. 1849.

Distrib. : Scattered along the streams from ghats to plains in deciduous forest; Kankavli-Nandgaon-Belachi Raj. Kudal-Ghotge-Songad paz, Kerude. Sawantwadi-Ainoda.

V. negundo L. Sp. Pl. 638. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 583. 1885; Cooke, Fl. Pres. Bombay 2 : 508. 1958 (Repr. ed.). Mar. : *Nirgudi* '.

Shrubs, 2-3 m tall, young parts silvery tomentose, brancheslets angled. Leaflets 3-5, the largest leaflets 4—8 × 1.5—2.5 cm, lanceolate, lateral ones smaller, glabrous above, apex acuminate, margins coarsely serrate above the middle. Flowers bluish-violet or bluish-purple; in greyish-pubescent, terminal panicles; calyx 0.3 cm long, white hairy, corolla 0.7-0.8 cm long, bilabiate. Fruits 0.3-0.4 cm across, globose.

Fls. & Frts. : April-June.

Illus. : Wight, Icon. t. 519. 1842.

Distrib. : Frequent in deciduous forest from ghats to plains, sometimes planted as hedge plants; Kankavli-Bhironde jungle, Phondaghat. Kudal-Ghotge, Narur. Sawantwadi-Amboli-Hemkunj palace, Bhedshi, Danoli.

V. trifolia L. Sp. Pl. 638. 1753; Clarke in Hook. f. Fl. Brit. India 4 : 583. 1885; Cooke, Fl. Pres. Bombay 2 : 508 1958 (Repr. ed.). Mar. : *Nirgudi* '.

Shrubs, 2-3 m tall, young parts grey hairy. Leaflets, 3, 2.5—5.0 × 1.5—3.0 cm, elliptic or obovate, glabrous above, drying black, apex acute or sub-obtuse, base tapering. Flowers pale purple,; in terminal, white-tomentose panicles; calyx 0.3 cm long, white pubescent, slightly enlarged in fruits, corolla 0.8-1.0 cm long, pubescent outside, bilabiate. Fruits 0.4-0.5 cm across, globose, dark purple.

Fls. & Frts. : August-February.

Distrib. : Frequent in scrub jungle along the coastal areas; Malwan-Achre, Kalawli creek, Rest House campus near Malwan harbour, Sindhudurg. Vengurla-Harbour Road.

LAMIACEAE (LABIATAE)

1. Calyx teeth 6-10	..	<i>Leucas</i>
1. Calyx teeth or lobes 5 or less		
2. Calyx lobes less than 5		
3. Upper lip of calyx with a pouch or scale like appendage	..	<i>Scutellaria</i>
3. Upper lip of calyx without a pouch or scale like appendage, but with a tooth on each side near the base	..	<i>Platystoma</i>

2. Calyx lobes 5
4. Calyx 2-lipped, arranged into 2 groups of 1-4 :
5. Lower lip of corolla declinate, equal to or slightly longer than upper lip :
6. Calyx deflexed in fruits, upper lobe recurved :
7. Corolla tube exerted; stigma capitate .. *Orthosiphon*
7. Corolla tube not or slightly exerted; stigma bifid .. *Ocimum*
6. Calyx suberect or declinate in fruits, upper lip not recurved .. *Acrocephalus*
5. Lower lip of corolla deflexed, much longer than the upper
8. Calyx not enlarged in fruits, lower lip truncate, obscurely 4-toothed .. *Anisochilus*
8. Calyx enlarged in fruits, lower lip 2-4 lobed .. *Plectranthus*
4. Calyx not 2-lipped, lobes subequal :
9. Corolla 4-lobed, not bilabiate :
10. Filaments glabrous; nutlets hairy at tip .. *Colebrookea*
10. Filaments hairy; nutlets glabrous :
11. Leaves sessile .. *Eusteralis*
11. Leaves petiolate .. *Pogostemon*
9. Corolla lobes 5, obscurely or prominently bilabiate :
12. Upper lip of corolla 4-lobed; stamens declinate .. *Hyptis*
12. Upper lip of corolla entire; stamens erect or spreading .. *Anisomeles*

ACROCEPHALUS Benth.

Acrocephalus hispidus (L.) Nicolson & Sivadasan in Taxon 29 : 324. 1980. *Gomphrena hispida* L. Sp. Pl. ed. 2, 326. 1762. *Acrocephalus capitatus* Benth. in Wall. Pl. As. Rat. 2 : 18. 1831; Hook. f. Fl. Brit. India 4 : 611. 1885; Cooke, Fl. Pres. Bombay 2 : 525. 1958 (Repr. ed.).

Slender herbs, 20-40 cm tall, pubescent, stems and branches angled. Leaves 1.5-3.0 × 0.3-1.5 cm, thin, narrowly ovate, glabrous, apex acute or subacute, base cuneate, margins remotely serrate. Flowers white or tinged with purple; in terminal or axillary capitate whorls, subtended by a pair of foliar bracts; calyx 0.2-0.3 cm long, gibbous, later tubular and suberect in fruits, corolla 0.3 cm long, tube very short, sparsely hairy at tip. Nutlets compressed, smooth.

Fls. & Frts. : September-October.

Distrib. : Frequent in open, moist situations on road ducts and on slopes from ghats to plains; Kankavli-Kudal Road, Phonda-Bhairy pathar and Devichi Raj. Malwan-Adari. Sawantwadi-Ramghat. Vengurla (Cooke, l. c.).

ANISOCHILUS Wall.

Anisochilus verticillatus Hook. f. Fl. Brit. India 4 : 629. 1885; Cooke, Fl. Pres. Bombay 2 : 532. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14(1) : 59. 1940.

Erect herbs, up to 1 m tall, roots tuberous, stems angled, white tomentose. Leaves in whorls of 3-6 (occasionally opposite), 3—7 × 0.8—2.5 cm, sessile, oblong-lanceolate, hairy on both sides, apex subacute or rounded, base narrow, margins entire or serrulate. Flowers pale purple; in dense, cylindric, tomentose spikes, 4-20 cm long; calyx 0.2 cm long (0.4-0.5 cm in fruiting), densely white pubescent and glandular, truncate, corolla 0.8-1.0 cm long, pubescent, lips spreading. Nutlets very small, less than 0.1 cm, smooth, compressed.

Fls. & Frts. : August-October.

Distrib. : Infrequent in deciduous forest in open situations; Kankavli-Phonda-Devichi Raj, Ghonsari.

ANISOMELES R. Br.

1. Leaf base cuneate; cymes pedunculate	..	<i>A. heyneana</i>
1. Leaf base truncate-cordate; cymes sessile	..	<i>A. indica</i>

Anisomeles heyneana Benth. in Wall. Pl. As. Rar. 1 : 59. 1830; Hook. f. Fl. Brit. India 4 : 672. 1885; Cooke, Fl. Pres. Bombay 2 : 543. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 152. 1940.

Tall herbs or undershrubs, up to 1.5 m tall, stems and branches quadrangular, glabrous or sparsely hairy. Leaves 4—10 × 2—5 cm, ovate or ovate-lanceolate, thin, glabrous or sparsely hairy, apex acuminate, margins crenate-serrate. Flowers white or greenish-white, lower lip tinged with pink; in few-flowered, unilateral cymes; calyx 0.5-0.7 cm, hispid with scattered hairs, teeth acuminate, strongly reticulate, corolla tube 0.6-0.8 cm long, upper lip 0.5 cm long, lower 0.9-1.2 cm long. Nutlets 0.2 cm or less long, oblong.

Fls. & Frts. : February-April.

Distrib. : Scattered in open situations along the ghats and in plains; Kankavli-Phondaghat. Sawantwadi-Amboli-Nangartas, Gavata.

A. indica (L.) Kuntze, Rev. Gen. Pl. 512, 1891; Mukerjee in Rec. Bot. Surv. India 14 (1) : 152, 1940. *Nepeta indica* L. Sp. Pl. 571, 1753. *Anisomeles ovata* R. Br. in Ait. Hort. Kew (ed. 2), 2 : 364, 1811; Hook. f. Fl. Brit. India 4 : 672, 1885; Cooke, Fl. Pres. Bombay 2 : 543, 1958 (Repr. ed.).

Densely pubescent, annual or perennial undershrubs, 50-100 cm tall, stems tetragonous, grey tomentose. Leaves 3-8 × 2.5-6.0 cm, ovate, apex acuminate, margins serrate. Flowers bluish-white to pink; in whorls in axillary cymes, appearing terminal due to reduction of leaves; calyx 0.5 cm long, hirsute, corolla 1.0-1.5 cm long. Nutlets broadly ovoid, shining black.

Fls. & Frts. : October-February.

Illus. : Wight, Icon. t. 865, 1844-45.

Distrib. : Occasional along ghat slopes and also at the base in open situations; Kankavli-Phondaghat. Sawantwadi-Amboli-Nangartas, Bhedshi-Gavata.

COLEBROOKEA Sm.

Colebrookea oppositifolia Sm. Exot. Bot. 2 : t. 115, 1805; Hook. f. Fl. Brit. India 4 : 642, 1885; Cooke, Fl. Pres. Bombay 2 : 541, 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 84, 1940.

Shrubs, 1-2 m tall, stems and branches clothed with white woolly tomentum, grooved. Leaves opposite or whorled, 8-12 × 3-5 cm, elliptic-lanceolate, softly hairy on both sides, apex acute or acuminate, base acute, margins serrulate. Flowers white, polygamous; in spikes, crowded in terminal panicles or simple spikes, axillary; calyx 0.3 cm long, teeth deeply grooved, plumose with hairs, corolla 0.2 cm long, upper lobe emarginate. Nutlets obovoid.

Fls. & Frts. : February-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 365, fig. 458, 1911.

Distrib. : Frequent along the slopes of the ghats and in plains in hilly areas; Kudal-Ghotge, Rangana fort slopes. Sawantwadi-Akeri-Mungaon forest, Ambolighat-Kumbheshwar.

EUSTERALIS Rafin.

1. Leaves 4 in a whorl, petiolate .. *E. quadrifolia*
 1. Leaves 5-10 or more in a whorl, sessile :
 2. Plants pubescent with long hairs all over .. *E. tomentosa*
 2. Plants pubescent with short hairs or glabrous :
 3. Calyx pubescent, slightly enlarged in fruits .. *E. malabarica*
 3. Calyx villous, not enlarged in fruits .. *E. gracilis*

Eusteralis gracilis (Dalz.) Majumdar in J. Bombay nat. Hist. Soc. 74 : 388. 1978. *Dysophylla gracilis* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 337. 1850; Hook. f. Fl. Brit. India 4 : 641. 1885. *D. stellata* Benth. var. *gracilis* (Dalz.) Cooke, Fl. Pres. Bombay 2 : 458. 1906 et 2 : 540. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 81. 1940.

Erect herbs, 15—20 cm tall, sparingly branched at top, softly appressed hairy. Leaves 5-20 in a whorl, 0.8 × 0.7 cm, narrowly linear, apex acute, margins revolute; internodes 0.8 cm long and 0.07 cm wide, apex ending in distended and mucronate. Flowers pink; in 2-5 cm long, slender spikes; calyx 0.15 cm long, hemispherical, corolla 0.2 cm long, lobes entire.

Fls. : September

Distrib. : This species is reported by Cooke (as var. *l. c.*) from 'Phonda ghat' (in Kankavli taluka) based on collection by Dalzell; so it is included here.

E. malabarica (Heyne ex Hook. f.) Majumdar in J. Bombay nat. Hist. Soc. 74 : 385. 1978 *Mentha malabarica* Heyne ex Hook. f. Fl. Brit. India 4 : 640. 1885 (as syn.). *Dysophylla stellata* Benth. in Wall. Pl. As. Rar. 1 : 30. 1830; Hook. f. l. c.; Cooke, Fl. Pres. Bombay 2 : 540. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 80. 1940.

Low, herbaceous aquatic plants, gregarious, stems simple or branched, erect or procumbent. Leaves 5-10 or more in a whorl, 0.5-1.0 cm long, linear, pubescent or glabrous, apex obtuse or acute, margins entire, revolute. Flowers pink; in 2.5-6.0 cm long, villous spikes, bracts as long as flowers, persistent; calyx 0.15 cm long or less, campanulate, pubescent, corolla 0.2 cm long, hairy outside. Nutlets ellipsoid, small, smooth.

Fls. & Frts. : September-February.

Distrib. : Frequent in open, watery places, rice-fields, road sides, ponds and on river beds from ghats to plains; Kankavli-Kudal Road, Naradave-Dirbyachi Rai, Phonda. Kudal-Chapheli-Pulas jungle. Sawantwadi-Akeri-Mangaon forest, Amboli.

E. quadrifolia (Benth.) Panigrahi in *Phytologia* 32 : 378. 1976. *Dysophylla quadrifolia* Benth. in Wall. Pl. As. Rar. 1 : 30. 1830; Hook. f. Fl. Brit. India 4 : 639. 1885; Cooke, Fl. Pres. Bombay 2 : 539. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 69. 1940.

Stout, perennial herbs, 60-120 cm tall, with a woody rootstock, softly hairy or tomentose, camphor-like odour. Leaves 2.5—8.0 × 0.3—0.8 cm, linear-lanceolate or linear-oblong, pubescent on both sides, apex acute, base narrow, margins entire or serrate. Flowers rose coloured; in slender, tomentose or pubescent spikes, bracts minute, linear; calyx 0.15 cm long, obconic, hairy. corolla 0.3 cm long, lobes oblong. Nutlets ellipsoid, or subglobose, black, small.

Fls. & Frts. : February-April.

Distrib. : This species is recorded by Cooke (*l. c.*) from 'Malwan' and 'Vengurla' based on collections by Dalzell; hence it is included here.

E. tomentosa (Dalz.) Majumdar in J. Bombay nat. Hist. Soc. 74 : 385. 1978. *Dysophylla tomentosa* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 337. 1850; Hook. f. Fl. Brit. India 4 : 641. 1885. *D. stellata* Benth. var. *tomentosa* (Dalz.) Cooke, Fl. Pres. Bombay 2 : 458. 1906 et 2 : 540. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 81. 1940.

Erect or procumbent herbs, softly pubescent with long hairs, stems stout with many, simple, erect branches. Leaves 6-9 in a whorl, 0.5-1.0 cm, linear, pubescent on both sides, glandular beneath, apex acute, margins revolute. Flowers pink; in villous spikes, subtended by whorl of foliar bracts; calyx 0.2 cm or less long, densely tuberculate and glandular-tomentose, teeth triangular-ovate, hairy, corolla 0.25 cm or less long.

Fls. : December.

Distrib. : This species is reported by Cooke (as var. *l. c.*) from 'Malwan-rice fields between Deoghar and Vijaydurg', based on collection by Dalzell; so it is included here.

HYPTIS Jacq. (*nom. cons.*)

Hyptis suaveolens (L.) Poit. in Ann. Mus. Nat. Hist. Paris 7 : 472. t. 29. fig. 2 1806; Hook. f. Fl. Brit. India 4 : 630. 1885; Cooke, Fl. Pres. Bombay 2 : 560. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 46. 1940; Keng in Gard. Bull. Singapore 24 : 96. 1969. *Ballota suaveolens* L. Syst. Nat. ed. 10, 1100. 1759.

Strongly aromatic, much branched herbs, 0.5-1.5 m tall, stems hirsute, quadrangular. Leaves 3—6 × 2—4 cm, ovate, sparsely pilose above, densely, softly hairy beneath, apex subacute, base rounded, oblique, margins serrate. Flowers bluish-violet; in contracted, 1-5 fascicled cymes; calyx 0.3-0.5 cm long (0.8-1.0 cm in fruits), 10-ribbed, campanulate, mouth villous, corolla 0.6 cm long. Nutlets ovate, rugose.

Fls. & Frts. : October-February.

Distrib. : Frequent, naturalized in open situations in plains along road sides and in waste places; Deogad-Port Road. Kan-kavli-Humbrat Road, Phondaghat. Sawantwadi-Danoli, Kolgaon. Venguria-Math forest.

LEUCAS R. Br.

1. Calyx tube bent, mouth oblique;
 2. Bracts equalling calyx, villous and long ciliate; calyx tube hairy in the upper half .. *L. aspera*
 2. Bracts shorter than calyx, pubescent; calyx tube uniformly glabrous or pubescent .. *L. lavandulifolia*
1. Calyx tube straight, mouth not oblique :
 3. Whorls of 1-4-flowered (mostly 2) on each side .. *L. biflora*
 3. Whorls of 6-many flowered on each side
 4. Calyx teeth erect, throat glabrous .. *L. mollissima*
 4. Calyx teeth spreading, throat villous :
 5. Upper lip of corolla densely rufous hairy .. *L. ciliata*
 5. Upper lip of corolla densely white woolly .. *L. stelligera*

Leucas aspera (Willd.) Link in Enum. Hort. Berol. 2 : 113. 1822; Hook. f. Fl. Brit. India 4 : 690. 1885; Cooke, Fl. Pres. Bombay 2 : 548. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 166. 1940; Keng in Gard. Bull. Singapore 24 : 101. 1969. *Phlomis aspera* Willd. Enum. Hort. Berol. 2 : 621. 1809.

Annual herbs, 25-50 cm tall, stems and branches hispid with spreading hairs. Leaves 3-6 × 0.8—1.5 cm, narrowly lanceolate or oblong-lanceolate, sessile, membranous, pubescent on both sides, apex obtuse or rarely acute, margins crenate. Flowers white; in terminal or axillary (in upper axils) whorls, bracts narrowly lanceolate; calyx 0.8-1.0 cm long, 10-nerved, 10-toothed, tube pilose, posterior teeth longest, corolla 1.0-1.5 cm long, strongly curved, upper lip densely velutinous, lower pubescent. Nutlets ovoid, smooth.

Fls. & Frts. : September-November.

Distrib. : Occasional, in open situations on sandy soil; Malwan-Deobag.

L. biflora (Vahl) R. Br. Prodr. 504. 1810; Hook. f. Fl. Brit. India 4 : 683. 1885; Cooke, Fl. Pres. Bombay 2 : 553. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 180. 1940. *Phlomis biflora* Vahl, Symb. Bot. 3 : 77 1794.

Procumbent or straggling, pubescent herbs, with long internodes. Leaves 1.2—3.5 × 1.0—2.2 cm, ovate to elliptic, hairy on both sides, apex obtuse to subacute, margins coarsely serrate or crenate. Flowers white; in axillary whorls, bracts setaceous, small; calyx 0.8 cm long, campanulate, ribbed, hispid, teeth subulate, corolla 1.0-1.2 cm long, tube annulate within. Nutlets irregularly tuberculate, brown.

Fls. & Frts. : August-April.

Illus. : Wight, Icon. t. 866. 1844-1845.

Distrib. : Scattered, in the undergrowth in deciduous forest in plains and in rocky areas; Kankavli-Ghonsari Rai, Osargaon. Sawantwadi-Bhedshi-Karnyachi Rai, Danoli.

L. ciliata Benth. in Wall. Pl. As. Rar. 1 : 61. 1830; Hook. f. Fl. Brit. India 4 : 687. 1885; Cooke, Fl. Pres. Bombay 2 : 554. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 174. 1940.

Herbs, 30-80 cm tall, stems and branches quadrangular, hirsute, hairs brownish, spreading and deflexed. Leaves 3—9 × 2.5—4.0 cm, ovate or lanceolate, membranous, sparsely hairy on both sides, on the nerves beneath, apex acute, base cuneate, margins serrate. Flowers white; in dense, globose, axillary or terminal, brownish whorls, bracts slender, ciliate; calyx 1.2-1.8 cm, tubular, hairy outside, teeth slender, ciliate, corolla 1.8-2.0 cm long, tube annulate within. Nutlets oblong-obovoid, smooth, brown.

Fls. & Frts. : August-May.

Distrib. : Frequent from along the ghats to plains on the forest edges; Kankavli-Phondaghat. Kudal-Narur. Sawantwadi-Ambolighat-Nanapani, Banda (Cooke, l. c.), Bhedshi, Chaukul, Danoli, Hewale, Terwan, Tirali.

L. lavandulifolia Sm. in Rees. Cycl. 20 : n. 1812; Mukerjee in Rec. Bot. Surv. India 14 (1) : 167. 1940; Keng in Gard. Bull. Singapore 24 : 103. 1969.

l. linifolia (Roth) Spreng. Syst. Veg. 2 : 743. 1825; Hook. f. Fl. Brit. India 4 : 690. 1885; Cooke, Fl. Pres. Bombay 2 : 548. 1958 (Repr. ed.).

Erect, annual herbs, 30-50 cm tall, stems and branches quadrangular, finely pubescent. Leaves 3—7 × 0.6—1.2 cm, linear-lanceolate, membranous, appressed hairy on both sides, apex acute or acuminate, margins subserrate. Flowers white; in terminal or axillary, many-flowered verticillate clusters; calyx 0.6-0.7 cm long (0.8-0.9 cm in fruits), pubescent, 8-10 toothed, posterior one longest, corolla 1.0-1.2 cm long, upper lip woolly, shorter than the lower. Nutlets oblong, apex rounded.

Fls. & Frts. : February-August.

Distrib. : Common across plains and upper ghats; Kankavli-Nandgaon, Naradave-Dirbyachi Rai, Natal jungle, Phonda-Mhatardeo Rai, Phondaghat, Kudal-Kadaval, Sawantwadi-Akeri-Mangaon forest, Banda, Bhedshi, Danoli, Hewale, Ramghat.

L. mollissima Wall. ex Benth. in Wall. Pl. As. Rar. 1 : 62. 1830; Hook. f. Fl. Brit. India 4 : 682. 1885; Cooke, Fl. Pres. Bombay 2 : 552. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 183. 1940; Keng in Gard. Bull. Singapore 24 : 106. 1969.

Straggling, much branched, tomentose herbs. Leaves 2—4 × 1.0—2.5 cm, ovate or elliptic, membranous, densely appressed tomentose on both sides, apex obtuse or acute, margins coarsely serrate. Flowers white; in sessile, distant whorls, bracts linear, minute; calyx 0.6-0.8 cm long, cylindric, softly silky villous, teeth 10, corolla 1.0-1.5 cm long, upper lip equalling the lower. Nutlets ellipsoid, smooth.

Fls. & Frts. : February-March.

Distrib. : Scattered, on gravelly slopes along the lower slopes of the ghats; Kankavli-Naradave, Phonda-Pawna devi Rai, Kudal-Ghotge.

L. stelligera Wall. ex Benth. in Wall. Pl. As. Rar. 1 : 61. 1830; Hook. f. Fl. Brit. India 4 : 686. 1885; Cooke, Fl. Pres. Bombay 2 : 553. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 177. 1940.

Erect, branched herbs, up to 1 m tall, stems and branches hairy with erect and spreading hairs, quadrangular. Leaves 4—8 × 1.8—2.5 cm, elliptic-lanceolate, softly hairy on both sides, apex subacute, margins serrate. Flowers white; in dense, many-flowered, axillary and terminal whorls, bracts linear,

half as long as calyx; calyx 0.5-0.8 cm long, pubescent, corolla 0.8-1.2 cm long, tube annulate inside. Nutlets ovoid, smooth.

Fls. & Frts. : November-April.

Distrib. : Frequent in open situations in deciduous forest and along road sides from ghats to plains; Kankavli-Humbrat Road, Naradave, Natal jungle, Phondaghat, Kudal-Ghotge, Sawantwadi-Amboli, Chankul, Ramghat.

Ocimum L.

1. Calyx hairy within; fruiting pedicels recurved	..	<i>O. americanum</i>
1. Calyx glabrous inside; fruiting pedicels straight	..	<i>O. gratissimum</i>

Ocimum americanum L. Cent. Pl. 1, 15, 1755; Keng in Gard. Bull. Singapore 24 : 125, 1969. *O. canum* Sims in Bot. Mag. 51 : 1, 2452, 1823; Hook. f. Fl. Brit. India 4 : 607, 1885; Cooke, Fl. Pres. Bombay 2 : 521, 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 17, 1940.

Erect herbs, 30-60 cm tall, stems and branches striate and pubescent. Leaves 2.0—3.5 × 0.9—1.5 cm, ovate, glabrous and gland-dotted on both sides, narrowed at both ends. Flowers white; in whorls, in spiciform racemes, bracts elliptic-lanceolate, awned; calyx 0.2-0.3 cm long, white hairy outside, uppermost tooth broad, rounded, corolla 0.4-0.5 cm long, upper lip 4-toothed. Nutlets ellipsoid, mucilaginous when wetted.

Fls. & Frts. : February.

Distrib. : Occasional along road sides, in plains (may be an escape); Sawantwadi-Tirali.

O. gratissimum L. Sp. Pl. 1197, 1753; Hook. f. Fl. Brit. India 4 : 606, 1885; Cooke, Fl. Pres. Bombay 2 : 522, 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 20, 1940; Keng in Gard. Bull. Singapore 24 : 128, 1969.

Perennial undershrubs, 1-2 m tall, young parts pubescent. Leaves 4—10 × 3—5 cm, ovate or ovate-elliptic, membranous, pubescent and gland-dotted on both sides, apex acute, margins crenate-serrate. Flowers greenish-yellow; in softly hairy whorls in simple or branched racemes, bracts sessile, lanceolate; calyx 0.2-0.3 cm long, hairy, upper tooth rounded and recurved, corolla 0.4-0.5 cm long, upper lip 4-toothed. Nutlets subglobose, rugose.

Fls. & Frts. : August-November.

Distrib. : Scattered in open situations in deciduous forest; Kudal-Kadaval. Malwan-Deobag. Sawantwadi-Akeri-Mangaon forest.

ORTHOSIPHON Benth.

Orthosiphon thymiflorus (Roth) Sleesen in Reinwardtia 5 : 42. 1959; Keng in Gard. Bull. Singapore 24 : 135. 1969. *Ocimum thymiflorum* Roth, Nov. Pl. Sp. 269. 1821. *Orthosiphon tomentosum* Benth. var. *glabratus* Hook. f. Fl. Brit. India 4 : 614. 1885; Cooke, Fl. Pres. Bombay 2 : 524. 1958 (Repr. ed.). *O. glabratus* Benth. in Wall. Pl. As. Rar. 2 : 14. 1831; Mukerjee in Rec. Bot. Surv. India 14 (1) : 24. 1940.

Herbs, 30-60 m tall, woody at base, stems quadrangular, glabrous or pubescent. Leaves 3—6 × 2.0—4.5 cm, broadly ovate, glabrous above, glandular-punctate beneath, apex acute, margins crenate. Flowers pale purple; in whorls, in terminal racemes, bracts ovate; calyx 0.5-0.6 cm long, glabrous or pubescent, 2 central teeth of lower lip with upcurved awns, corolla 0.8-1.2 cm long, tube slightly incurved, puberulous, lower lip ovate, much longer than 3-lobed upper lip. Nutlets subglobose, brown.

Fls. & Frts. : August-October.

Distrib. : Infrequent in open situations and on the outskirts of deciduous forest in plains; Deogad-Naringre. Kankavli-Phonda-Devichi Rai. Malwan-Nandos. Sawantwadi-Akeri-Mangaon forest.

PLATYSTOMA Beauv.

Platystoma africanum Beauv. Fl. Owar. & Ben. 2 : 61. t. 95. fig. 2. 1808; Cooke, Fl. Pres. Bombay 2 : 526. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 34. 1940. *P. flaccidum* Benth. ex Hook. f. Fl. Brit. India 4 : 611. 1885.

Erect, annual herbs, 15-30 cm tall, stems quadrangular, pubescent. Leaves 1.2—3.0 × 0.8—1.5 cm, ovate, membranous, glabrous, apex acute, margins serrate. Flowers pale lilac; in whorls in racemes, bracts broad, caducous; calyx 0.2 cm long, campanulate, upper lip ovate, longer than lower one, corolla hardly longer than calyx, campanulate. Nutlets ovoid, black.

Fls. & Frts. : October-November

Distrib. : This species is reported by Cooke (*l. c.*) from 'Mulas' in Sawantwadi taluka (not in Kanara as stated) based on collection by Dalzell; hence it is included here.

PLECTRANTHUS L'Herit. (*nom. cons.*)

1. Fruiting calyx prominently ribbed, with red glands	..	<i>P. stocksii</i>
1. Fruiting calyx obscurely ribbed, without glands	..	<i>P. mollis</i>

Plectranthus mollis (Aiton) Spreng. Syst. Vcg. 2 : 690. 1825; Sant. Fl. Khandala ed. 3, 216, 1967. *Ocimum molle* Aiton. Hort. Kew 2 : 322. 1789. *Plectranthus ineanus* Link in Enum. Hort. Berol. 2 : 120. 1822; Hook. f. Fl. Brit. India 4 : 621. 1885; Cooke, Fl. Pres. Bombay 2 : 529. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 47. 1940.

Herbs, up to 80 cm tall, annual, stems succulent and stout at base, finely pubescent above. Leaves 4—9 × 3—7 cm, broadly ovate, membranous, glabrescent above, pubescent beneath, margins crenate. Flowers pale lilac or light blue; in terminal racemes, bracts ovate; calyx 0.4-0.5 cm long (0.8-1.2 cm in fruits), campanulate, bilabiate, upper lip broad, entire, lower 4-toothed, corolla 0.7-0.8 cm long, decurved, pubescent. Nutlets subglobose, with purplish-brown spots.

Fls. & Frts. : September-October.

Distrib. : Occasional in open wastelands; Sawantwadi.

P. stocksii Hook. f. Brit. India 4 : 618. 1885; Cooke, Fl. Pres. Bombay 2 : 528. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 43. 1940.

Slender herbs, annual, 20-60 cm tall, stems 4-angled, pubescent. Leaves 3—8 × 2—4 cm, ovate, thin, sparingly hairy and gland-dotted, apex acute, margins crenate. Flowers white, with 2 red spots; in panicles, bracts minute; calyx 0.1-0.15 cm long (0.3-0.4 cm in fruits), pubescent, upper lip 2-lobed, lower one 3-lobed, corolla 0.4-0.6 cm long, tube straight. Nutlets ellipsoid, brownish.

Fls. & Frts. : September-November.

Distrib. : Frequent in moist places along the ghats; Kankavli-Phondaghat. Sawantwadi-Amboli-Hiranyakeshi and Mahadeogad.

POGOSTEMON Desf.

1. Bracts concealing the calyx; calyx teeth shorter than tube :
 2. Stems and leaves glabrous to glabrescent .. *P. parviflorus*
 2. Stems and leaves grey tomentose .. *P. benghalensis*
1. Bracts not concealing the calyx; calyx teeth equal to the tube .. *P. purpurascens*

Pogostemon benghalensis (Burm. f.). Kuntze, Rev. Gen. Pl. 529. 1891; Sant. Fl. Khandala ed. 3, 217. 1967. *Origanum benghalense* Burm. f. Fl. Ind. 128. t. 38. fig. 3. 1768, *Pogostemon plectranthoides* Desf. in Ann. Mus. Hist. Nat. 2 : 155. t. 6. 1808; Hook. f. Fl. Brit. India 4 : 632. 1885; Cooke, Fl. Pres. Bombay 2 : 536. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 69. 1940. *Mar.* : *Pangali*¹

Aromatic undershrubs, stems and branches subquadrangular or rounded, dark purple, grey hairy. Leaves 5—10 × 3—5 cm, ovate or ovate-lanceolate, glabrescent above, white tomentose beneath, apex acute, margins doubly serrate. Flowers purple; in white tomentose, panicle-spikes, whorls subtended by foliar bracts; calyx 0.4-0.5 cm long, pubescent, subcylindric, corolla 0.6-0.8 cm long, upper lip 3-lobed, lower one entire. Nutlets ellipsoid, smooth.

Fls. & Frts. : February-May.

Distrib. : Frequent, from ghats to plains in open areas and along forest edges; Kankavli-Naradave-Dirbyachi Rai, Phonda-Mhatardeo Rai, Phondaghat. Kudal-Chapheli-Pulas jungle, Wasuli. Sawantwadi-Akeri-Mangaon forest, Ambolighat-Kumbheshwar, Ramghat.

P. parviflorus Benth. in Wall. Pl. As. Rar. 1 : 31. 1830; Hook. f. Fl. Brit. India 4 : 632. 1885; Cooke. Fl. Pres. Bombay 2 : 536. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 68. 1940. *Mat.* : *Pangali*¹

Stout, suffruticose herbs, 1-2 m tall, stems and branches rounded or sub-quadrangular, glabrous or slightly pubescent, purple. Leaves in subequal pairs, 5—12 × 3—6 cm, ovate or ovate-lanceolate, glabrous or minutely pubescent, apex acute, margins serrate or crenate. Flowers white with purple tinge; in terminal, pubescent, panicle-spikes, bracts imbricating young flowers, hairy; calyx 0.4 cm long, puberulous, corolla 0.8 cm long, upper lip 3-subequally lobed, the lower entire. Nutlets ellipsoid, brownish.

Fls. & Frts. : February-April.

Distrib. : This species is reported by Cooke (l. c.) from 'S. M. Country : Ramghat (in Sawantwadi taluka) based on collection by Ritchie; so it is included here.

P. purpurascens Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 337. 1850; Hook. f. Fl. Brit. India 4 : 632. 1885; Cooke, Fl. Pres. Bombay 2 : 537. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 71. 1940.

Villous herbs with spreading hairs, stems and branches quadrangular. Leaves in unequal pairs, 4-8 x 3-6 cm, ovate to ovate-lanceolate, membranous, softly hairy on both sides, apex acute, margins irregularly crenate-serrate. Flowers white to purplish-white; in dense, villous spikes in close whorls, bracts ovate-lanceolate, slightly falcate; calyx 0.4-0.5 cm long, pubescent, corolla 0.5-0.6 cm long, upper lip purple, the lower one white. Nutlets ovoid, black.

Fls. & Frts. : October-May.

Distrib. : Frequent in the undergrowth in deciduous forest from ghats to plains: Sawantwadi-Akeri-Mangaon forest, Amboli-Hiranyakeshi, Bhedshi, Khanale, Nemle, Ramghat.

SCUTELLARIA L.

Scutellaria discolor Wall. ex Benth. in Wall. Pl. As. Rar. 1 : 66. 1830; Hook. f. Fl. Brit. India 4 : 667. 1885; Cooke, Fl. Pres. Bombay 2 : 545. 1958 (Repr. ed.); Mukerjee in Rec. Bot. Surv. India 14 (1) : 146. 1940; Keng in Gard. Bull. Singapore 24 : 165. 1969.

Elegant, pubescent, annual herbs, rooting at base, 8-15 cm tall, under 30 cm. Leaves chiefly radical, sometimes subradical, 3.5-9.0 x 2.0-3.5 cm, elliptic-orbicular or ovate, sparsely hairy on both sides, purple beneath, apex obtuse-rounded, base cordate, margins crenate. Flowers dark violet; in terminal, lax racemes; calyx 0.2-0.3 cm long, cup-shaped, pubescent, corolla 1.0-1.2 cm long, 2-lipped. Nutlets echinate.

Fls. & Frts. : August-October.

Distrib. : Occasional in shady places in moist deciduous forest along ghats; Sawantwadi-Amboli-Hiranyakeshi, Chaulkul.

NYCTAGINACEAE

BOERHAVIA L.

Boerhavia diffusa L. Sp. Pl. 3. 1753; Cooke, Fl. Pres. Bombay 2 : 563. 1958 (Repr. ed.); Stemmerik in van Steenis, Fl. Males. Ser. 1, 6 : 454. 1964. *B. repens* L. Sp. Pl. 3. 1753; Hook. f. Fl. Brit. India 4 : 709. 1885.

Diffuse and ascending or creeping herbs, with club-shaped glands and glandular hairy. Leaves in unequal pairs, 1.5—2.0 × 1 cm, ovate-oblong, glabrous, apex acute or obtuse, slightly undulate margins. Flowers dark rosy, sessile or subsessile; in panicle of subcapitate umbels; perianth 0.2-0.3 cm long, constricted mid way. Fruits clavate, glandular along 5 ribs.

Fls. & Frts. : August—September.

Illus. : Wight, Icon. t. 874. 1844-1845.

Distrib. : Occasional in open on sandy soil; Malwan-Sea shore.

AMARANTHACEAE

1. Leaves opposite

2. Flowers deflexed, in lax spikes :

3. Flowers with fascicled hooks	..	<i>Cyathula</i>
3. Flowers without fascicled hooks	..	<i>Achyranthes</i>

2. Flowers not deflexed, in dense spikes :

4. Staminodes present, anthers 1-celled	..	<i>Alternanthera</i>
4. Staminodes absent, anthers 2-celled	..	<i>Nathanaerva</i>

1. Leaves alternate :

5. Filaments free	..	<i>Amaranthus</i>
5. Filaments connate at base forming a cup :		
6. Staminodes absent	..	<i>Celosia</i>
6. Staminodes present, alternate with stamens	..	<i>Aerva</i>

ACHYRANTHES L.

Achyranthes aspera L. var. *porphyristachya* Hook. f. Fl. Brit. India 4 : 730. 1885; Sant. Fl. Khandala ed. 3, 224. 1967. *A. uspera* Cooke, Fl. Pres. Bombay 2 : 495. 1906 (*p. p.*) et 2 : 580. 1958 (Repr. ed.). Mar. 'Aghada'.

Erect, stiff herbs with woody base, stems simple or branched, ribbed, pubescent. Leaves 8—16 × 3—8 cm, broadly elliptic, membranous, hairy on both sides, apex acuminate. Flowers greenish; in 10-30 cm or more long spikes, bracts and bracteoles spinescent; perianth 0.4-0.6 cm long, 5, subequal, spinescent; staminodes truncate or irregularly dentate at apex. Utricles 0.2 cm long, ovoid.

Fls. & Frts. : October-November.

Distrib. : Uncommon on hill slopes, near water falls along ghats and in plains; Kankavli-Digwal Road, Phondaghat, Sawantwadi-Amboli-Hiranyakeshi, Ambolighat-Nanapani.

AERVA Forsk. (*nom. cons.*)

Aerva sanguinolenta (L.) Bl. Bijdr. 547. 1825; Sant, Fl. Khandala ed. 3, 223, 1967. *Achyranthes sanguinolenta* L. Sp. Pl. ed. 2, 294. 1762. *Aerva scandens* Wall. ex Moq. in DC. Prodr. 13 : 302. 1849; Hook. f. Fl. Brit. India 4 : 727. 1885; Cooke, Fl. Pres. Bombay 2 : 577. 1958 (Repr. ed.).

Rambling or erect undershrubs, stems terete, appressedly hairy towards apex. Leaves usually alternate, but sometimes opposite, 3—6 × 1.5—3.0 cm, elliptic-ovate to lanceolate, appressed hairy, apex acute to acuminate, base narrow. Flowers whitish; in densely tomentose, solitary or fascicled spikes, often combined into panicles, bracts and bracteoles ovate, hairy; perianth—5, outer one mucronate, all pilose. Utricles ovoid.

Fls. & Frts. : October-May.

Distrib. : Infrequent in deciduous forest along the slopes of the ghats and in plains; Kankavli-Phondaghat, Kudal-Ghotge, Kerude jungle, Sawantwadi-Amboli ghat-top.

ALTERNANTHERA Forsk.

Alternanthera sessilis (L.) DC. in Cat. Hort. Monspel. 4 : 77. 1813; Hook. f. Fl. Brit. India 4 : 732. 1885. *Gomphrena sessilis* L. Sp. Pl. 225. 1753. *Alternanthera triandra* Lamk. Encycl. 1 : 95. 1783; Cooke, Fl. Pres. Bombay 2 : 584. 1958 (Repr. ed.).

Prostrate or decumbent-ascending, branched herbs, stems thickened and hairy on the nodes with 2 lines of longitudinal hairs. Leaves 1.5—2.5 × 0.3—1.5 cm, elliptic, glabrous or hairy, apex subobtuse or rounded, base cuneate, perianth nearly equal, ovate, glabrous, 1-nerved. Utricles obovate, deeply notched at apex.

Fls. & Frts. : August-January.

Illus. : Wight, Icon. t. 727. 1843.

Distrib. : Frequent in open, moist situations along river banks, in rice fields, road sides; Kankavli-Phonda. Sawantwadi-Amboli-Rest House campus, Bhedshi, Danoli.

AMARANTHUS L.

Amaranthus tricolor L. Sp. Pl. 989. 1753; Backer in van Steenis, Fl. Males. Ser. 1, 4 : 77. 1949; Sant. Fl. Khandala ed. 3, 222. 1967. *A. gangeticus* L. Syst. Nat. ed. 10, 1268. 1759; Hook. f. Fl. Brit. India 4 : 719. 1885; Cooke, Fl. Pres. Bombay 2 : 574. 1958 (Repr. ed.).

Erect, branched herbs, 20-30 cm tall, stems ribbed, glabrous or hairy towards apex. Leaves 2—4 × 1.5—2.5 cm, ovate-rhomboid or elliptic-oblong, glabrous, thin, apex obtuse or acute, base cuneate, decurrent into petiole. Flowers in clusters, lower ones axillary, upper ones collected in spikes, bracts ovate, awned; perianth-3, oblong-obovate, long awned, greenish. Utricles flask-shaped, 3-dentate at apex.

Fls. & Frts. : September-October.

Distrib. : Occasional, in open, moist places; Malwan-Sindhudurg.

CELOSIA L.

Celosia argentea L. Sp. Pl. 205. 1753; Hook. f. Fl. Brit. India 4 : 714. 1885; Cooke, Fl. Pres. Bombay 2 : 570. 1958 (Repr. ed.). *Mar.* : 'Kardu'.

Simple or branched, annual herbs, stems sulcate-ribbed, glabrous. Leaves 2—6 × 0.5—2.5 cm, linear-lanceolate to ovate-oblong, often tinged with red, apex acute or obtuse, uppermost sessile. Flowers in dense-flowered, terminal, cylindrical spikes with conical apex; perianth pink or rosy, fading to white, 5, ovate-lanceolate. Utricles obovoid, circumsessile below the middle.

Fls. & Frts. : August-November.

Distrib. : Frequent in open situations and in wastelands; Deogad¹ Near Rest House. Kankavli-Phonda-Bhairy pathar. Malwan-Sindhudurg. Sawantwadi-Akeri-Mangaon forest, Amboli, Danoli.

CYATHULA Bl. (*nom. cons.*)

Cyathula prostrata (L.) Bl. Bijdr. 549. 1825; Hook. f. Fl. Brit. India 4 : 723. 1885; Cooke, Fl. Pres. Bombay 2 : 581. 1958 (Repr. ed.). *Achyranthes prostrata* L. Sp. Pl. ed. 2. 296. 1762.

Creeping-ascending herbs, rooting at basal nodes. Leaves $2-4 \times 1-2$ cm, ovate, elliptic or rhomboid, membranous, sessile, hairy on both sides, apex subobtusate or rounded. Flowers in long, terminal spikes, sessile, in stalked clusters; perianth of perfect flowers calycine, oblong, scarious, 5, of imperfect flowers converted into rigid hooks. Utricles ovoid, thin walled, indehiscent.

Fls. & Frts. : October-May.

Illus. : Wight, Icon. t. 733. 1843.

Distrib. : Scattered in the undergrowth of forest and in open areas from ghats to plains; Kankavli-Phondaghat, Kudal-Nerur. Sawantwadi-Hewale, Ramghat.

NOTHOSAERVA Wight

Nothosaerva brachiata (L.) Wight, Icon. 6 : 1. 1853; Hook. f. Fl. Brit. India 4 : 726. 1885; Cooke, Fl. Pres. Bombay 2 : 580. 1958 (Repr. ed.); Backer in van Steenis, Fl. Males. Ser. I, 4 : 86. 1949. *Achyranthes brachiata* L. Mant. 50. 1767.

Slender, branched, annual herbs, 15-20, cm tall, stems and branches subterete, striate, glabrous or thinly hairy. Leaves $1.5-2.5 \times 0.5-1.5$ cm, elliptic or elliptic-oblong, membranous, thinly hairy or glabrous, apex subacute or obtuse. Flowers sessile; in dense spikes clustered in leaf axils, densely pilose, bracts and bracteoles hyaline; perianth 3-4, hyaline, broadly ovate, villous. Utricles included in perianth, falling with it.

Fls. & Frts. : August-September.

Illus. : Wight, Icon. t. 1776. 1852.

Distrib. : Occasional in open, moist situations; Deogad-Port Road.

POLYGONACEAE

POLYGONUM L.

1. Nuts biconvex :

2. Stipules glabrous, truncate at mouth	..	<i>P. glabrum</i>
2. Stipules appressed hairy, ciliate with stiff hairs at mouth	..	<i>P. mite</i>

1. Nuts trigonous :

3. Leaves less than 0.3 cm broad	..	<i>P. plabellum</i>

3. Leaves more than 1 cm broad :

4. Flowers in heads	..	<i>P. chinense</i>
4. Flowers in racemes	..	<i>P. barbatum</i> var. <i>gracile</i>

Polygonum barbatum L. var. *gracile* (Dans.) Steward in Contrib. Gray Herb. 88 : 55. 1930; Sant. Fl. Khandala ed. 3, 227. 1967. *P. serrulatum* Hook. f. Fl. Brit. India 5 : 38. 1886, (non Lagasca, 1816 and excl. var. *donii* Hook. f.); Cooke, Fl. Pres. Bombay 3 : 7. 1958 (Repr. ed.).

Erect or procumbent-ascending herbs, stems slender, glabrous. Leaves 3-6 × 0.8-1.5 cm, lanceolate, subsessile, appressed hairy on both sides, or sometimes glabrous, apex acute or acuminate; stipules appressed hairy, ciliate. Flowers white; in terminal racemes, bracts glabrous, ciliate; perianth 0.2-0.3 cm long, obovate-rounded; stamens-6. Nuts 0.22 cm long, dark brown, granulate.

Fls. & Frts. : November-April.

Distrib. : Infrequent in moist, sandy areas along river banks; Kudal-Chapheli forest nursery, Wasuli. Sawantwadi-Danoli, Gavata.

P. chinense L. Sp. Pl. 363. 1753; Hook. f. Fl. Brit. India 5 : 44. 1886. *P. chinense* L. var. *ovalifolia* Meissn. in Wall. Pl. As. Rar. 3 : 6. 1832; Cooke, Fl. Pres. Bombay 3 : 8. 1958 (Repr. ed.).

Rambling undershrubs, with a woody base, stems flexuous, glabrous. Leaves 4-10 × 2-6 cm, ovate-oblong, glabrous above, sparsely pubescent beneath, apex acute or shortly acuminate; stipules obliquely divided near the base, glabrous. Flowers white; heads in terminal, corymbose panicles, peduncles glandular hairy; perianth 0.4-0.6 cm long. Nuts 0.2-0.25 cm long, black.

Fls. & Frts. : October-April.

Illus. : Wight, Icon. t. 1806.1852.

Distrib. : Frequent in shady places, road sides along the higher ghats; Kankavli-Phondaghat. Sawantwadi-Amboli-Nangartas, Ambolighat-top, Ramghat.

P. glabrum Willd. Sp. Pl. 2 : 447. 1799; Hook. f. Fl. Brit. India 5 : 34. 1886; Cooke, Fl. Pres. Bombay 3 : 5. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 227. 1967.

Gregarious, glabrous herbs or undershrubs, 1.0-1.5 m tall. Leaves 5-15 × 1.5-2.5 cm, lanceolate, glabrous, glandular-punctate, drying reddish (especially midrib), apex acuminate; stipules closely sheathing stems, upto 2.5 cm long. Flowers pink; in racemes forming a terminal panicle; perianth 0.3-0.4 cm long, oblong. Nuts ovoid, black.

Fls. & Frts. : October-May.

Illus. : Wight, Icon. t. 1797. 1852.

Distrib. : Frequent in open, moist situations, along river banks, ponds, from ghats to plains; Kankavli-Achre Road, Janoli river bank Natal jungle, Phonda, Sawantwadi-Akeri, Amboli-Nangartas, Chaukul.

P. mite Schrank, Fl. Baier. 1 : 668. 1789. Cooke, Fl. Pres. Bombay 2 : 7. 1958 (Repr. ed.); Tutin in Tutin et al. Fl. Europaea 1 : 79. 1964.

Glabrous, slender, annual herbs, 20-40 cm tall, stems ribbed. Leaves 4-10 × 0.8-1.2 cm, elliptic-lanceolate, subsessile, sparsely appressed hairy, especially on nerves, on both sides, white dotted on lower surface, apex acute; stipules 1.2-1.8 cm long. Flowers pink; in lax racemes, bracts glabrous, ciliate; perianth oblong. Nuts 0.2-0.25 cm long, black, sometimes obscurely trigonous.

Fls. & Frts. : September-October.

Distrib. : Occasional in water logged rocky plains along the upper ghats; Sawantwadi-Amboli-Nangartas.

P. plebeium R. Br. Prodr. 420. 1810; Hook. f. Fl. Brit. India 5 : 27. 1886; Cooke, Fl. Pres. Bombay 3 : 4 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 226. 1967.

Prostrate or decumbent-ascending, much branched herbs, with woody root stock, branches often purple-tinged. Leaves 0.8-1.8 × 0.1-0.2 cm, linear-spathulate, subsessile, glabrous, apex obtuse or rounded; stipules membranous, irregularly lacerate. Flowers pale pink or white; axillary, solitary or in clusters; perianth 0.12-0.18 cm long, oblong. Nuts shining black.

Fls. & Frts. : May-November.

Distrib. : Frequent in open, moist grassy and sandy localities in rice fields and along river banks; Kudal-Varad. Sawantwadi-Amboli, Ramghat.

Note : The original spelling of specific epithet is *plebeium* and not *plebejum*.

PODOSTEMACEAE

1. Capsules smooth; stamens monadelphous	..	<i>Griffithella</i>
1. Capsules ribbed; stamens free :		
2. Stamens-2, staminodes present	..	<i>Polypleurum</i>
2. Stamens-3, staminodes absent	..	<i>Dalzellia</i>

DALZELLIA Wight

Dalzellia zeylanica (Gardn.) Wight, Icon. t. 1919. 1852; Nagendran *et. al.* in J. Mysore Univ. 27 : 178. 1976-1977. *Tristicha zeylanica* Gardn. in Calcutta J. nat. Hist. 7 : 177. 1846-47. *Lawia zeylanica* Tul. in Ann. Sci. Nat. Ser. 3 11 : 112. 1849; Cooke. Fl. Pres. Bombay 3 : 12. 1958 (Repr. ed.). *Terniola zeylanica* (Gardn.) Tul. Pod. Monogr. 190. t. 13. f. 13. 1852; Hook. f. Fl. Brit. India 5 : 62. 1886.

Thalloid-frondose herbs on smooth rocks in streams, closely adhering and branching, rootless. Leaves numerous in rosettes in older parts, occurring either on upper surface and edges of the thallus. Flowers white; terminal on the growing points of the margins of the thallus, pedicelled (fruiting pedicel up to 0.8 cm long) solitary; perianth-3, alternating with stamens, stigmas-3. Fruits ellipsoid, 3-valved.

Fls. & Frts. : November-April.

Illus. : Wight, l. c.

Distrib. : Infrequent on rocks in moving streams; Kudal-Nileli-riverbed. Sawantwadi-Akeri-Mangaon.

GRIFFITHELLA Warm.

Griffithella hookeriana (Tul.) Warm. Fam. Podost. Afhandl. 6 : 13. 1901; Cooke Fl. Pres. Bombay 3 : 13. 1958 (Repr. ed.). *Mniopsis hookeriana* Tul. in Ann. Sci. nat. Hist. Ser. 3 11 : 105. 1849. *Podostemon hookerianus* (Tul.) Wedd. in DC. Prodr. 17 : 74. 1873; Hook. f. Fl. Brit. India 5 : 65. 1886.

Aquatic herbs with thallus algiform, lichen-like polymorphous, cup-like or rotate, completely attached to the rocks. Leaves distichous. Flowers scattered on thallus or submarginal, in funnel-shaped spathes, irregularly ruptured at tip, solitary on pedicel (fruiting pedicel 0.3-0.5 cm long), stamens-2, united, staminodes-2, on either side of stamens. Fruits globose, unequally lobed.

Fls. & Frts. : January-February.

Illus. : Wight, Icon. t. 1918. f. 4. 1852.

Distrib. : Occasional, on rocks in a river; Sawantwadi-Gavata near Bhedshi.

POLYPLEURUM (Tayl. ex Tul.) Warm.

Polypleurum stylosum (Wight) Hall in Kew Bull. 26 : 131. 1971. *Dicraea stylosa* Wight, Icon. t. 1917. 1852. *Podostemon stylosum* (Wight) Benth. ex Hook. f. Fl. Brit. India 5 : 64. 1886.

Submerged herbs with a habit of sea-weeds (*Fucus*), stems long, ramous, exogenously branched, compressed, branches floating, green or red, lateral margins floriferous. Flowers from secondary shoots, solitary, with scaly bracts and involucre of leaves, subulate (due to splitting of spathes). Fruits ellipsoid, isolobous, 8-ribbed, on 2-3 cm long pedicels.

Fls. & Frts. : October-November.

Illus. : Wight, l. c.

Distrib. : Occasional, on rocks in river; Sawantwadi-Amboli.

ARISTOLOCHIACEAE

1. Perianth 3-lobed; seeds trigonous, pitted	..	<i>Thottea</i>
1. Perianth 2-lipped; seeds flat, winged	..	<i>Aristolochia</i>

ARISTOLOCHIA L.

Aristolochia tagala Cham. in Linnaea 7 : 207. 1832; Cooke, Fl. Pres. Bombay 2 : 17. 1958 (Repr. ed.). *A. roxburghiana* Klotzsch in Monatsb. Berl. Akad. 696. 1859; Hook. f. Fl. Brit. India 5 : 73. 1886.

Climbing shrubs, stems ribbed. Leaves 5—16 × 3—10 cm, ovate-oblong, glabrous, apex acuminate, base deeply cordate. Flowers purple; in lax, fascicled, short racemes, bracts small; perianth 3-5 cm long, tube and lobes equal in length. Fruits 2-3 cm long, 6-valved, globose or ellipsoid.

Fls. & Frts. : February-April.

Illus. : Wight, Icon. t. 771. 1844.

Distrib. : This species is reported by Cooke (l. c.) from Maneri in Wari country (Maneri in Sawantwadi taluka) based on collection by Dalzell; so it is included here.

THOTTEA Rottb.

Thottea siliquosa (Lamk.) Ding Hou in *Blumea* 27 (2) : 327. 1981. *Apama siliquosa* Lamk. *Encycl.* 1 : 91. 1793. *Bragantia wallichii* R. Br. ex Wight & Arn. *Edinburgh New Philos. J.* 181, 1833; Hook. f. *Fl. Brit. India* 5 : 73. 1886; Cooke, *Fl. Pres. Bombay* 3 : 15. 1958 (Repr. ed.).

Erect undershrubs, 30-60 cm tall, young parts minutely hairy. Leaves 8—16 × 3—5 cm, elliptic-lanceolate, subsessile, glabrous above, hairy beneath, apex acute, 3-nerved. Flowers chocolate-brown; in small, axillary cymes, bracts small; perianth campanulate, 0.8-1.0 cm across, lobes broadly ovate. Fruits 4-6 cm long, 4-valved, torulose, brownish.

Fls. & Frts. : November-March.

Illus. : Wight, *Icon. t.* 520. 1842.

Distrib. : This species is included here on the authority of Cooke (*l. c.*) who has reported it from 'Wari jungles (Sawantwadi jungle) based on collection by Dalzell.

PIPERACEAE

1. Leaves opposite, pellucid-punctate	..	<i>Peperomia</i>
1. Leaves alternate, not punctate	..	<i>Piper</i>

PEPEROMIA Ruiz. & Pav.

Peperomia pellucida (L.) H. B. & K. *Nov. Gen. Sp.* 1 : 64. 1815; Cooke, *Fl. Pres. Bombay* 3 : 21. 1958 (Repr. ed.); Sant. *Fl. Khandala ed.* 3, 229. 1967, *Piper pellucidum* L. *Sp. Pl.* 30. 1753.

Erect, succulent, 8-15 cm tall herbs, flaccid, annual, stems glabrous. Leaves 0.6—1.8 × 0.3—1.2 cm, broadly ovate, glabrous, fleshy, shining above, pale beneath, apex acute or obtuse, base rounded or cordate, 5-7 nerved. Flowers pale green, solitary, sunk in fleshy, green rhachis; spikes 2-4 cm long, axillary, solitary, bracts ovate; perianth absent, stamens-2. Fruits globose.

Fls. & Frts. : August-September.

Distrib. : A naturalized plant, grows in damp, shady places, on walls; Sawantwadi-Satarda. Vengurla-Math.

PIPER L.

1. Flowers enclosed in globose sacs of connate bracts .. *P. trichostachyon*
 1. Flowers not enclosed in sacs .. *P. hookeri*

Piper hookeri Miq. in Hook. London J. Bot. 4 : 437. 1845; Hook. f. Fl. Brit. India 5 : 88. 1886; Cooke, Fl. Pres. Bombay 3 : 19. 1958 (Repr. ed.).
Mar. : *Mirvel* ?

Climbing shrubs, branches hairy, terete. Leaves 4—8 × 2.5—4.0 cm, ovate-lanceolate, glabrous above, hairy especially on the nerves beneath, apex acuminate, base tapering, 5-7-nerved. Flowers green; spirally arranged in dense spikes, bracts peltate, orbicular; stamens-2. Fruits globose.

Fls. & Frts. : April May.

Distrib. : Occasional, along the higher slopes of the ghats in semi-evergreen forest; Sawantwadi-Amboli-Malai jungle.

P. trichostachyon (Miq.) C. DC. in DC. Prodr. 16 (1) : 242. 1869; Hook. f. Fl. Brit. India 5 : 80. 1886; Cooke, Fl. Pres. Bombay 3 : 19. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 229. 1967. *Muldera trichostachya* Miq. in Hook. London J. Bot. 5 : 556. 1846.

Woody climbers, rooting at nodes. Leaves 5—10 × 3—5 cm, elliptic-lanceolate, glabrous, shining and dark green above, pale beneath, apex acuminate, base acute, 3-5-nerved at base. Flowers pale green; in pubescent or downy spikes, bracts whitish-green; stamens-2. Fruits globose, yellow when ripe.

Fls. & Frts. : August-April.

Illus. : Wight, Icon. t. 1944. 1853.

Distrib. : Frequent along the ghats in moist deciduous forest; Sawantwadi-Amboli, Ambolighat-top, Ramghat.

MYRISTICACEAE

1. Anthers attached by their bases, stellately to a peltate, usually stipitate column formed of connate filaments; aril lacinate at top ..
 1. Anthers attached by their backs to a column formed of the connate filaments; aril lacinate at base ..

Knema

Myristica

KNEMA Lour.

Knema attenuata (Hook. f. & Thoms.) Warb. Monogr. Myrist. 590. 1897; Sant. in Fl. Khandala ed. 3, 230. 1967; de Wilde in Blumea 25: 439. 1979. *Myristica attenuata* Wall. ex Hook. f. & Thoms. Fl. Ind. 1 : 157. 1855; Hook. f. Fl. Brit. India 5 : 110. 1886; Cooke, Fl. Pres. Bombay 3 : 24. 1958 (Repr. ed.).

Medium-sized trees, 8-15 m tall, apical portion woolly, rusty-tomentose. Leaves 10—18 × 3—5 cm, elliptic-oblong to oblong-lanceolate, thinly coriaceous, dark green above, glaucous beneath, apex abruptly acuminate. Flowers stellately brown pubescent, dioecious; male flowers; 0.6 cm across; 3-6, fascicled on axillary peduncles, female flowers similar, fewer, tubular; perianth 3-lobed, reddish. Fruits 3.5-4.0 cm long, ellipsoid, densely red tomentose, aril red.

Fls. & Frts. : October-April.

Illus. : Bedd. Fl. Sylv. t. 271. 1872.

Distrib. : Infrequent in semi-evergreen forest along ghats; Sawant-wadi-Amboli-Malai jungle, Chaulkul.

MYRISTICA Groenowius (*nom. cons.*)

Myristica malabarica Lamk. in Hist. Acad. Roy. des SC. Paris 162. 1791 et Encycl. 4 : 388. 1797; Hook. f. Fl. Brit. India 5 : 103. 1886; Cooke, Fl. Pres. Bombay 3 : 22. 1958 (Repr. ed.); Sinclair in Gard. Bull. Singapore 23 : 168. 1968.

Moderate-sized trees, 10-15 m tall, young parts glabrous. Leaves 8—12 × 3—5 cm, oblong or elliptic-lanceolate, chartaceous, glabrous, shining above, dull brown beneath, apex acute, base cuneate. Flowers dioecious; male flowers in cymes, female flowers in axillary umbels; perianth globose 0.3-0.4 cm across. Fruits 5-6 cm long, oblong-elongate, brown pubescent aril yellow.

Fls. & Frts. : November-March.

Illus. : Sinclair l. c. 170. fig. 9-A.I.

Distrib. : This species is included here on the authority of Cooke (l. c.) who has reported it from 'Malwan', based on collection of Gibson.

LAURACEAE

1. Parasitic herbs	..	<i>Cassytha</i>
1. Non-parasitic trees or shrubs :		
2. Leaves conspicuously palmately 3 nerved :		
3. Leaves usually opposite; perfect stamens-9	..	<i>Cinnamomum</i>
3. Leaves mostly alternate; perfect stamens-6	..	<i>Neolirsea</i>
2. Leaves penninerved :		
4. Flowers unisexual ; bracts falling after flowering	..	<i>Listsea</i>
4. Flowers bisexual; bracts falling before flowering :		
5. Perianth persistent; pedicels not at all thickened in fruits :		
6. Fruits enclosed by accrescent perianth tub:	..	<i>Cryptocarya</i>
6. Fruits not enclosed by perianth, lobes reflexed	..	<i>Persea</i>
5. Perianth deciduous; pedicels thickened in fruits:		
7. Leaves crowded at the ends of branches; anthers 4-celled	..	<i>Alseodaphne</i>
7. Leaves not crowded at the ends of branches; anthers 2-celled	..	<i>Beilschmiedia</i>

ALSEODAPHNE Nees

Alseodaphne semecarpifolia Nees in Wall. Pl. As. Rar. 2 : 72. 1831; Hook. f. Fl. Brit. India 5 : 144. 1886; Cooke, Fl. Pres. Bombay 2 : 30. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 231. 1967.

Medium-sized trees, 8-10 m tall, bark smooth. Leaves 5—10 × 2.5—5.0 cm, obovate or elliptic-oblong, coriaceous, glabrous and shining above, glaucous beneath, apex acute, base rounded or attenuate, nerves 6-8 pairs. Flowers greenish; in terminal or axillary panicles; perianth lobes-6, funnel-shaped, pubescent, stamens-9, in 3 whorls, first 2-whorls introrse and third one extrorse, staminodes form the 4th whorl. Fruits globose, seated on truncate peduncles.

Fls. & Frts. : January-February.

Distrib. : Occasional along the slopes of the ghats in semi-evergreen forest; Kudal-Rangana fort slopes.

BEILSCHMIEDIA Nees

Beilschmiedia dalzellii (Meissn.) Kosterm. in Reinwardtia 6 : 282. 1962; Sant. Fl. Khandala ed. 3, 230. 1967. *B. fagifolia* Bedd. var. *dalzellii* Meissn.

in DC. Prodr. 15 : 64. 1864; Hook. f. Fl. Brit. India 5 : 122. 1886; Cooke, Fl. Pres. Bombay 3 : 27. 1958 (Repr. ed.).

Trees, 8-15 m tall, young parts glabrous. Leaves 5—10 × 2.5—5.0 cm, elliptic-ovate to ovate-lanceolate, leathery, glabrous and shining above, pale beneath, apex acute. Flowers greenish-brown; in axillary panicles; perianth pubescent, lobes-6, oblong, subequal; stamens-9, outer 2-rows introrse, 3rd row of extrorse, staminodes form 4th whorl. Fruits 3-5 cm long, ovoid, smooth.

Fls. & Frts. : January-March.

Distrib. : Occasional, in a sacred grove along the ghat; Sawantwadi-Chaukul-Soliya jungle.

CASSYTHA L.

Cassytha filiformis L. Sp. Pl. 35. 1753; Hook. f. Fl. Brit. India 5 : 188. 1886; Cooke, Fl. Pres. Bombay 3 : 35. 1958 (Repr. ed.). *Mar.* : 'Amarvel'.

Leafless parasitic, herbaceous climbers, stems wiry, slender, green, branched, attached to the host by suckers, glabrous or hairy. Flowers white; in lax spikes, bracts deciduous; perianth lobes-6, in 2-rows; stamens-9, in 3-rows and staminodes form 4th row. Fruits globose, enclosed in enlarged perianth.

Fls. & Frts. : June-September.

Illus. : Wight, Icon. t. 1847. 1852.

Distrib. : Scattered, in deciduous scrub forest; Vengurla-Near harbour.

CINNAMOMUM Schaeffer

Cinnamomum verum Presl in Priroz. Rostlin. 2 : 36, 37-44, t. 7. 1825; Kosterm. in Reinwardtia 7 : 141. 1965. *C. zeylanicum* Bl. Bijdr. 568. 1826; Hook. f. Fl. Brit. India 5 : 131. 1886; Cooke, Fl. Pres. Bombay 3 : 28. 1958 (Repr. ed.).

Small to medium-sized trees, 5-10 m tall, young parts glabrous; bark aromatic and pungent (also leaves). Leaves 5—15 × 3—6 cm, ovate-oblong to elliptic-ovate, coriaceous, glabrous, shining above, pale beneath, apex sub-acute, 3-5-nerved. Flowers greenish or creamy; in much branched, silky hairy panicles, lax and much longer than leaves; perianth lobes 0.4-0.5 cm long, deflexed in fruits. Fruits ovoid-oblong, purplish.

Fls. & Frts. : February-June.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 388. fig. 463. 1911.

Distrib. : Infrequent in semi-evergreen and moist deciduous forests along the ghats and at base, also cultivated; Sawantwadi-Banda-Tamboli Forest nursery, Chankul, Danoli, Ramghat.

CRYPTOCARYA R. Br.

Cryptocarya wightiana Thw. Enum. 254. 1861; Hook. f. Fl. Brit. India 5 : 120 1886; Cooke, Fl. Pres. Bombay 3 : 26. 1958 (Repr. ed.).

Trees, 10-15 m tall, young parts brownish pubescent. Leaves 6—12 × 3—5 cm, elliptic or elliptic-oblong, coriaceous, glabrous and shining above, glaucous beneath, apex acute or acuminate, nerves 6-10 pairs. Flowers greenishyellow; in axillary, pubescent panicles, usually shorter than leaves; perianth lobes-6, oblong, pubescent; stamens in 3 rows and staminodes forming 4 the row. Fruits 1.6-2.0 cm long, oblong-ellipsoid, brownish-black.

Fls. & Frts. : January-April.

Distrib. : Occasional, in semi-evergreen forest along the higher slopes of the ghats; Sawantwadi-Ambolighat: Temple point.

LITSEA Lamk. ((nom. cons.))

1. Leaves glabrous at maturity; perianth enlarged in fruits .. *L. stocksii*

1. Leaves tomentose beneath at maturity; perianth not enlarged in fruits *L. deccanensis*

Litsea deccanensis Gamble, Fl. Pres. Madras 1235. 1925 et 3 : 864. 1957 (Repr. ed.); Sant. Fl. Khandala ed. 3, 232. 1967. *L. tomentosa* Heyne ex Hook, f. Fl. Brit. India 5 : 157. 1886, non Bl. 1826; Cooke, Fl. Pres. Bombay 3 : 32. 1958 (Repr. ed.).

Shrubs or small trees, 2-5 m tall, young parts softly yellow-tomentose. Leaves 8—16 × 4—6 cm, elliptic-lanceolate or obovate, glabrous above, apex abruptly acute or acuminate, base rounded or narrow, secondary nerves 10-15 pairs. Flowers white or yellow; in umbellate-heads about 2.0-2.5 cm across; perianth incomplete or absent; stamens 18-20, filaments hairy. Fruits 1.5 cm across, globose, black.

Fls. & Frts. : June-September.

Illus. : Wight, Icon. t. 1834. 1852.

Distrib. : Frequent in moist deciduous forest along the slopes of the ghats and at base; Kankavli-Phondaghat. Sawantwadi-Akeri-Mangaon forest, Ambolighat-Temple point, Danoli, Kesari R. F. near Danoli. Vengurla (Cooke, l. c.).

L. stocksii Hook. f. Fl. Brit. India 5 : 176. 1886; Cooke, Fl. Pres. Bombay 3 : 33. 1958 (Repr. ed.).

Medium-sized trees, 5-8 m tall, young parts glabrous. Leaves 8-16 × 4-6 cm, elliptic-oblong, coriaceous, glabrous above, glaucous beneath, apex acute, rounded or obtuse, nerves 8-10 pairs. Flowers white, dioecious; in umbellules in racemes, pubescent; perianth-6, silky hairy, tube funnel-shaped in female flowers; stamens in male flowers 12, in 4-rows. Fruits 1.0-1.5 cm long, ellipsoid, purple.

Fls. & Frts. : February-April.

Distrib. : Occasional in semi-evergreen forest along higher slopes of the ghats Sawantwadi-Amboli-Malai-jungle.

NEOLITSEA Merr.

Neolitsea zeylanica (Nees) Merr. in Philipp. J. Sci. Bot. 1 : Suppl. 56. 1906; Gamble, Fl. Pres. Madras 2 : 867. 1957 (Repr. ed.). *Litsea zeylanica* Nees, Cinnam. Disput. 58. 1823; Hook. f. Fl. Brit. India 5 : 178. 1886; Cooke, Fl. Pres. Bombay 3 : 34. 1958 (Repr. ed.).

Small trees, 3-6 m tall, young parts glabrous, whitish-green. Leaves 4-12 × 2.5-4.5 cm, elliptic or oblong-lanceolate, subcoriaceous, glabrous, above, glaucous beneath, apex obtusely acute or acuminate, 3-nerved. Flowers white, sessile, dioecious; in few-flowered umbellules; perianth lobes-4, deciduous; stamens-6 in male flowers in 2-rows. Fruits oblong, on disc-shaped perianth tube.

Fls. & Frts. : September-April.

Distrib. : Scattered in semi-evergreen forest along the ghats; Kudal-Shivapur paz. Sawantwadi-Ambolighat-Temple point.

PERSEA Miller

Persea macrantha (Nees) Kosterm. in Reinwardtia 6 : 193. 1962; Sant. Fl. Khandala ed. 3, 231. 1967. *Machilus macrantha* Nees. in Wall. Pl. As.

Rar. 2 : 70. 1831; Hook. f. Fl. Brit. India 5 : 140. 1886; Cooke, Fl. Pres. Bombay 3 : 29. 1958 (Repr. ed.). *M. glaucescens* Wight, Icon. t. 1825. 1852.

Trees, 10-15 m tall, young parts glabrous, greyish-green. Leaves clustered at the ends of branches, 6-15 × 3-6 cm, elliptic-oblong, coriaceous, glabrous, dark green above, glaucous beneath, apex acute or obtuse, nerves 7-10 pairs. Flowers greenish-yellow; in silky pubescent panicles; perianth lobes-6, pubescent; stamens-9, in 3-whorls, 4th row of staminodes. Fruits depressed-globose, green and white-dotted when immature, black when mature.

Fls. & Frts. : February-March.

Illus. : Wight, Icon. t. 1824 1852.

Distrib. : Occasional in semi-evergreen forest along ghats and in sacred grove at base; Kankavli-Phonda-Ghonsari Rai. Sawantwadj-Ramghat.

THYMELAEACEAE

GNIDIA L.

Gnidia glauca (Fresen.) Gilg in Bot. Jahrb. Syst. 19. 265. 1894, in Obs; Saldanha in Saldanha & Nicolson, Fl. Hassan Distt. 275. 1976. *Lasisoiphon glaucus* Fresen. in Flora 21 : 603. 1838. *L. eriocephalus* (Grah.) Decne. in Jacq. Voy. Ind. Bot. 4 (3) : 148. 1844; Hook. f. Fl. Brit. India 5 : 197. 1886; Cooke, Fl. Pres. Bombay 3 : 36. 1958 (Repr. ed.). *Mar.* : 'Rametha'.

Shrubs, 1.5-3.0 m tall. Leaves 4-6 × 1.5-2.0 cm, linear-oblong to oblong-lanceolate, subsessile, glabrous, apex acute. Flowers bright yellow; in dense, showy heads, bracts silky; perianth hairy, tube contracted above the ovary, lobes 4-5, ovate; stamens 8-10. Fruits 0.8-1.2 cm long, dry, ellipsoid, enclosed by base of persistent perianth.

Fls. & Frts. : October-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 400, fig. 466, 1911.

Distrib. : Frequent in cleared forest areas along the slopes of the ghats; Kankavli-Phondaghat. Kudal-Ghotge, Pangrad. Sawantwadj-Amboli.

ELAEAGNACEAE

ELAEAGNUS L.

Elaeagnus conferta Roxb. Fl. Ind. 1 : 440. 1820; Sant. Fl. Khandala ed 3, 233. 1967. *E. latifolia* L. Sp. Pl. 121. 1753, *p. p.* ; Hook. f. Fl. Brit. India 5 : 202. 1886; Cooke, Fl. Pres. Bombay 3 : 37. 1958 (Repr. ed.).

Scandent shrubs, sometimes armed, young parts and inflorescence covered with silvery and rusty scales. Leaves 3—8 × 2—4 cm, elliptic-ovate, chartaceous, greyish-green above, glossy silvery-white beneath, apex acute or acuminate. Flowers greenish-yellow or creamy; in axillary, short peduncled, 2-5 flowered clusters, bracts caducous; perianth 0.7-0.8 cm long, constricted above ovary, lobes-4, stamens-4, Fruits 2-4 cm long, reddish-orange, pulp edible.

Fls. & Frts. : January-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 402. fig. 467. 1911.

Distrib. : Infrequent in moist deciduous forest along the ghats and at base; Kudal-Songad paz. Sawantwadi-Ainoda, Ramghat.

LORANTHACEAE

1. Leaves absent or if present without midrib; flowers unisexual ..	<i>Viscum</i>
1. Leaves present with midrib; flowers bisexual :	
2. Flowers subtended by 2-3 bracts ..	<i>Macrosolen</i>
2. Flowers subtended by single bract	
3. Petals free ..	<i>Helixanthera</i>
3. Petals fused ;	
4. Corolla densely tomentose ..	<i>Sciarula</i>
4. Corolla glabrous :	
5. Bracts red; corolla lobes equal to tube ..	<i>Helicanthes</i>
5. Bracts green; corolla lobes shorter than tube ..	<i>Dendrophthoe</i>

DENDROPTHOE MART

1. Leaves opposite or whorled; bracts cupular ..	<i>D. trigona</i>
1. Leaves all opposite; bracts lateral ..	<i>D. falcata</i>

Dendrophthoe falcata (L. f.) Etling. in Denkschr. Kaiserl. Akad. Wissen Math. Naturwiss. K1. 32 : 52-53, 58. t. 13. f. 14. 1872; Dans. in Verh. Koninkl. Akad. Wetensch. Amsterdam 29 (6) : 44. 1933; Sant. Fl. Khandala ed. 3, 234. 1967. *Loranthus falcatus* L. f. Suppl. 211. 1781. *L. longiflorus* Desr. in Lamk. Encycl. 3 : 598. 1789; Hook. f. Fl. Brit. India 5 : 214. 1886; Cooke, Fl. Pres. Bombay 3 : 42. 1958 (Repr. ed.). *L. longiflorus* Desr. var. *amplexifolia* (DC.) Thw. Enum. 134. 1859; Hook. F. l. c. 215; Cooke, l. c. 43.

Large parasitic, bushy plants, stems terete. Leaves 5-15 x 1.8-6.0 cm, elliptic-oblong to lanceolate, coriaceous, glabrous, apex acute, base cordate-amplexicaul to cuneate, secondary nerves obscure. Flowers greenish, sometimes red; in unilateral racemes, bracts ovate, concave; calyx entire, truncate, corolla tube up to 5 cm long, curved, lobes-5. Fruits 1.0-1.2 cm long, ovoid, pink when mature.

Fls. & Frts. : October-April.

Illus. : Wight, Icon. t. 302. 1840.

Distrib. : Frequent in forests from ghats to plains on plants like *Terminalia* spp., *Ficus racemosa* L. etc.; Kudal-Ghotge, Nileli, Sawantwadi-Amboli-Nangartas, Bhedshi, Ramghat.

D. trigona (Wight & Arn.) Dans. ex Sant. Fl. Khandala ed. 1, 163. 1953 et ed. 3, 235. 1967. *Loranthus trigonus* Wight & Arn. Prodr. 386. 1834; Hook. f. Fl. Brit. India 5 : 219. 1886; Cooke, Fl. Pres. Bombay 3 : 43. 1958 (Repr. ed.).

Bushy, robust parasites, stems trigonous, dichotomously branched, woody. Leaves 6-12 x 3-6 cm, ovate or obovate, leathery, glabrous, apex, obtuse or subacute, obscurely 3-5-nerved at base. Flowers 1.8-2.2 cm long; in racemes on old wood, bracts small; calyx cupular, truncate, corolla tube reddish-pink, lobes greenish and spatulate. Fruits 1.0 cm long, ellipsoid, pale reddish.

Fls. & Frts. : November-February.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 416 fig. 477. 1911.

Distrib. : Scattered in forests from ghats to plains, on plants like *Ficus racemosa* L. and *F. religiosa* L. etc.; Kudal-Varad, Sawantwadi-Akeri-Mangaon forest, Ramghat.

HELICANTHES DANS.

Helicanthes elastica (Desr.) Dans. in Verh. Koninkl. Akad. Wetensch. Amsterdam 29 (6) : 55. 1933; Sant. Fl. Khandala ed. 3, 235. 1967. *Loranthus elasticus* Desr. in Lamk. Encycl. 3 : 599. 1789; Hook. f. Fl. Brit. India 5 : 216. 1886; Cooke, Fl. Pres. Bombay 3 : 41. 1958 (Repr. ed.).

Dichotomously branched, woody parasitic undershrubs, stems glabrous, terete. Leaves 3.5-6.5 x 1.8-3.0 cm, ovate or elliptic, coriaceous, sessile, glabrous, apex obtuse or subacute, basally obscurely 3-5 nerved. Flowers 2.0-2.5 cm long, sessile; in fascicles at nodes; calyx cupular, scarlet. corolla-tube greenish-white, lobes 5, reddish, spirally twisted. Fruits 1.0-1.2 cm long, ovoid.

Fls. & Frts. : August-February.

Illus. : Wight, Icon. t. 343. 1840.

Distrib. : Frequent in forests from ghats to plains, on plants like *Careya arborea* Roxb., *Mangifera indica* L. and *Syzygium cumini* (L.) Skeels; Kankavli-Naradave-Dirbyachi Rai. Sawantwadi-Amboli-Nangartas, Banda. Vengurla-Near harbour.

HELIXANTHERA Lour.

Helixanthera wallichiana (Schult.) Dans. in Bull. Jard. Bot. Buitenzorg Ser. 3, 10 : 317. 1929 et Verh. Koninkl. Akad. Wetensch. Amsterdam 29 (6) : 6 1933. *Loranthus wallichianus* Schult. Syst. Veg. 7 : 100. 1829; Hook. f. Fl. Brit. India 5 : 204. 1886; Cooke, Fl. Pres. Bombay 3 : 39. 1958 (Repr. ed.).

Woody, parasitic herbs, stems and branches terete. Leaves 4-10 x 2.5-4.5 cm, elliptic or ovate, coriaceous, glabrous, apex obtuse to subacute, 3-5-nerved basally. Flowers red, 0.3-0.5 cm long; in racemes, 2-3 together, bracts small; calyx globose-cupular, red, corolla lobes 4, free to the base. Fruits ovoid.

Fls. & Frts. : March-July.

Illus. : Wight, Icon. t. 143. 1839.

Distrib. : Occasional in forests along ghats on *Leea indica* (Burm. f.) Merr.; Sawantwadi-Ramghat.

MACROSOLEN (Bl.) Reichenb.

Macrosolen capitellatus (Wight & Arn.) Dans. in Blumea 4 : 36. 1936; Sant. Fl. Khandala ed. 3, 236. 1967. *Loranthus capitellatus* Wight & Arn. Prodr. 382. 1834; Hook. f. Fl. Brit. India 5 : 221. 1886; Cooke, Fl. Pres. Bombay 3 : 44. 1958 (Repr. ed.).

Woody, parasitic herbs or undershrubs, stems and branches terete, glabrous. Leaves 4-8 x 2.5-4.0 cm, ovate to ovate-lanceolate, fleshy, coriaceous, glabrous, apex acute to shortly acuminate. Flowers reddish or green, streaked with purple, sessile; in axillary umbels, bracts ovate or orbicular; calyx cylindric, truncate, corolla up to 2.6 cm long, lobes 6-angled in buds, linear-oblong. Fruits globose.

Fls. & Frts : April-June.

Illus. : Wight, Icon. t. 304. 1840.

Distrib. : Frequent in deciduous forest from ghats to plains on hosts like *Syzygium caryophyllum* (L.) Alston, *Terminalia crenulata* Roth and *Ficus racemosa* L.; Kankavli-Natal, Phonda-Harkool forest, Phondaghat, Kudal-Ghotge, Sawantwadi-Akeri-Mangaon forest, Ambolighat-Kumbheshwar, Ramghat. Vengurla-Math forest.

SCURRULA L.

1. Flowers pedicellate; bracts ovate	..	<i>S. philippensis</i>
1. Flowers subsessile; bracts oblong	..	<i>S. stocksii</i>

Scurrula philippensis (Cham. & Schlecht.) G. Don, Gen. Syst. 3 : 422. 1834; Dans. in Verh. Koninkl. Akad. Wetensch. Amsterdam 29 (5) : 104. 1933. *Loranthus philippensis* Cham. & Schlecht. in Linnaea 3 : 204. 1828. *L. scurrula* Hook. f. Fl. Brit. India 5 : 208. 1886, p.p. (non L. 1762); Cooke, Fl. Pres. Bombay 3 : 40. 1958 (Repr. ed.).

Parasitic herbs, woody, young parts ochraceous to reddish-brown tomentose. Leaves 3.5-6.5 x 2.5-3.5 cm, elliptic-oblong or obovate, glabrous or hairy above, rusty tomentose beneath, apex obtuse. Flowers yellowish-green, floccose-grey hairy; in short, dense racemes, bracts ovate; calyx grey-tomentose, truncate, corolla 1.6-2.0 cm long, lobes-4. Fruits 0.8-1.0 cm long, reddish-brown, pear-shaped.

Fls. & Frts. : November-February.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 407. fig. 470. 1911.

Distrib. : Frequent in deciduous forest from ghats to plains; Kudal-Chapheli. Sawantwadi-Ambolighat-Nanapani, Danoli, Gavata, Ramghat (Cooke, *l.c.*).

S. stocksii (Hook. f.) Dans. in Verh. Koninkl. Akad. Wetensch. Amsterdam 29 (6) : 106. 1933. *Loranthus stocksii* Hook. f. Fl. Brit. India 5 : 213. 1886; Cooke, Fl. Pres. Bombay 3 : 40. 1958 (Repr. ed.).

Woody, parasitic herbs, stems and branches lenticellate. Leaves 1.9-5.0 × 1.2-3.5 cm, elliptic-oblong, buff tomentose when young, apex obtuse, base subcordate or rounded. Flowers rusty tomentose; in fascicles, bracts 0.6 cm long, obtuse; calyx 0.3 cm long, subglobose, orange-red hairy, corolla up to 1.5 cm long, split on one side, tube cylindric, slightly curved, lobes-4. Fruits 0.5 cm long, tomentose, pyriform.

Fls. & Frts. : November onwards.

Distrib. : This species is reported by Cooke (*l.c.*) from 'Sawantwadi jungles' and 'Mazgaon hill near Sawantwadi' based on collection by P. S. Kanitkar; hence it is included here.

VISCUM L.

1. Leaves well developed	..	<i>V. amicum</i>
1. Leaves reduced to scales	..	<i>V. angulatum</i>

Viscum angulatum Heyne ex DC. Prodr. 4 : 283. 1830; Hook. f. Fl. Brit. India 5 : 225. 1886; Cooke, Fl. Pres. Bombay 3 : 47. 1958 (Repr. ed.).

Leafless woody, parasitic herbs, stems and branches 4-angled or terete, pendulous. Flowers green, sessile; in fascicles, axillary or terminal; central one female, lateral ones male, perianth lobes-4, fused. Fruits globose, yellowish.

Fls. & Frts. : October-May.

Illus. : Wight, Icon. L. 1017. 1845.

Distrib. : Frequent in deciduous forest along the ghats on hosts like *Syzygium cumini* (L.) Skeels and *Mallotus philippensis* (Lamk.) Muell.-Arg. etc.; Kankavli-Phondaghat. Kudal-Ghotge. Sawantwadi-Amboli, Ambolighat (Cooke, *l.c.*), Chaukul, Ramghat.

V. monoicum Roxb. ex DC. Prodr. 4 : 273. 1830; Hook. f. Fl. Brit. India 5 : 224. 1886 (incl. var. *edgeworthii*); Cooke, Fl. Pres. Bombay 3 : 46. 1958 (Repr. ed.).

Leafy, pendulous, parasitic herbs. branches longitudinally wrinkled and grooved. Leaves $3-7 \times 0.8-3.0$ cm, oblong-lanceolate, leathery, sessile, falcate, apex acute, base tapering, 3-5 nerved. Flowers greenish; in axillary fascicles, bracts truncate; outer flowers of triads female, inner males, perianth lobes-4. Fruits 0.6 cm long, ovoid, smooth, with whitish lines.

Fls. & Frts. : November-May.

Distrib. : Occasional along ghats on host like *Macaranga peltata* (Roxb.) Muell.-Arg.; Sawantwadi-Ambolighat-Nanapani.

SANTALACEAE

OSYRIS L.

Osyris quadripartita Salz. ex Decne. in Ann. Sci. Nat. Ser. 2, 6 : 64. 1836; Hendrych in Tutin et al. Fl. Europaea 1 : 70. 1964. *O. wightiana* Wall. ex Wight, Icon. t. 1853. 1852; Sant. Fl. Khandala ed. 3, 239. 1967. *O. arborea* Wall. ex A. DC in DC. Prodr. 14 : 633. 1857; Hook. f. Fl. Brit. India 5 : 232. 1886; Cooke, Fl. Pres. Bombay 3 : 50. 1958 (Repr. ed.).

Shrubs, 1.5-3.0 m tall, branches angled, virgate. Leaves $1.5-3.5 \times 0.6-2.5$ cm, elliptic-oblong or obovate, glabrous, glaucous, apex mucronate, base cuneate. Flowers yellow; axillary, solitary or in fascicles; perianth lobes 3-4, triangular; stamens 3-4. Fruits 0.6-0.8 cm across, globose, yellowish-orange.

Fls. & Frts. : November-April.

Illus. : Wight, l.c.

Distrib. : Infrequent in deciduous forest along ghats and in plains; Kudal-Ghotge. Malwan-Kunkavle. Sawantwadi-Amboli.

EUPHORBIACEAE

1. Plants of salt marsh habitat

.. *Eragrostis*

1. Plants of fresh water or land habitats :

2. Flowers arranged in cyathia :

- 3. Cyathia (excluding glands) actinomorphic, involucre with equal lobes .. *Euphorbia*
- 3. Cyathia zygomorphic, shoe or bottle-shaped, involucre with unequal lobes .. *Pedilanthus*
- 2. Flowers not arranged in cyathia :
- 4. Herbaceous plants :
- 5. Plants stinging hairy .. *Tragia*
- 5. Plants not stinging hairy :
- 6. Calyx 5-6-lobed or partite; stamens-3 :
- 7. Disk present; seeds not carunculate *Phyllanthus*
- 7. Disk absent; seeds carunculate .. *Sebastiana*
- 6. Calyx 3-4 lobed; stamens 5-10 .. *Micrococca*
- 4. Shrubs or trees :
- 8. Petals present :
- 9. Stamens connate into a column at least in the lower half :
- 10. Stamens-5; petals usually clawed .. *Bridelia*
- 10. Stamens more than 5; petals not clawed :
- 11. Leaves lobed; seeds carunculate .. *Jatropha*
- 11. Leaves not lobed; seeds not carunculate .. *Dimorphocalyx*
- 9. Stamens free :
- 12. Scaly indumentum present; seeds carunculate .. *Croton*
- 12. Scaly indumentum absent; seeds not carunculate :
- 13. Inflorescence extra-axillary; calyx valvate .. *Agrostistachys*
- 13. Inflorescence axillary; calyx imbricate :
- 14. Petals 2-lobed; stamens 3-6 .. *Actephila*
- 14. Petals entire; stamens 20-30 .. *Blachia*
- 8. Petals absent :
- 15. Milky latex present; petioles with 2-glands at top .. *Sapium*
- 15. Milky latex absent; petioles without glands at top :
- 16. Leaves opposite .. *Trewia*
- 16. Leaves alternate :
- 17. Leaves peltate, red glandular beneath .. *Macaranga*
- 17. Leaves not peltate, nor red glandular beneath :
- 18. Leaves less than 3 cm long :
- 19. Disk present :

20. Stamens free; pistillodes large .. *Securinega*
20. Stamens connate; pistillodes absent .. *Phyllanthus*
19. Disk absent :
21. Only female calyx spreading; anthers adnate to column .. *Breynia*
21. Male and female calyx spreading; anthers not adnate to column .. *Saururus*
13. Leaves more than 3 cm long :
22. Disk present :
23. Flowers in spikes; pistillodes present .. *Antidesma*
23. Flowers in fascicles (male); pistillodes absent .. *Drypetes*
22. Disk absent :
24. Stamens connate, at least at base; male flowers in clusters :
25. Styles connate into column; fruits capsules .. *Glochidion*
25. Styles not connate; fruits drupes .. *Drypetes*
24. Stamens free; male flowers in racemes or spikes :
26. Filaments branched; leaves covered with scales beneath .. *Homonoia*
26. Filaments not branched; leaves not covered with scales beneath :
27. Female flowers in spikes .. *Aporosa*
27. Female flowers solitary or 1-2 together :
28. Leaves glabrous beneath; anthers 4-celled .. *Cleidion*
28. Leaves gland dotted beneath; anthers 2-celled .. *Mallotus*

ACTEPHILA BL.

Actephila excelsa (Dalz.) Muell.-Arg. in *Linnaea* 32 : 78. 1863; Hook. f. *Fl. Brit. India* 5 : 282. 1887; Cooke, *Fl. Pres. Bombay* 3 : 71. 1958 (Repr. ed.); Airy Shaw in *Kew Bull.* 26 : 209. 1972. *Amonospermum excelsum* Dalz. in Hook. *J. Bot. & Kew Gard. Misc.* 3 : 228. 1851.

Undershrubs or shrubs, 1.5-2.5 m tall, bark greyish-brown, branches greyish-green, terete. Leaves 6-15 × 3.5-5.0 cm, obovate or elliptic, coriaceous,

shining above, pale beneath, apex acute, margins intruned. Flowers greenish or greenish-white; male and female flowers in axillary clusters; calyx lobes ovate, glabrous, petals obovate, inserted under the disk; stamens 3-6 inserted on the disk. Fruits 2-3 cm across, depressed-globose, 3-lobed.

Fls. & Frts. : October-April.

Illus. : Wight, Icon, t. 1910. 1852.

Distrib. : Infrequent along the ghats in semi-evergreen forest; Kankavli-Phondaghat. Sawantwadi-Amboli, Amboli ghat-Nanapani.

AGROSTISTACHYS Dalz.

Agrostistachys indica Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 41. 1850; Hook. f. Fl. Brit. India 5 : 406. 1887; Cooke, Fl. Pres. Bombay 3 : 102. 1958 (Repr. ed.); Balakrishnan in J. Bombay nat. Hist. Soc. 67 : 301. 1970; Airy Shaw in Kew Bull. 26 : 210. 1972.

Shrubs, about 2 m tall. Leaves 10-22 × 4-6 cm, lanceolate or oblanceolate, glabrous, acute at both ends, margins sharply serrate. Flowers in short, catkin-like bracteate racemes; male flowers sessile and female flowers pedicellate; calyx 2-5 lobed, petals 5-6 lobed, oblong, deciduous. Fruits 1.0-1.2 cm across, globose, reddish.

Fls. & Frts. : February-April.

Illus. : Bodd. Icon. t. 241. 1874.

Distrib. : Occasional along the ghats; Sawantwadi-Ambolighat top.

ANTIDESMA L.

1. Male flowers sessile; calyx 5-7 partite	..	<i>A. ghaesembilla</i>
1. Male flowers pedicellate; calyx 4-lobed :		
2. Bracts ovate; stamens-2	..	<i>A. acidum</i>
2. Bracts setaceous; stamens 3-4	..	<i>A. menasii</i>

Antidesma acidum Retz. Obs. Bot. 5 : 30. 1789; Airy Shaw in Kew Bull. 26 : 352. 1972. *A. diandrum* (Roxb.) Roth, Nov. Pl. Sp. 369. 1821; Hook. f. Fl. Brit. India 5 : 361. 1887; Cooke, Fl. Pres. Bombay 3 : 90. 1958 (Repr. ed.).

Shrubs, 3-5 m tall, young parts glabrous or puberulous. Leaves 3-8 × 2-5 cm, elliptic or obovate, thin, glabrous or pubescent, apex acute, 5-8 pairs of lateral nerves. Flowers greenish-yellow; in puberulous racemes; male flowers with cup-shaped calyx and anthers horse-shoe shaped; in female flowers calyx deeply lobed. Fruits 0.4-0.5 cm long, ovoid, reddish-purple.

Fls. & Frts. : June-August.

Illus. : Wight, Icon. t. 766. 1844.

Distrib. : Frequent in deciduous forest in plains; Kudal-Hanumanghat Rai. Sawantwadi-Akeri-Mangaon forest, Nemle forest, Banda, Danoli, Hewale, Satoli. Vengurla (Cooke. l.c.).

A. ghaesembilla Gaertn. *Fruct.* 1 : 189. t. 39. 1788; Hook. f. *Fl. Brit. India* 5 : 357. 1887; Cooke, *Fl. Pres. Bombay* 3 : 89. 1958 (Repr. ed.); Airy Shaw in *Kew Bull.* 26 : 353. 1972.

Shrubs, 2-3 m tall, young parts brownish pubescent. Leaves 4-6 × 2.5-4.0 cm, broadly elliptic or orbicular-obovate, pubescent or glabrous above, softly tomentose beneath, apex rounded or emarginate. Flowers in villous, paniced spikes; calyx in male and female flowers densely hairy, lobes 5-7; stamens in male flowers 4-7. Fruits reddish-purple, ovoid.

Fls. & Frts. : April-May.

Illus. : Wight, Icon. tt. 820 & 821. 1844-1845.

Distrib. : Occasional in deciduous forest in plains; Vengurla-Math forest.

A. menasu Miq. ex Tul. in *Ann. Sci. Nat. Bot. Ser.* 3, 15 : 215. 1851; Hook f. *Fl. Brit. India* 5 : 364. 1887; Cooke, *Fl. Press. Bombay* 3: 90. 1958 (Repr. ed.).

Shrubs or small trees, 3-5 m tall, young branches pubescent. Leaves 7-16 × 3-6 cm, oblong-lanceolate or elliptic-oblong, glabrous, apex acute to acuminate. Flowers greenish-yellow; in branched or simple spikes; calyx lobes hairy, stamens inserted on hollows of disk. Fruits ovoid, reddish, drying black.

Fls. & Frts. : April-June.

Distrib. : Frequent along the ghats in moist deciduous and semi-evergreen forests and in plains in deciduous forest; Kudal-Hanumanghat, Wasuli. Sawantwadi-Amboli-Malai jungle, Danoli, Ramghat.

APOROSA Bl.

Aporosa lindleyana (Wight) Baill. Etudes Gen. Euph. 645. 1874; Hook. f. Fl. Brit. India 5 : 349. 1887; Cooke, Fl. Pres. Bombay 3 : 91. 1958 (Repr. ed.). *Scepa lindleyana* Wight, Icon. t. 361. 1840. Mar. : 'Salai', 'Sali'.

Medium sized trees, 8–15 m tall, young shoots pubescent. Leaves 6–12 × 3–5 cm, elliptic-oblong, coriaceous, glabrous, shining, apex acuminate. Flowers yellowish-green; in spikes; male flowers sessile, calyx deciduous, stamens 2–3; female flowers shortly pedicellate, calyx lobes-4, ovary hairy. Fruits 0.9–1.2 cm across, globose-ovoid, orange-red, glabrous.

Fls. & Frts. : November–June.

Illus. : Wight, *l.c.*; Bedd. Fl. Sylv. t. 286. 1872.

Distrib. : Common along ghats in moist deciduous forest and in plains in deciduous forest; Kankavli-Bhironde, Naradave-Brahmanachi Rai, Phonda-Mhatardeo Rai, Phondaghat, Kudal-Chapheli-Pulas jungle, Ghotge, Kerude jungle, Sawantwadi-Ambolighat-Kumbheshwar, Bhedshi, Ramghat, Tirali.

BLACHIA Baill.

Blachia denudata Benth. in J. Linn. Soc. 17 : 226. 1880; Hook f. Fl. Brit. India 5 : 403. 1887; Cooke, Fl. Pres. Bombay 3 : 100. 1958 (Repr. ed.).

Shrubs, 1.5–2.5 m tall, young parts glabrous. Leaves variable, 5–12 × 2.5–4.5 cm, ovate, ovate-lanceolate or elliptic-oblong, glabrous, apex obtuse, acute or acuminate, nerves 6–8, distant. Flowers greenish-yellow or white; male flowers in racemes, calyx 4-lobed, stamens 10 or more; female flowers solitary, calyx deciduous. Fruits 1.5–1.8 cm across, 3-lobed.

Fls. & Frts. : November–August.

Distrib. : Scattered in semi-evergreen forest along ghats; Kankavli-Phondaghat. Sawantwadi-Amboli-Mahadeogad, Ambolighat-Nanapani and Temple point, Chaukul.

BREYNIA J. R. & G. Forst. (*nom. cons.*)

1. Seeds arillate	..	<i>B. retusa</i>
1. Seeds exarillate	..	<i>B. vitis-idea</i>

Breynia retusa (Dennst.) Alston in Ann. Roy. Bot. Gard. (Peradeniya) 11 : 204. 1929 et in Trimen, Handb. Fl. Ceylon 6 (Suppl.) : 261. 1931; Airy Shaw in Kew Bull. 26 : 227. 1972. *Phyllanthus retusus* Dennst. Schuess, Hort. Malab. 24. 1818. *Breynia patens* (Roxb.) Rolfe in J. Bot. 11 : 359. 1881; Hook. f. Fl. Brit. India 5 : 329. 1887; Cooke, Fl. Pres. Bombay 3 : 79. 1958 (Repr. ed.). *Mar.* : *Kangli*.

Shrubs, 1-2 m tall, young parts glabrous. Leaves 1.2-2.8 × 0.8-1.5 cm, orbicular or obovate, thin, drying black, glabrous, apex rounded, tender leaves reddish. Flowers greenish-yellow; in fascicles, deflexed; calyx turbinate, staminal column with adnate anthers. Fruits depressed-globose, bright orange-red, seated on saucer-like calyx.

Fls. & Frts. : April-September.

Illus. : Wight, Icon. t. 1897. 1852.

Distrib. : Common in deciduous forest along ghats and in plains; Kankavli-Osargaon, Phonda-Harkool forest. Kudal-Hanumanghat Rai. Sawantwadi-Akeri-Mangaon forest, Amboli, Ambolighat-Nanapani, Danoli, Konal R. F. near Bhedshi, Ramghat. Vengurla-Math forest.

B. vitis-idea (Burm. f.) Fischer in Bull. Misc. Inf. Kew 1932 : 65. 1932; Airy Shaw in Kew Bull. 26 : 227. 1972. *Rhamnus vitis-idea* Burm. f. Fl. Ind. 61. 1768. *Breynia rhamnoides* (Willd.) Muell.-Arg. in DC. Prodr. 15 : 440. 1866; Hook. f. Fl. Brit. India 5 : 330. 1887; Cooke, Fl. Pres. Bombay 3 : 79. 1958 (Repr. ed.).

Shrubs, 3-6 m tall, young parts glabrous. Leaves 1.5-4.0 × 0.8-2.5 cm, ovate or elliptic, membranous, drying black, glabrous, dark green, shining above, pale beneath, apex obtuse to acute. Flowers of both sexes often solitary (males with staminal column produced beyond anthers.). Fruits 0.6 cm across, globose, yellow to dull red, calyx not accrescent.

Fls. & Frts. : April-November.

Illus. : Wight, Icon. t. 1898. fig. 1. 1852.

Distrib. : Scattered along the ghats; Sawantwadi-Ambolighat-Temple point, Ramghat.

BRIDELIA Willd.

1. Flowers in axillary clusters	..	<i>B. squamata</i>
1. Flowers in interrupted pseudo-spikes due to reduction of leaves :		
2. Calyx in female flowers hairy outside	..	<i>B. scandens</i>
2. Calyx in female flowers glabrous	..	<i>B. retusa</i>

Bridelia retusa (L.) Spreng. Syst. Veg. 3 : 48. 1826; Hook. f. Fl. Brit. India 5 : 268. 1887, *p.p.*; Cooke, Fl. Pres. Bombay 3 : 68. 1958, *p.p.* (Repr. ed.); Sant. in J. Bombay nat. Hist. Soc. 50 : 308. 1951. *Cluytia retusa* L. Sp. Pl. 1042. 1753.

Trees, 8-10 m tall, armed with thorns when young. Leaves 5-12 × 3-5 cm, elliptic-oblong or obovate, chartaceous, glabrous above, brownish hairy beneath, apex acute or obtuse or retuse. Flowers greenish-yellow; in clusters in pseudo-spikes; calyx glabrous, lobes-5, petals-5; stamens-5, filaments connate below. Fruits 0.6-0.8 cm across, globose, black.

Fls. & Frts. : June-September.

Illus. : Sant. *L.c.* 308. plate 1. fig. 1.

Distrib. : Scattered in deciduous forest from ghats to plains; Deogad-Vada-tar. Sawantwadi-Akeri. Vengurla-Vagiri forest.

B. scandens (Roxb.) Willd. Sp. Pl. 4 : 979. 1804, *p.p.*; Sant. in J. Bombay nat. Hist. Soc. 50 : 307. 1951. *Cluytia scandens* Roxb. Pl. Cor. 2 : 39. t. 173. 1798. *Bridelia stipularis* auct. non (L.) Bl. (1826); Hook. f. Fl. Brit. India 5 : 270. 1887, *p.p.*; Cooke, Fl. Pres. Bombay 3 : 68. 1958 (Repr. ed.).

Scandent shrubs, young parts brownish-hairy, sometimes branches armed with thorns. Leaves 2-5 × 1-3 cm, elliptic, glabrous above, fulvous pubescent beneath, apex obtuse. Flowers greenish-yellow; in compound, axillary clusters, forming pseudo-spikes; calyx hairy, petals obovate. Fruits 0.6-0.8 cm long, ovoid, black.

Fls. & Frts. : October-April.

Distrib. : Frequent in moist deciduous forest from ghats to plains; Deogad-Port Road. Kankavli-Natal, Phondaghat. Kudal-Ghotge, Varad. Malwan-Achre coast. Sawantwadi-Akeri-Mangaon forest, Ambolighat-Temple point, Danoli, Ramghat, Terwan.

B. squamosa (Lamk.) Gehrm. in Engl. Bot. Jahrb. 41. Beibl. 95 : 30. 1908; Sant. in J. Bombay nat. Hist. Soc. 50 : 308. 1951. *Cluytia squamosa* Lamk. Encycl. 5 : 54. 1790. *Bridelia retusa* sensu Hook. f. Fl. Brit. India 5 : 268. 1887, *p.p.* (non Spreng. 1826); Cooke, Fl. Pres. Bombay 3 : 68. 1958 (Repr. ed.).

Moderate-sized trees, 8-10 m tall, young parts greyish puberulous or rufous-tomentose. Leaves 5-12 × 3-5 cm, elliptic or ovate-elliptic, glabrous above, hairy, especially on the nerves beneath, apex acute or acuminate.

Flowers greenish-yellow; in axillary clusters; calyx hairy outside. Fruits 0.8—1.2 cm across, globose, black.

Fls. & Frts. : October-June.

Illus. : Sant. *l.c.* 308. plate 1. fig. 2.

Distrib. : Common in moist and dry deciduous forests from lower slopes of the ghats to plains; Kankavli-Humbrat Road, Phondaghat, Kudal-Ghotge, Sawantwadi-Akeri-Mangaon forest, Ambolighat-Nanapani and Temple point, Danoli, Ramghat. Vengurla-Vagiri forest.

CLEIDION Bl.

Cleidion spiciflorum (Burm. f.) Merr. in Interpr. Rumph. Herb. Amboin. 322. 1917 (in obs.) et Enum. 2 : 439. 1923; Airy Shaw in Kew Bull. 26 : 234. 1972. *Acalypha spiciflora* Burm. f. Fl. Ind. 203. t. 61. f. 2. 1768. *Cleidion javanicum* Bl. Bijdr. 613. 1825; Hook. f. Fl. Brit. India 5 : 444. 1887; Cooke, Fl. Pres. Bombay 3 : 116. 1958 (Repr. ed.).

Moderate-sized trees, young parts glabrous. Leaves 5-12 × 3-5 cm, elliptic or elliptic-lanceolate, glabrous, apex acuminate, margins toothed. Flowers monoecious or dioecious; male flowers in axillary racemes and female flowers solitary or 2-together; calyx 3-5 lobed; in male flowers stamens many. Fruits 2.0-2.5 cm across, 2-valved cocci.

Fls. & Frts. : October-March.

Illus. : Bedd. Fl. Sylv. t. 272. 1872.

Distrib. : This species is reported by Cooke (*l.c.*) from Phondaghat (in Kankavli taluka) based on the collection by Stocks; so it is included here.

CROTON L.

1. Petals woolly; filaments villous below	..	<i>C. roxburghii</i>
1. Petals glabrous; filaments not villous	..	<i>C. reticulatum</i>

Croton roxburghii Balak. in Bull. Bot. Surv. India 3 : 39. 1961. (1962) (*non* Delile 1814, nec. Siebr. ex Spreng. 1826); Hook. f. Fl. Brit. India 5 : 386. 1887; Cooke, Fl. Pres. Bombay 3 : 96. 1958 (Repr. ed.); Airy Shaw in Kew Bull. 26 : 249. 1972.

Shrubs, 2—3 m tall, young parts clothed with silvery scales. Leaves 8—16 × 4—8 cm, oblong-lanceolate, glabrous (when mature), apex acute, margins crenate-serrate. Flowers greenish-yellow; in racemes or in fascicles; sepals ciliate; stamens-12. Fruits 1.2 cm across, subglobose, 3-lobed.

Fls. & Frts. : February-April.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 471, fig. 505. 1911.

Distrib. : Occasional in scrub jungle in coastal plain; Deogad-Port Road.

C. zeylanicus Muell.-Arg. in *Linnaea* 34 : 107. 1865 et in DC. *Prodr.* 15 (2) : 581. 1866; Balak. in *Bull. Bot. Surv. India* 3 : 39. 1961 (1962); *C. reticulatus* Heyne ex Muell.—Arg. in DC. *Prodr.* 15 (2) : 580. 1866, (*non* Willd. 1805); Hook. f. *Fl. Brit. India* 5 : 386. 1887; Cooke, *Fl. Pres. Bombay* 3 : 96. 1958 (Repr. ed.).

Shrubs, 2—3 m tall, young parts covered with scales. Leaves 4—12 × 2—4 cm, elliptic-lanceolate or ovate-lanceolate, glabrous above, covered with silvery scales beneath apex acute or acuminate. Flowers in racemes covered with silvery scales; sepals in female flowers accrescent in fruits, petals shorter than sepals; in male flowers stamens many. Fruits 1.2 cm across, ovoid, 3-lobed, scaly.

Fls. & Frts. : November-February.

Distrib. : This species is reported by Cooke (*l.c.*) from 'Phondaghat' (in Kankavli taluka) based on collection by Ritchie; so it is included here.

DIMORPHOCALYX Thw.

Dimorphocalyx lawianus (Muell.-Arg.) Hook. f. *Fl. Brit. India* 5 : 305. 1887; Cooke, *Fl. Pres. Bombay* 3 : 101. 1958 (Repr. ed.); Sant. *Fl. Khandala* ed. 3, 248. 1967. *Trigonostemon lawianus* Muell.-Arg. in *Linnaea* 34 : 212. 1865.

Shrubs or small trees, 2—6 m tall, branchlets whitish. Leaves 6—14 × 3—6 cm, elliptic-lanceolate, glabrous, apex obtusely acuminate. Flowers monoecious, female flowers larger and different from males; sepals in female flowers dissimilar, eglandular, enlarged in fruits; stamens-10 or more in male flowers. Fruits 1.0—1.2 cm across, depressed-globose.

Fls. & Frts. : February-June.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 475. fig. 506. 1911.

Distrib. : Infrequent in moist deciduous and semi-evergreen forests along the ghats; Kankavli-Phondaghat. Sawantwadi-Amboli-Hiranyakeshi, Chaukul.

DRYPETES Vahl

1. Stamens 2-4, filaments connate at base .. *D. roxburghii*

1. Stamens more than 4, filaments free throughout .. *D. venusta*

Drypetes roxburghii (Wall.) Hurusawa in J. Fasc. Sci. Univ. Tokyo Sect. III Bot. 6 : 337. 1954; Airy Shaw in Kew Bull. 26 : 257. 1972. *Putranjiva roxburghii* Wall. Tent. Fl. Nep. 61. 1826; Hook f. Fl. Brit. India 5 : 336. 1887; Cooke, Fl. Pres. Bombay 3 : 86. 1958 (Repr. ed.).

Medium-sized trees, 8—12 m tall. Leaves 4—6 × 2.2—3.5 cm, elliptic-oblong, glabrous, apex obtuse or acute to acuminate, margins entire or serrulate. Flowers dioecious or sometimes monoecious; in axillary clusters; sepals 3—6 lobed, petals absent. Fruits 0.8—1.2 cm across, ellipsoid.

Fls. & Frts. : May-October.

Illus. : Wight, Icon. t. 1876. 1852.

Distrib. : Occasional in deciduous forest in plains and cultivated as well; Kudal-Kadaval.

D. venusta (Wight) Pax & Hoffm. in Engl. Pflanzenr. 81 : 266. 1922; Sant. Fl. Khandala ed. 3, 247. 1967. *Astylis venusta* Wight, Icon. t. 1992. 1853. *Hemicyclia venusta* Thw. in Kew J. Bot. 7 : 272. 1855; Hook. f. Fl. Brit. India 5 : 339. 1887; Cooke, Fl. Pres. Bombay 3 : 87. 1958 (Repr. ed.).

Small trees, 6—8 m tall, branches drooping, young parts glabrous. Leaves 4—9 × 2.5—4.5 cm, elliptic-oblong, glabrous, apex obtusely acute or acuminate. Flowers dioecious; in axillary clusters or solitary (female); sepals—4, pubescent, stamens 5—8. Fruits 1.9—2.2 cm long, ovoid, 3-angled, pubescent.

Fls. & Frts. : November-April.

Illus. : Wight, Ic.

Distrib. : Occasional in semi-evergreen forest along the ghats; Sawantwadi-Ambolighat-Temple point.

EUPHORBIA L.

1. Stems not developed above the ground :
 2. Bracts ovate-lanceolate; seeds ovoid .. *E. fusiformis*
 2. Bracts triangular or triangular-lanceolate; seeds spherical .. *E. panchganiensis*
1. Stems well developed above the ground :
 3. Glands of involucre with conspicuous petaloid limbs :
 4. Floral leaves imbricate and concealing involucre :
 5. Limbs of glands rounded at apex; seeds tuberculate .. *E. pycnostegia*
 5. Limbs of glands sinuate at apex; seeds parallel grooved .. *E. elegans*
 4. Floral leaves not imbricate and not concealing involucre :
 6. Cocci winged; seeds papillose .. *E. noloptera*
 6. Cocci not or slightly winged; seeds smooth .. *E. parviflora*
 3. Glands of involucre without or with inconspicuous petaloid limbs :
 7. Erect or suberect herbs; seeds rugulose .. *E. hirta*
 7. Prostrate herbs; seeds not rugulose :
 8. Capsules pubescent .. *E. thymifolia*
 8. Capsules glabrous .. *E. heyneana*

Euphorbia elegans Spreng. Syst. Veg. 3 : 794. 1826; Hook. f. Fl. Brit. India 5 : 246. 1887; Cooke, Fl. Pres. Bombay 3 : 61. 1958 (Repr. ed.); Sant. in Bull. Bot. Soc. Bengal 8 (1 & 2) : 13. 1954.

Erect, branched herbs, stems and branches covered with spreading, deciduous hairs. Leaves 0.6—3.0 × 0.4—1.5 cm, elliptic or elliptic-oblong, covered with weak hairs, apex obtuse, margins serrulate. Flowers in involucre hairy, towards the ends of branches; limbs of glands 0.15—0.30 cm long, pink. Fruits globose, hairy.

Fls. & Frts. : September-November.

Distrib. : Occasional along the ghat in open areas; Sawantwadi-Ramghat.

E. fusiformis Buch.-Ham. in D. Don, Prodr. Fl. Nep. 62. 1825; Hook. f. Fl. Brit. India 5 : 256. 1887; Sant. in Bull. Bot. Soc. Bengal 8 (1 & 2) : 3. 1954. *E. ucaulis* Roxb. Fl. Ind. 2 : 272. 1832; Cooke, Fl. Pres. Bombay 3 : 57. 1958 (Repr. ed.).

Dwarf, perennial herbs, stems cylindric, stout, 12—25 cm long, underground. Leaves radical, 12—20 cm long, obovate or oblanceolate, glabrous, apex obtuse. Flowers in dichotomous cymes; involucre hemispheric; glands of the limbs-5. Fruits glabrous, cocci compressed. Seeds smooth.

Fls. & Frts. : April-May.

Distrib. : This species has been reported by Cooke (*l.c.*) from Sawantwadi based on collection by Dalzell; so it is included here.

E. heyneana Spreng. Syst. Veg. 3 : 791. 1826; Panigrahi in Kew Bull. 29 : 695. 1974. *E. microphylla* Heyne ex Roth, Nov. Pl. Sp. 229. 1821, (*non* Lamk, 1788); Hook. f. Fl. Brit. India 5 : 252. 1887; Cooke, Fl. Pres. Bombay 3 : 65. 1958 (Repr. ed.); Airy Shaw in Kew Bull. 26 : 266. 1972. *E. bombaiensis* Sant. in Bull. Bot. Soc. Bengal 8 (1 & 2) : 17. 1954.

Glabrous, star-like spreading annual herbs. Leaves 0.3—0.6 × 0.3—0.5 cm, obliquely, broadly elliptic-oblong or obovate, glabrous, apex rounded or emarginate. Involucres axillary, glabrous; limbs of glands small. Fruits 0.15—0.2 cm across, glabrous, obtusely keeled. Seeds quadrangular, blunt.

Fls. & Frts. : April-June.

Distrib. : Occasional in open situations in plains and along road sides; Sawantwadi-Danoli.

E. hirta L. Sp. Pl. 454. 1753; Sant. in Bull. Bot. Soc. Bengal 8 (1 & 2) : 15. 1954; Airy Shaw in Kew Bull. 26 : 264. 1972. *E. pilulifera* auct. *non* L. (1753); Hook. f. Fl. Brit. India 5 : 250. 1887; Cooke, Fl. Pres. Bombay 3 : 64. 1958 (Repr. ed.).

Erect or ascending, annual herbs, stems yellowish hairy. Leaves 1—3 × 0.4—1.2 cm, obliquely elliptic or lanceolate, membranous, hairy on both surfaces, apex acute or subobtuse. Flowers in cyathia, aggregated into dense, axillary, globular clusters; involucre staminate or hermaphrodite; glands-4. Fruits globose-trigonous, appressed-hispid, cocci carinate.

Fls. & Frts. : February-June.

Distrib. : Frequent in plains in open situations, along road sides and in fields as weed; Kudal-Chapheli. Malwan-Sindhudurg. Sawantwadi-Bhedshi, Danoli.

E. notoptera Boiss. in DC. Prodr. 15 (2) : 26. 1862; ; Hook. f. Fl. Brit. India 5 : 247. 1887; Cooke, Fl. Pres. Bombay 3 : 61. 1958 (Repr. ed.); Sant. in Bull. Bot. Soc. Bengal 8 (1 & 2) : 13. 1954.

Erect, slender herbs, stems and branches terete, glabrous, nodes swollen. Leaves 1.5—2.5 × 0.2—0.5 cm, linear-oblong, glabrous, shining above, pale beneath, apex mucronate, margins serrulate. Involucres in axillary cymes; limbs of glands whitish, or rarely pale pink, unequally cordate. Fruits 0.2 cm across, globose, cocci with 2 dorsal wings.

Fls. & Frts. : April-August.

Distrib. : Scattered in shady places in deciduous forest from lower slopes of the ghats to plains; Deogad-Naringre. Kankavli-Phonda Rai, Phondaghat. Malwan-Kuperighati. Sawantwadi-Ajgaon. Vengurla (Cooke, *l.c.*).

E. panchganiensis Blatt. & McC. in J. Asiat. Soc. Bengal. n.s. 26 : 353. 1930; Sant. in Bull. Bot. Soc. Bengal 8 (1 & 2) : 4. 1954.

Succulent herbs, root stock cylindric. Leaves broadly or narrowly lanceolate or oblong, radical, with wavy margins, appearing after flowers (not seen in Sindhudurg District plants). Peduncles compressed or round; cymes 6 cm long (with peduncle), stout, fleshy, pale purple or pink, branched dichotomously; involucre 0.6 cm across, glands oblong. Fruits 0.4—0.7 cm broad, 3-lobed, cocci rounded. Seeds globose.

Fls. & Frts. : February-April.

Distrib. : Occasional on rocky slopes along coastal hilly areas; Malwan-Achre-Kaziwada sada.

E. parviflora L. Syst. ed. 10, 2 : 1047. 1759; Sant. in Bull. Bot. Soc. Bengal 8 (1 & 2) : 13. 1954. *E. hypericifolia* L. Sp. Pl. 454. 1753, *p. p.*; Hook. f. Fl. Brit. India 5 : 249. 1887, *p. p.* *E. hypericifolia* L. var. *parviflora* Prain, Bengal Pl. 2 : 924. 1903; Cooke, Fl. Pres. Bombay 3 : 63. 1958 (Repr. ed.).

Slender, erect or ascending herbs, branches glabrous or sometimes pubescent. Leaves 1.0—2.5 × 0.4—0.8 cm, elliptic-oblong or obovate, glabrous above, glaucous beneath, apex rounded or obtuse, margins serrulate. Involucres in axillary cymes; limbs of glands white or pink. Fruits globose, cocci hispid hairy.

Fls. & Frts. : August-October.

Distrib. : Infrequent in open situations in deciduous forest in plains; Kankavli-Osargaon. Sawantwadi-Hewale.

E. pycnostegia Boiss. Cent. Euphorb. 9. 1860; Hook. f. Fl. Brit. India 5 : 246. 1887; Cooke, Fl. Pres. Bombay 3 : 60. 1958 (Repr. ed.); Sant. in Bull. Bot. Soc. Bengal 8 (1 & 2) : 11. 1954.

Dichotomously branched, annual herbs, nodes swollen. Leaves 2.0—3.5 × 0.4—1.2 cm, elliptic-oblong, subsessile, glabrous, apex obtuse or rounded, margins finely serrulate or entire; floral leaves up to 1.2 cm long, ovate, glabrous. Involucres axillary, glabrous, stalked; limbs of glands oblong, white or pale pink. Fruits ovoid, cocci obtusely keeled, hirsute or glabrous. Seeds 4-angled.

Fls. & Frts. : September-November.

Distrib. : Infrequent along the ghats and at base along the edges of forests; Kankavli-Phonda-Bhairy pathar, Phondaghat, Sawantwadi-Amboli.

E. thymifolia L. Sp. Pl. 454. 1753; Hook. f. Fl. Brit. India 5 : 252. 1887; Cooke, Fl. Pres. Bombay 3 : 64. 1958 (Repr. ed.); Sant. in Bull. Bot. Soc. Bengal 8 (1 & 2) : 16. 1954; Airy Shaw in Kew Bull. 26. 267. 1972.

Prostrate, annual herbs, stems hispidly hairy. Leaves up to 0.4 cm long, obliquely oblong or ovate, glabrous above, appressedly hairy beneath, apex obtuse, margins serrulate. Cymes axillary, congested; involucres hairy; limbs of glands stipitate, minute. Fruits ovoid, cocci obtusely carinate, hairy.

Fls. & Frts. : June-August.

Distrib. : Uncommon in moist, open situations in plains; Kankavli-Osargaon. Sawantwadi-Hewale.

EXCOECARIA L.

Excoecaria agallocha L. Sp. Pl. ed. 10, 1288. 1759; Hook. f. Fl. Brit. India 5 : 472. 1888; Cooke, Fl. Pres. Bombay 3 : 122. 1958 (Repr. ed.); Airy Shaw in Kew Bull. 26 : 168. 1972.

Shrubs with milky latex, stems and branches glabrous. Leaves alternate, 4—8 × 2.5—4.0 cm, ovate-elliptic or oblong-elliptic coriaceous, glabrous, apex acuminate. Flowers greenish-yellow; male flowers in compact spikes, axillary and female flowers in racemes; sepals serrulate. Fruits deeply lobed, smooth.

Fls. & Frts. : February-September.

Illus. : Wight, Icon. 1. 1865. 1852.

Distrib. : Infrequent along the coast and in creeks; Deogad-Nadan-Vir. Malwan-Coastal areas, Kalawli creek.

GLOCHIDION J. R. & G. Forst.

1. Young parts velvety pubescent; anthers-3	..	<i>G. velutinum</i>
1. Young parts glabrous; anthers 3-7 :		
2. Female flowers pedicellate; anthers 5-7	..	<i>G. zeylanicum</i>
2. Female flowers sessile; anthers-3	..	<i>G. hohenackeri</i>

Glochidion hohenackeri Bedd. For. Man. in Fl. Sylv. 193. 1873; Hook. f. Fl. Brit. India 5 : 314. 1887; Cooke, Fl. Pres. Bombay 3 : 75. 1958 (Repr. ed.).

Shrubs or small trees, 3-5 m tall. Leaves 3—8 × 2—4 cm, elliptic-lanceolate, glabrous, apex acute or obtusely acuminate. Flowers yellowish-green; male flowers on capillary pedicels, calyx divided up to base; female flowers 5-locular. Fruits 0.6-0.9 cm across, 6-8 lobed, depressed. Seeds reddish, angular.

Fls. & Frts. : August-February.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 446. fig. 493. 1911.

Distrib. : Frequent in moist deciduous and deciduous forests from ghats to plains; Kankavli-Naradave, Phondaghat. Kudal-Ghotge, Nerur. Sawantwadi-Akeri, Ambolighat-Nanapani, Danoli, Gavata, Ramghat.

G. velutinum Wight, Icon. t. 1907. f. 2. 1852; Hook. f. Fl. Brit. India 5 : 322. 1887; Cooke, Fl. Press. Bombay 3 : 74. 1958 (Repr. ed.).

Shrubs, 2-3 m tall, branches velvety pubescent. Leaves 3.5-5.5 × 2.5-4.0 cm, elliptic or ovate, thinly coriaceous, pubescent, apex obtuse, acute or shortly acuminate, 6 nerved. Flowers greenish; in axillary pubescent clusters; sepals ovate, pubescent. Fruits depressed-globose, 4-8 lobed. Seeds scarlet.

Fls. & Frts. : February-April.

Illus. : Wight, l. c.

Distrib. : Occasional along the slopes of the ghats; Sawantwadi-Ramghat.

G. zeylanicum A. Juss. Tent. Euphorb. 107. t. 3. 1824; Hook. f. Fl. Brit. India 5 : 310. 1887. *G. zeylanicum* A. Juss. var. *nitidum* Hook. f. l. c. 311; Cooke, Fl. Pres. Bombay 3 : 73. 1958 (Repr. ed.).

Shrubs or small trees, branches drying black. Leaves 4—12 × 2.5—5.0 cm, ovate-lanceolate or oblong-elliptic, glabrous, apex shortly acute or bluntly acuminate, base cordate or rounded. Flowers greenish-yellow; in axillary clusters, male and female flowers together; sepals 5-6, glabrous. Fruits depressed-globose, beaked.

Fls. & Frts. : September-June.

Illus. : Talb. For. Bombay Pres. & Sind 2 : 445. fig. 492. 1911.

Distrib. : Common in deciduous forest from ghats to plains along streams; Deogad-Dahibav, Kankavli-Bhironde, Ghonsari, Kudal-Kerude jungle. Sawantwadi-Akeri-Mangaon forest and Nemle forest, Chaukul, Danoli, Hewale, Khanale, Ramghat. Vengurla (Cooke, *l. c.*).

HOMONOIA Lour.

Homonoia riparia Lour. Fl. Cochinch. 637. 1790; Hook. f. Fl. Brit. India 5 : 455. 1887; Cooke, Fl. Pres. Bombay 3 : 118. 1958 (Repr. ed.); Airy Shaw in Kew Bull. 26 : 282. 1972.

Rheophytic shrubs, 1.5-2.5 m tall, young parts pubescent. Leaves 4—8 × 0.9—2.0 cm, linear or linear-oblong, glabrous above, covered with scales beneath, apex acute or sometimes obtuse. Flowers brownish-red, sessile, dioecious; in axillary, pubescent spikes; sepals 3-5; stamens many. Fruits globose, smooth. Seeds yellow.

Fls. & Frts. : October-May.

Illus. : Wight, Icon. t. 1868. 1852.

Distrib. : Frequent in deciduous forest on rocky and gravelly stream beds and sand-bars; Kankavli-Achro Road, Phonda-Harkool forest, Sangawe. Kudal-Chahpeli. Sawantwadi-Ambolighat-Kumbheshwar, Bhedshi, Kudasa, Ramghat (Cooke, *l. c.*).

JATROPHA L.

1. Petioles glabrous; petals coherent up to middle	..	<i>J. curcas</i>
1. Petioles glandular-hairy; petals free	..	<i>J. gossypifolia</i>

Jatropha curcas L. Sp. Pl. 1006. 1753; Hook. f. Fl. Brit. India 5 : 383. 1887; Cooke, Fl. Pres. Bombay 3 : 95. 1958 (Repr. ed.); Airy Shaw in Kew Bull. 26 : 283. 1972.

Shrubs, 1.5-2.5 m tall, bark greenish-white, peeling off. Leaves 4—8 × 3.5—7.0 cm, ovate-cordate, entire or 3-5 lobed, or angled, glabrous. Flowers greenish-yellow, monoecious; in corymbose cymes; sepals and petals 5-each, stamens many. Fruits 2-3 cm long, ellipsoid, black, indehiscent.

Fls. & Frts. : March-August.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 467. fig. 502. 1911.

Distrib. : Naturalized, tropical American plant, cultivated as hedge plant, sometimes found as an escape; Kankavli-Bhironde, Sangwe. Sawantwadi-Ajgaon, Danoli.

J. gossypifolia L. Sp. Pl. 1006. 1753; Hook. f. Fl. Brit. India 5 : 383. 1887; Cooke, Fl. Pres. Bombay 3 : 95. 1958 (Repr. ed.); Airy Shaw in Kew Bull. 26 : 283. 1972.

Shrubs, 2-3 m tall, stems and branches dark coloured. Leaves 4-8 cm as long as broad, 3-5-lobed, lobes obovate, margins glandular-hairy. Flowers monoecious; in terminal, long peduncled cymes; male flowers red; female flowers green; sepals and petals 5-each. Fruits 1.5 cm long, subglobose, green, reticulate.

Fls. & Frts. : February-June.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 468. fig. 503. 1911.

Distrib. : Native of tropical America, naturalized in India, planted as hedge plant; Malwan-Achre.

MACARANGA Thou.

Macaranga peltata (Roxb.) Muell.-Arg. in DC. Prodr. 15 (2) : 1010. 1866; Sant. Fl. Khandala ed. 3, 250. 1967. *Osyris peltata* Roxb. Fl. Ind. 3 : 855. 1832. *Macaranga roxburghii* Wight, Icon. t. 1949. f. 4. 1853; Hook. f. Fl. Brit. India 5 : 448. 1887. *M. tomentosa* Wight, Icon. t. 1949. f. 1. 1853; Cooke, Fl. Pres. Bombay 3 : 117. 1958 (Repr. ed.). *Mar.* : 'Chandwad'.

Fast growing, resinous trees, 6-12 m tall, young parts stellately tomentose. Leaves 10-20 cm in diam., orbicular-ovate, peltate, glabrous above, glandular-villous beneath. Flowers greenish-yellow; in rusty-tomentose panicles, bracts cup-like; sepals-3. Fruits globose, glandular-hairy.

Fls. & Frts. : February-April.

Illus. : Wight, Icon. t. 817. 1844-1845, f. c.

Distrib. : Frequent in deciduous forest from lower slopes of the ghats to plains; Kudal-Narur. Sawantwadi-Ambolighat-Kumbheshwar, Konal R. F. near Bhodshi, Tirali.

MALLOTUS Lour.

1. Leaves alternate; ovary clothed with red glands .. *M. philippensis*
1. Leaves opposite; ovary not clothed with red glands :
2. Calyx divided to the base; sepals clothed with yellow resinous glands .. *M. stenanthus*
2. Calyx spathaceous; sepals villous .. *M. aureo-punctatus*

Mallotus aureo-punctatus (Dalz.) Muell.-Arg. in DC. Prodr. 15 (2) : 973. 1866; Sant. Fl. Khandala ed. 3, 250. 1967. *Rottlera aureo-punctata* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 122. 1851. *Mallotus lawii* Muell.-Arg. in Linnaea 34 : 194. 1865; Hook. f. Fl. Brit. India 5 : 438. 1887; Cooke, Fl. Pres. Bombay 3 : 115. 1958 (Repr. ed.).

Shrubs, 1.5-2.5 m tall, young parts pubescent. Leaves 5—15 × 3—5 cm, lanceolate or oblanceolate, glabrous above, clothed with yellow glands beneath, apex bluntly acuminate, margins remotely sinuate-dentate. Flowers greenish-yellow; in pubescent racemes; in male and female flowers calyx splitting into unequal lobes. Fruits 1.0-1.2 cm across, globose, cocci 3-4, echinate.

Fls. & Frts. : October-November.

Distrib. : Occasional in the undergrowth of semi-evergreen forest along the ghats; Sawantwadi-Amboli-Malai jungle.

M. philippensis (Lamk.) Muell.-Arg. in Linnaea 34 : 196. 1865; Hook. f. Fl. Brit. India 5 : 442. 1887; Cooke, Fl. Pres. Bombay 3 : 113. 1958 (Repr. ed.); Airy Shaw in Kew Bull. 26 : 300. 1972. *Croton philippense* Lamk. Encycl. 2 : 206. 1786.

Trees, 8-10 m tall, young parts rusty pubescent. Leaves 5—10 × 3—5 cm, ovate or ovate-lanceolate, glabrous above, clothed with reddish-orbicular scales beneath, apex acute or acuminate. Flowers in spikes, fascicled, often panicles, pedicelled; sepals-4. Fruits 0.6-0.8 cm across, depressed-globose.

Fls. & Frts. : September-February.

Illus. : Bedd. Fl. Sylv. t. 289. 1873.

Distrib. : Frequent in moist and dry deciduous forests from ghats to plains; Kudal-Ghotge, Hanumanghat Rai. Sawantwadi-Gavata.

M. stenanthus Muell.-Arg. in Linnaea 34 : 191. 1865; Hook. f. Fl. Brit. India 5 : 437. 1887; Cooke, Fl. Pres. Bombay 3 : 114. 1958 (Repr. ed.).

Shrubs, 1.5-2.0 m tall, young parts covered with yellow glands. Leaves 5—10 × 2.5—4.5 cm, ovate or elliptic-lanceolate, glabrous above, covered with yellow glands beneath, apex obtusely acuminate, margins entire or remotely sinuate-dentate. Flowers in slender racemes, shorter than leaves. Fruits brown, deeply 3-lobed, echinate.

Fls. & Frts. : October-April.

Distrib. : Scattered in moist deciduous and semi-evergreen forests along ghats in the undergrowth; Kankavl-Phondaghat. Sawantwadi-Amboli-Malai jungle, Ambolighat-top.

MICROCocca Benth.

Micrococca mercurialis (L.) Benth. in Hook. Niger. Flora 503. 1849. *Tragia mercurialis* L. Sp. Pl. 980. 1753. *Claoxylon mercurialis* Thw. Enum. Pl. Zeyl. 271. 1861; Hook. f. Fl. Brit. India 5 : 412. 1887; Cooke, Fl. Pres. Bombay 3 : 107. 1958 (Repr. ed.).

Erect, sparingly branched, annual herbs. Leaves 2—4 × 1.2—2.5 cm, ovate, thin, glabrous, apex acute, margins crenate. Flowers greenish; in axillary racemes; sepals-3, stamens 5-10; female flowers solitary in racemes. Fruits globose, cocci-3, hairy.

Fls. & Frts. : August-October.

Distrib. : Scattered in open situations in plains, often as weed; Deogad-Naringre. Sawantwadi-Ajgaon.

PHYLLANTHUS L. *emend.* Gaertn.

1. Fruits fleshy :

2. Stamens-3; ovary 3-celled	..	<i>P. emblica</i>
2. Stamens-5; ovary 5 or more celled	..	<i>P. reticulatus</i>

1. Fruits not fleshy :

3. Stipules peltate; fruits echinate or warty :		
4. Anthers fused; seeds transversely ridged	..	<i>P. urinaria</i>
4. Anthers free; seeds tuberculate	..	<i>P. virgatus</i>
3. Stipules not peltate; fruits smooth :		
5. Style 2-6a; seeds pitted	..	<i>P. lawli</i>
5. Style 2-lobed; seeds parallel ribbed	..	<i>P. asperulatus</i>

Phyllanthus asperulatus Hutch. in Kew Bull. 1920 : 28. 1920; Webster in J. Arnold Arb. 37 : 14. 1956; Sant. Fl. Khandala ed. 3, 245. 1967. *P. niruri* auct. non L. (1753); Hook. f. Fl. Brit. India 5 : 291. 1887; Cooke, Fl. Pres. Bombay 3 : 84. 1958 (Repr. ed.).

Branched, annual herbs, branches from base, glabrous. Leaves 0.4-0.9 × 0.1-0.2 cm, elliptic-oblong or elliptic-obovate, subsessile, distichous, shining above, glaucous beneath. Flowers greenish-yellow, male and female flowers together in axillary clusters; females solitary, sepals-5, stamens-3. Fruits depressed-globose, cocci-3.

Fls. & Frts. : November-May.

Distrib. : Scattered in open situations in plains; Kudal-Ghotge, Kerude, Varad. Sawantwadi-Akeri-Mangaon forest.

P. emblica L. Sp. Pl. 982. 1753; Hook f. Fl. Brit. India 5 : 289. 1887; Cooke, Fl. Pres. Bombay 3 : 81. 1958 (Repr. ed.); Webster in J. Arnold Arb. 38 : 76. 1957; Airy Shaw in Kew Bull. 26 : 319. 1972. *Mar.* : *Avla*

Small trees, 4-8 m tall, bark flaking, leafy branches with 60-150 leaves. Leaves 0.6-1.5 × 0.15-0.30 cm, linear-oblong, acidic, light green, glabrous. Flowers greenish-yellow; in fascicles, males pedicelled at base, females upwards, solitary, sessile; sepals-6, oblong. Fruits 1.2-1.8 cm across, globose, acidic.

Fls. & Frts. : February-October.

Illus. : Wight, Icon. t. 1896. 1852.

Distrib. : Infrequent in deciduous forest in plains; Kankavli-Phonda-Bhairy pathar. Kudal-Ghotge. Sawantwadi-Tirali.

P. lawii Grah. Cat. Pl. Bombay 181. 1839; Hook. f. Fl. Brit. India 5 : 290. 1887; Cooke, Fl. Pres. Bombay 3 : 82. 1958 (Repr. ed.).

Gregarious, woody herbs or undershrubs, 1-2 m tall, branchlets grooved and fascicled with 2-hornlike blunt, axillary protruberances. Leaves 0.25-0.45 × 0.15-0.20 cm, linear-oblong, apex rounded, apiculate. Flowers white; in few-flowered, axillary clusters; females solitary, sepals-6, stamens-3. Fruits globose, cocci smooth.

Fls. & Frts. : October-May.

Distrib. : Infrequent along streams in sandy soil in plains; Kankavli-Achre Road, Janoli river side. Sawantwadi-Kudasa.

P. reticulatus Poir. in Lamk. Encycl. 5 : 298. 1804; Hook. f. Fl. Brit. India 5 : 288. 1887; Cooke, Fl. Pres. Bombay 3 : 81. 1958 (Repr. ed.); Webster in J. Arnold Arb. 38 : 57. 1957; Airy Shaw in Kew Bull. 26 : 322. 1972.

Mostly subscandent shrubs, branchlets drooping, pubescent. Leaves $1.5-3.5 \times 0.5-2.0$ cm, elliptic-obovate or oblong, glabrous, shining above, glaucous beneath, reddish when young. Flowers greenish-yellow; in 2-6 flowered, axillary fascicles; female flowers solitary; sepals-5, unequal. Fruits globose, smooth, purple-black when ripe.

Fls. & Frts. : February-May.

Illus. : Wight, Icon. t. 1899. 1852.

Distrib. : Frequent in deciduous forest in plains; Kankavli-Naradave-River bank, Phonda-Harkool forest. Kudal-Narur. Sawantwadi-Ainoda, Konal R. F. near Bhedshi. Vengurla-Harbour Road.

P. urinaria L. Sp. Pl. 982. 1753; Hook f. Fl. Brit. India 5 : 293. 1887; Cooke, Fl. Pres. Bombay 3 : 83. 1958 (Repr. ed.); Webster in J. Arnold Arb. 38 : 194. 1957; Airy Shaw in Kew Bull. 26 : 325. 1972.

Erect herbs, stems and branches flat, winged, branches with a line of hairs. Leaves sensitive, $0.8-2.0 \times 0.2-0.6$ cm, oblong or oblong-ovate, membranous, asymmetric, hispid near the base. Flowers greenish-white; in axillary, subsessile clusters, pedicels 0.1 cm long; sepals-6. Fruits 0.2 cm across, globose.

Fls. & Frts. : August-May.

Illus. : Wight, Icon. t. 1895. 1852.

Distrib. : Frequent in open, moist situations and in fallow fields from ghats to plains; Sawantwadi-Akeri, Ambolighat-Nanapani, Danoli, Satarda.

P. virgatus Forst. f. Fl. Ins. Austr. Prodr. 65. 1786; Airy Shaw in Kew Bull. 26 : 325. 1972. *P. simplex* Retz. Obs. Bot. 5 : 29. 1789; Hook. f. Fl. Brit. India 5 : 295. 1887; Cooke, Fl. Pres. Bombay 3 : 83. 1958 (Repr. ed.).

Erect or decumbent-ascending, perennial herbs, often branched from base, branches flat. Leaves $1-2 \times 0.2-0.4$ cm, elliptic-lanceolate to oblong, subsessile, apex obtuse or acute, apiculate. Flowers axillary, solitary; sepals 5-7. Fruits globose, with minute protuberances, appearing echinate.

Fls. & Frts. : August-February.

Illus. : Wight, Icon. t. 1902. f. 1. 1852.

Distrib. : Frequent in open situations and in fallow fields in plains; Kankavli-Ghonsari. Malwan-Kuperi ghati near Kunkavle. Sawantwadi-Bhedshi, Danoli.

SAPIUM L.

Sapium insigne (Royle) Benth. var. *malabaricum* (Wight) Hook. f. Fl. Brit. India 5 : 472. 1888; Sant. Fl. Khandala ed. 3, 251. 1967. *Falconeria malabarica* Wight, Icon. t. 1866. 1852. *Sapium insigne* sensu Cooke, Fl. Pres. Bombay 2 : 622. 1906 et 3 : 121. 1958 (Repr. ed.), p. p. Mar. : 'Hura'.

Trees, 3-8 m tall, with poisonous milky latex, branches terete, glabrous. Leaves 8—18 × 4—7 cm, oblong-lanceolate, crowded at the ends of branches, shining, bright green above, pale beneath, apex acute or acuminate. Flowers monoecious, greenish-yellow; in 10-25 cm long spikes; male flowers in clusters and female flowers solitary. Fruits 0.8 cm across, ovoid, fleshy.

Fls. & Frts. : February-May.

Illus. : Wight, l. c.

Distrib. : Frequent in deciduous forest from ghats to plains; Kudal-Ghotge. Malwan-Kunkavle. Sawantwadi-Amboli, Ambolighat-Nanapani, Chaukul, Ramghat.

SAUROPEUS BL.

Sauropus quadrangularis (Willd.) Muell.-Arg. in Linnaea 32 : 73. 1863; Hook. f. Fl. Brit. India 5 : 335. 1887; Cooke, Fl. Pres. Bombay 3 : 78. 1958 (Repr. ed.); Airy Shaw in Kew Bull. 26 : 337. 1972. *Phyllanthus quadrangularis* Willd. Sp. Pl. 4 : 585. 1805.

Undershrubs, 0.5—1.0 m tall, branches angular. Leaves 1.2—2.2 × 0.6—1.0 cm, elliptic or suborbicular, glabrous, apex acute or obtuse. Flowers greenish-yellow; in axillary clusters; female flowers solitary, sepals narrowly triangular. Fruits depressed-globose, cocci 3-gonous.

Fls. & Frts. : February-August.

Illus. : Wight, Icon. t. 1900. 1852.

Distrib. : This species is reported by Cooke (l. c.) from 'Vengurla' based on collection by Dalzell; so it is included here.

SEBASTIANA Spreng.

Sebastiana chamaelea (L.) Muell.-Arg. in DC. Prodr. 15 (pt. 2) : 1175. 1866; Hook. f. Fl. Brit. India 5 : 475. 1888; Cooke, Fl. Pres. Bombay 3 : 124. 1958 (Repr. ed.); Airy Shaw in Kew Bull. 26 : 339. 1972. *Tragia chamaelea* L. Sp. Pl. 981. 1753.

Erect, annual herbs, branches slender, grooved. Leaves 1.5—4.5 × 0.4—1.0 cm, elliptic-oblong or linear-oblong, membranous, glabrous, apex subacute or obtuse, margins serrulate. Flowers yellowish-green, monoecious; in short spikes; female flowers solitary at base, sepals-3. Fruits crustaceous, cocci-3, with 2-rows of spinules.

Fls. & Frts. : November-February.

Distrib. : This species is included here on the authority of Cooke (l. c.), who has reported it from 'Vengurla' based on collection of Dalzell.

SECURINEGA Commers. ex Juss. (nom. cons.)

Securinega virosa (Roxb. ex Willd.) Baill. in Adansonia 6 : 334. 1866, *quoad. synon. tantum. emend.* Pax & Hoffm. in Engl. Pflanzenfam. ed. 2, 19 C : 60. 1931; Sant. Fl. Khandala ed. 3, 244. 1967; Airy Shaw in Kew Bull. 26 : 340. 1972. *Phyllanthus virasus* Roxb. ex Willd. Sp. Pl. 4 : 578. 1805. *Fluggea microcarpa* Bl. Bijdr. 580. 1825; Hook. f. Fl. Brit. India 5 : 328. 1887; Cooke, Fl. Pres. Bombay 3 : 77. 1958 (Repr. ed.).

Shrubs, 1.5-2.0 m tall, branches glabrous, angular. Leaves 1.5-3.0 × 0.8—2.5 cm, broadly elliptic or obovate, thin, glabrous, apex rounded or subacute. Flowers greenish; in axillary clusters; sepals-5, stamens-5. Fruits 0.4-0.6 cm across, depressed-globose, white.

Fls. & Frts. : April-June.

Distrib. : Frequent in deciduous forest along the ghats and in plains; Deogad-Vada-tar. Kankavli-Phondaghat. Kudal-Ghotge, Shivapur Rai, Songad paz. Sawantwadi-Akeri-Mangaon forest, Bhedshi, Danoli, Ramghat.

TRAGIA L.

Tragia muelleriana Pax et Hoffm. var. *unicolor* (Muell.-Arg.) Pax & Hoffm. in Engl. Pflanzenr. 68 : 81. 1935; Sant. Fl. Khandala ed. 3, 251. 1967. *T. miqueliana* Muell.-Arg. var. *unicolor* Muell.-Arg. in DC. Prodr. 15 (2) : 843.

1866. *T. involuerata* Cooke, Fl. Pres. Bombay 2 : 621. 1906 et 3 : 119. 1958 (Repr. ed.), p. p. Mar. : 'Khajkuili'.

Herbaceous climbers, stems and branches stinging hairy. Leaves 2.5—6.5 × 1.9—3.5 cm, elliptic-oblong or oblong-lanceolate, hairy on both sides, apex acute or acuminate, margins serrate. Flowers dioecious, pale yellowish-green; in leaf-opposed racemes; female flowers in the lower part, sepals 3-6. Fruits globose, cocci-3, in accrescent, hispid calyx.

Fls. & Frts. : August-February.

Distrib. : Frequent along the ghats in open scrub forest; Kankavli-Phondaghat, Kudal-Nerur. Sawantwadi-Amboli, Ambolighat-top, Khauale, Ramghat.

TREWIA L.

Trewia nudiflora L. Sp. Pl. 1193. 1753; Hook. f. Fl. Brit. India 5 : 423. 1887; Cooke, Fl. Pres. Bombay 3 : 111. 1958 (Repr. ed.); Airy Shaw in Kew Bull. 26 : 343. 1912. *T. polycarpa* Benth. in Benth. & Hook. f. Gen. Pl. 3 : 318. 1880; Hook. f. l. c. 424; Cooke, l. c. 112.

Trees, 5-10 m tall, young parts pubescent. Leaves 6—15 × 3.5—10.0 cm, ovate, glabrous, apex acuminate, base cordate. Flowers dioecious; in racemes, male flowers many, pendulous, female flowers 1-3 in each raceme; male sepals 3-5, in female flowers irregularly lobed. Fruits 2.0-2.8 cm across, depressed-globose, woody, grey-pubescent, 2-celled.

Fls. & Frts. : January-May.

Illus. : Wight, Icon. tt. 1870 & 1871. 1852.

Distrib. : Infrequent in deciduous forest along lower slopes of the ghats and in plains; Kankavli-Natal jungle, Osargaon, Phondaghat. Matwan-Nandos Rai. Sawantwadi-Banda (Cooke, l. c.). Vengurla-Math forest.

ULMACEAE

1. Leaves penni-nerved; flowers appearing before leaves on previous year's shoots	..	<i>Holoptelea</i>
1. Leaves palmi-nerved; flowers appearing along with leaves :		
2. Basal nerves almost reaching the apex ; disc present	..	<i>Celtis</i>
2. Basal nerves reaching half the lamina only ; disc absent	..	<i>Trema</i>

CELTIS L.

Celtis cinnamomea Lindl. ex Planch. in Ann. Sci. Nat. Ser. 3, 10 : 303. 1848; Hook. f. Fl. Brit. India 5 : 482. 1888; Cooke, Fl. Pres. Bombay 3 : 128. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 153. 1967.

Medium-sized trees, young parts tomentose and young foliage pinkish-red. Leaves 4—8 × 2.5—4.5 cm, ovate, glabrous, apex acuminate, 3-nerved, margins entire, wavy or obscurely crenate. Flowers greenish-yellow, polygamous; in cymes; sepals-5. Fruits ovoid, beaked, scarlet when ripe.

Fls. & Frts. : January-June.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 498, fig. 514. 1911.

Distrib. : Scattered, along the ghats in moist deciduous forest; Sawantwadi-Ambolighat-Nanapani, Ramghat.

HOLOPTELEA Planch.

Holoptelea integrifolia (Roxb.) Planch. in Ann. Sci. Nat. Ser. 3, 10 : 266. 1848; Hook. f. Fl. Brit. India 5 : 481. 1888; Cooke, Fl. Pres. Bombay 3 : 127. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 252. 1957. *Ulmus integrifolia* Roxb. Fl. Cor. 1 : 56. t. 78. 1798.

Tall trees, 10-15 m tall, young shoots pubescent. Leaves 5—10 × 3—5 cm, elliptic or oblong-elliptic glabrous, apex acuminate. Flowers greenish, polygamous; in compound corymbs or racemes at the scars of previous year's leafless shoots; sepals 4-8, pubescent. Fruits indehiscent, winged, flat, samaroid, orbicular, brown.

Fls. & Frts. : January-March.

Illus. : Wight, Icon. t. 1968. 1853.

Distrib. : Occasional, in cleared forest areas in plains; Sawantwadi-Gavata near Bhedshi.

TREMA Lour.

Trema orientalis (L.) Bl. in Mus. Bot. Lugd. Bat. 2 : 58. 1856; Hook. f. Fl. Brit. India 5 : 484. 1888; Cooke, Fl. Pres. Bombay 3 : 129. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 153. 1967. *Celtis orientalis* L. Sp. Pl. 1044. 1753.

Small trees, 5-8 m tall, young parts pubescent. Leaves 5—10 × 3.0—4.5 cm, narrowly ovate-lanceolate, scabrid above, white canescent beneath, apex acuminate, lateral nerves red beneath. Flowers greenish; males in compact and females in lax cymes; sepals deciduous in males and persistent in females. Fruits 0.3-0.5 cm long, subcompressed, black.

Fls. & Frts. : September-February.

Illus. : Wight, Icon. tt. 602 & 603. 1842.

Distrib. : Frequent, in moist deciduous forest along ghats and in deciduous forest in plains; Sawantwadi-Akeri-Mangaon forest, Amboli-Nangartas, Danoli, Ramghat (Cooke, l. c.).

URTICACEAE

1. Plants with stinging hairs :

2. Stipules foliaceous; female sepals 2-3 toothed	..	<i>Girardinia</i>
2. Stipules bifid or absent; female sepals-4, connate		<i>Laportea</i>

1. Plants without stinging hairs :

3. Shrubs, trees or undershrubs :

4. Leaves opposite, pairs unequal, palmately nerved	..	<i>Boehmeria</i>
4. Leaves alternate, pinnately nerved	..	<i>Debregeasia</i>

3. Herbs :

5. Leaves opposite; stipules scarious, connate	..	<i>Lecanthis</i>
5. Leaves alternate; stipules not scarious, nor connate :		
6. Leaf-base equilateral; achenes smooth	..	<i>Pouzolzia</i>
6. Leaf-base inequilateral; achenes ribbed	..	<i>Elatostema</i>

BOEHMERIA Jacq.

Boehmeria scabrella Gaud. Voy. Uranie 500. 1830; Cooke, Fl. Pres. Bombay 3 : 135. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 254. 1967. *Boehmeria plantyphylla* D. Don var. *scabrella* (Gaud.) Wedd. Mon. Urtic. 365. 1826; Hook. f. Fl. Brit. India 5 : 578. 1888.

Shrubs or undershrubs, 1.5-2.0 m tall, gregarious, branches hairy or glabrous. Leaves 6—12 × 5—10 cm, broadly ovate-orbicular, scabrid hairy on both the sides, apex acuminate, margins crenato-serrate. Flowers white or greenish-yellow; in clusters combined into spikes or panicles; male flowers with sepals-4 and in females tubular. Fruits invested by gibbous, turgid sepals.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 691. 1843.

Distrib. : Frequent in deciduous to semi-evergreen forests along ghats and in plains; Kankavli-Phondaghat. Sawantwadi-Ambolighat-Nanapani. Danoli, Kolgaon jungle.

DEBREGEASIA Gaud.

Debregeasia longifolia (Burm. f.) Wedd. in DC. Prodr. 16(1) : 235. 1869; Sant. Fl. Khandala ed. 3, 255. 1967. *Urtica longifolia* Burm f. Fl. Ind. 297. 1768. *Debregeasia velutina*. Gaud. Bot. Bonite Voy. t. 90. 1844-1846; Hook f. Fl. Brit. India 5 : 590. 1888; Cooke, Fl. Pres. Bombay 3 : 139. 1958 (Repr. ed.).

Shrubs or small trees, branchlets pilose. Leaves 5—15 × 2—4 cm, oblong-lanceolate, bullate and rough above, white pubescent beneath, apex acuminate, margins serrate. Flowers monoecious; in compact heads, arranged in dichotomous cymes; sepals 4-5. Fruits with fleshy perianth, bright red, edible.

Fls. & Frts. : October-December.

Illus. : Wight, Icon. t. 1959. 1853.

Distrib. : Scattered along the ghats along moist deciduous and semi-evergreen forest edges; Kankavli-Phondaghat. Sawantwadi-Ambolighat-Nanapani.

ELATOSTEMA J. R. & G. Forst (nom. cons.)

Elatostema cuneatum Wight, Icon. t. 2091. fig. 3. 1853, ('*Elatostema cuniata*'); Hook. f. Fl. Brit. India 5 : 565. 1888; Cooke, Fl. Pres. Bombay 3 : 134. 1958 (Repr. ed.); Mitra in Bull. Bot. Surv. India 9 : 279. 1967 (1968).

Delicate, slender, annual herbs, stems angled, hairy. Leaves 1—3 × 0.6—1.5 cm, elliptic or obovate, subsessile, sparsely hairy on both sides, apex subacute, cystolith on both sides, margins crenate above the middle. Flowers in axillary heads; sepals-3, bracteoles in female flowers connate. Fruits ellipsoid.

Fls. & Frts. : August-September.

Illus. : Wight, l. c.

Distrib. : Infrequent in open, moist situations on tree-trunks and on old fence walls; Kankavli-Phonda Rest House Campus. Matwan-Nandos.

GIRARDINIA Gaud.

Girardinia zeylanica Decne. in Jacq. Bot. Voy. Bon. 152. 1844; Cooke, Fl. Pres. Bombay 3 : 132. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 254. 1967. *G. heterophylla* Dalz. & Gibs. var. *zeylanica* (Decne.) Hook. f. Fl. Brit. India 5 : 551. 1888.

Undershubs, 1.0-1.5 m tall, gregarious, stems and branches clothed with short, appressed stinging hairs. Leaves 8-15 cm as long as broad, ovate, 5-7 lobed or angled, along with petiole appressed stinging hairy. Flowers white, monocious; male flowers in spikes, sepals 4-5; female flowers in heads, in upper axils, sepals-3. Fruits obliquely ovoid, compressed.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 687. 1843.

Distrib. : Scattered along the ghats along forest edges; Kankavli-Phondaghat. Sawantwadi-Amboli. Ambolighat-Nanapani.

LAPORTEA Gaud. (*nom. cons.*)

Laportea interrupta (L.) Chew in Gard. Bull. Singapore 21 : 200. 1965. *Urtica interrupta* L. Sp. Pl. 985. 1753. *Fleurya interrupta* (L.) Gaud. in Freyc. Voy. Bot. 497, t. 8. 1826; Hook. f. Fl. Brit. India 5 : 548. 1888; Cooke, Fl. Pres. Bombay 3 : 131. 1958 (Repr. ed.).

Flexuose, annual herbs, stems furrowed. Leaves 3—9 × 1.8—6.0 cm, broadly ovate, sparsely clothed with weak stinging hairs, apex acute, margins crenate-dentate. Flowers greenish; in clusters, remote and combined into pseudo-spikes; sepals 4-5. Fruits tuberculate.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 1975. 1853.

Distrib. : Frequent in moist places in deciduous forest in plains; Deogad-Dahibav. Kankavli-Osargaon, Phonda-Rest House Campus and Bhairy Pathar. Vengurla-Vagiri forest.

LECANTHUS Wedd.

Lecanthus pedunculata (Royle) Wedd. in DC. Prodr. 16(1) : 164. 1869; Sant. Fl. Khandala ed. 3, 254. 1967. *Procris peduncularis* Wall. ex Royle,

Illus. Himal. t. 53. f. 2. 1839. *Lecanthus wightii* Wedd. in Ann. Sci. Nat. Bot. Ser. 4, 1 : 187. 1854; Hook. f. Fl. Brit. India 5 : 559. 1888; Cooke, Fl. Pres. Bombay 3 : 133. 1958 (Repr. ed.). *L. wallichii* Wedd. *l. c.*; Hook. f. *l. c.*; Cooke, *l. c.*

Gregarious, slender, annual herbs, stems fleshy, transperent. Leaves 1.5—6.5 × 0.6—3.5 cm, ovate, glabrous or sparsely hairy above, pubescent, especially on nerves beneath, apex acute or acuminate, margins crenate-serrate, 3-nerved from base. Flowers pedicellate in heads on fleshy receptacles, pedunculate; sepals 3-5, subequal. Fruits ovoid, equal or longer than perianth.

Fls. & Frts. : August-September.

Illus. : Wight, Icon. t. 1985. 1853.

Distrib. : Infrequent in moist places on rocks and tree-trunks and also on old fence walls along ghats; Sawantwadi-Amboli, Danoli.

POUZOLZIA Gaud.

Pouzolzia zeylanica (L.) Benn. Pl. Jav. Rar. 67. 1838. ; Sant. Fl. Khandala ed. 3, 255. 1967. *Parietaria zeylanica* L. Sp. Pl. 1052. 1753. *Pouzolzia indica* (L.) Gaud. Voy. Uranie 503. 1826; Hook. f. Fl. Brit. India 5 : 581. 1888; Cooke, Fl. Pres. Bombay 3 : 137. 1958 (Repr. ed.).

Erect or procumbent herbs, stems pubescent, sparingly branched. Leaves 1.5—3.5 × 0.8—2.2 cm, lower leaves ovate, upper ones much smaller, hairy on both sides or glabrate, apex acute, 3-nerved from base. Flowers white, monoecious; in axillary clusters; sepals-4, hairy in male flowers. Fruits ovoid, with scarious wings.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. tt. 1980. f. 1 & 2100. f. 40. 1853.

Distrib. : Frequent in moist situations in shady places on tree-trunks, old fence walls in deciduous forest; Deogad-Tar-mumbri. Kankavli-Nandgaon, Osargaon, Phondaghat. Sawantwadi-Danoli. Vengurla-Math. forest.

MORACEAE

1. Flowers hidden in a hollow inflorescence	..	<i>Ficus</i>
1. Flowers exposed, not in hollow inflorescence :		
2. Stamens 3-8; female flowers naked	..	<i>Antiaris</i>
2. Stamens-1; female flowers with perianth	..	<i>Artocarpus</i>

ANTHARIS Leschen.

Antharis toxicaria Leschen. in Ann. Mus. Paris 16 : 478. 1810; Hook. f. Fl. Brit. India 5 : 537. 1888; Cooke, Fl. Pres. Bombay 3 : 156. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 258. 1967.

Tall trees, trunk buttressed. Leaves 5—10 × 3—5 cm, elliptic oblong, bifarious, glabrous, apex acuminate, lateral nerves 6—10. Flowers monoecious; male flowers crowded on flat receptacle with minute bracts and 1.8 cm across when mature; female flowers solitary in an involucre, sepals absent. Fruits 1.8 cm across, subglobose, velvety, red or purple.

Fls. & Frts. : October-February.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 530. fig. 534. 1911.

Distrib. : This species is included here on the authority of Cooke (l.c.) who reports it from 'Wari country' (Sawantwadi) based on the record by Dalzell and Gibson (Bombay Fl. 244. 1861).

ARTOCARPUS J. R. & G. Forst. (*nom cons.*)

1. Leaves pinnately lobed	..	<i>A. communis</i>
1. Leaves not pinnately lobed	..	<i>A. heterophyllus</i>

Artocarpus communis J. R. & G. Forst. Char. Gen. 103. 1776; Jarret in J. Arnold Arb. 40 : 307. 1959. *A. incisa* (Thunb.) L. f. Suppl. 411. 1781; Hook. f. Fl. Brit. India 5 : 539. 1888; Cooke, Fl. Pres. Bombay 3 : 159. 1958 (Repr. ed.).

Medium-sized trees, branches spreading. Leaves 10-20 × 6—12 cm, ovate, pinnately lobed, coriaceous, glabrous. Inflorescence axillary; flowers greenish; in spikes, male spikes 15-20 cm long, female spikes ovoid. Fruits echinate.

Fls. & Frts. : November-January.

Distrib. : Introduced species naturalized and usually planted in gardens (private) for fruits; Sawantwadi-Banda-Padwe Majhgaon, Kudasa.

A. heterophyllus Lamk. Encycl. 3 : 210. 1789; Jarrett in J. Arnold Arb. 40 : 334. 1959; Sant. Fl. Khandala ed. 3, 260. 1967. *A. integrifolia sensu* Hook. f. Fl. Brit. India 5 : 541. 1888, (*auct. non* L. l. 1781); Cooke, Fl. Pres. Bombay 3 : 158. 1958 (Repr. ed.). *Mar.* : *Phanas*

Large to medium-sized trees, 10-15 m tall, young parts glabrous. Leaves 8—12 × 4—6 cm, ovate to oblong, coriaceous, glabrous, apex acute to rounded. Flowers greenish; in cauliflorous and ramiflorous ellipsoid, dense spikes. Fruits in large syncarps, cylindrical, with numerous short, hard echinate processes.

Fls. & Frts. : February-June.

Distrib. : Usually cultivated in the district, rarely seen wild; Kankavli-Phonda. Kudal-Dukanwad. Sawantwadi-Amboli, Bhedshi, Danoli.

FICUS L.

1. Leaves opposite	..	<i>F. hispida</i>
1. Leaves alternate :		
2. Receptacles pedunculate :		
3. Leaves polymorphous	..	<i>F. heterophylla</i>
3. Leaves not polymorphous :		
4. Leaves scabrous above; receptacles axillary :		
5. Receptacles in pairs	..	<i>F. tinctoria</i> ssp. <i>parasitica</i>
5. Receptacles solitary	..	<i>F. exasperata</i>
4. Leaves not scabrous above; receptacles on short, leafless, reduced branches	..	<i>F. racemosa</i>
2. Receptacles sessile or subsessile :		
6. Leaves caudate-acuminate		
7. Cusp of leaf 3-7 cm long; lateral nerves 8-10 pairs	..	<i>F. religiosa</i>
7. Cusp of leaf up to 3 cm long; lateral nerves 11-16 pairs	..	<i>F. arnottiana</i>
6. Leaves not caudate-acuminate :		
8. Young leaves and receptacles tomentose		
9. Lateral nerves 5-8 pairs; aerial roots numerous	..	<i>F. benghalensis</i>
9. Lateral nerves 10-14 pairs; aerial roots few	..	<i>F. drupacea</i> var. <i>pubescens</i>
8. Young leaves and receptacles glabrous :		
10. Petioles less than 1.5 cm long; primary nerves not distinct from secondary nerves	..	<i>F. microcarpa</i>
10. Petioles more than 1.5 cm long; primary nerves distinct from secondary nerves :		
11. Basal bracts bifid; receptacles on tubercles	..	<i>F. tsiakela</i>
11. Basal bracts entire; receptacles not on tubercles	..	<i>F. amphissima</i>

Ficus amplissima J. E. Sm. in Rees, *Cyclop.* 14 : n. 1. 1810; Corner in Gard. Bull. Singapore 21 : 11. 1965. *F. tsiela* Roxb. ex Ham. in Trans. Linn. Soc. 15 (1) : 149. 1826; Hook. f. Fl. Brit. India 5 : 515. 1888; Cooke, Fl. Pres. Bombay 3 : 150. 1958 (Repr. ed.).

Medium-sized trees, 8-12 m tall, usually aerial roots absent. Leaves 5—12 × 3—6 cm, ovate or ovate-oblong, coriaceous, glabrous, shining above, pale beneath, apex slightly acuminate, basal nerves-3. Receptacles 1.0-1.2 cm across, globose, rosy-white; in axillary pairs, basal bracts-4, small, scarious; sepals 3-4.

Fls. & Frts. : August-April.

Illus. : Wight Icon. t. 668. 1843; Bedd. Fl. Sylv. t. 314. 1873.

Distrib. : Scattered along the ghats and in plains; Sawantwadi-Ambolighat-Temple point, Bhedshi, Ramghat.

F. arnottiana (Miq.) Miq. in Ann. Bot. Lugd.-Bat. 3 : 287. 1867; Hook. f. Fl. Brit. India 5 : 513. 1888; Cooke, Fl. Pres. Bombay 3 : 149. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 257. 1967; Corner in Gard. Bull. Singapore 21 : 11. 1965. *Urostigma arnottiana* Miq. London J. Bot. 6 : 564. 1847.

Small trees, 5-8 m tall, often epiphytic and without aerial roots. Leaves 5—15 × 4—9 cm, broadly ovate, chartaceous, glabrous, basal nerves 5-7. Receptacles 0.4-0.7 cm across, globose, subsessile, glabrous; in axils of fallen leaves, on tubercles or in pairs, basal bracts distinct, caducous.

Fls. & Frts. : February-June.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 516. fig. 524. 1911.

Distrib. : Frequent in deciduous forest in plains and in cleared forest areas along the ghats; Deogad-Port Road. Kankavli-Naradave, Sangwe. Kudal-Ghotge. Malwan-Achre. Sawantwadi-Amboli, Bhedshi, Ramghat.

F. benghalensis L. Sp. Pl. 1059. 1753; Hook. f. Fl. Brit. India 5 : 499. 1888; Cooke, Fl. Pres. Bombay 3 : 145. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 256. 1967; Corner in Gard. Bull. Singapore 21 : 14. 1965. *Mar.* : 'Wad'.

Medium-sized trees, 6-10 m tall, with numerous aerial roots. Leaves 6—15 × 4—12 cm, ovate-oblong, or oblong-elliptic, coriaceous, glabrescent, apex obtuse, basal nerves 5-7. Receptacles globular, 1.5—2.0 cm across; in axillary, sessile pairs; bright red when ripe, bracts well developed, round.

Fls. & Frts. : April-May.

Illus. : Wight, Icon. t. 1989. 1853.

Distrib. : Mostly cultivated along road sides and occasional in deciduous forest in plains and lower slopes of the ghats; Kankavli-Phondaghat. Kudal-Kerude jungle. Sawantwadi-Bhedshi-Konal R. F.

F. drupacea Thunb. var. *pubescens* (Roth) Corner in Gard. Bull. Singapore 17 : 381. 1960 et 21 : 13. 1965. *F. mysorensis* Heyne ex Roth var. *pubescens* Roth in Roem. & Schult. Syst. Veg. 1 : 508. 1817; Hook. f. Fl. Brit India 5 : 500. 1888; Cooke, Fl. Pres. Bombay 3 : 146. 1958 (Repr. ed.). *F. mysorensis* Heyne ex Roth, Nov. Pl. Sp. 390. 1821; Hook. f. *l.c.*; Cooke, *l.c.* 145.

Moderate-sized trees, aerial roots few, near the stems, young parts and petioles brown hairy. Leaves $5-15 \times 3-10$ cm, elliptic-ovate, coriaceous, glabrous above, tomentose beneath, apex abruptly acuminate, basal nerves 3-5. Receptacles 2 cm across, yellow, glabrescent, sessile; in axillary pairs, basal bracts ovate, woolly, caducous.

Fls. & Frts. : February-March.

Illus. : Taib. For. Fl. Bombay Pres. & Sind 2 : 508. fig. 519. 1911.

Distrib. : Occasional in a sacred grove in plains; Kankavli-Naradave-Dirbyachi Rai.

F. exasperata Vahl, Enum. Pl. 2 : 197. 1806; Corner in Gard. Bull. Singapore 21 : 74. 1965. *F. asperima* Roxb. Fl. Ind. 3 : 554. 1832; Hook. f. Fl. Brit. India 5 : 522. 1888; Cooke, Fl. Pres. Bombay 3 : 153. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 258. 1967.

Shrubs or small trees, without aerial roots, young parts scabrid. Leaves $3.5-10.0 \times 2.2-5.0$ cm, elliptic-oblong, obovate-oblong or ovate-lanceolate, scabrid on both sides, apex abruptly acuminate, margins minutely serrate. Receptacles 1.0-1.5 cm across, globular, peduncled; axillary, solitary; pubescent, yellowish, bracts lateral.

Fls. & Frts. : February-July.

Illus. : Wight, Icon. t. 633. 1843.

Distrib. : Frequent in deciduous forest from lower slopes of the ghats to plains; Kankavli-Naradave-Dirbyachi Rai. Kudal-Ghotge. Sawantwadi-Akeri-Mangaon forest, Ambolighat-Kumbheshwar, Banda, Chaukul, Ramghat.

F. heterophylla L. f. Suppl. 442. 1781; Hook. f. Fl. Brit. India 5 : 518. 1888; Cooke, Fl. Pres. Bombay 3 : 152. 1958 (Repr. ed.); Corner in Gard. Bull. Singapore 21 : 73. 1965.

Very variable shrubs, erect or creeping. Leaves 4.5-8.0 × 2.5-4.5 cm. elliptic-ovate to lanceolate, scabrid hairy on both sides, apex acuminate or rounded, margins entire or 2—many lobed, also coarsely toothed, basal nerves 3-5. Receptacles 0.8-1.0 cm across, globose to ellipsoid, scabrid-hispid, orange-yellow; axillary, solitary, basal bracts small, ovate.

Fls. & Frts. : February-April.

Illus. : Wight, Icon. t. 659. 1843.

Distrib. : Occasional in deciduous forest in plains; Sawantwadi-Ainoda, Konal R. F. near Bhedshi.

F. hispida L. f. Suppl. 442. 1781; Hook. f. Fl. Brit. India 5 : 522. 1888; Cooke, Fl. Pres. Bombay 3 : 154. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 258. 1967; Corner in Gard. Bull. Singapore 21 : 89. 1965.

Shrubs or small trees, all young parts hispid. Leaves 6-18 × 4-10 cm. ovate or ovate-oblong, scabrid on both sides, apex abruptly acuminate, basal nerves 3-5. Receptacles 2 cm across, obovoid; clustered on the tubercles of stem or on separate leafless branches forming racemes; pubescent, golden-yellow, bracts small, lateral.

Fls. & Frts. : October-February.

Illus. : Wight, Icon. II. 638 & 641. 1843.

Distrib. : Frequent in deciduous forest in plains and occasional along the ghats; Deogad-Port Road. Kankavli-Phondaghat. Sawantwadi-Akeri-Mangaon forest. Gavata, Ramghat (Cooke, l.c.).

F. microcarpa L. f. Suppl. 442. 1781; Corner in Gard. Bull. Singapore 17 : 397. 1960 et 21 : 22. 1965; Sant. Fl. Khandala ed. 3, 257. 1967. *F. retusa* auct. non L. (1753); Hook. f. Fl. Brit. India 5 : 511. 1888; Cooke, Fl. Pres. Bombay 3 : 146. 1958 (Repr. ed.). *Mar.* : Nandruk.

Medium-sized trees, 8-12 m tall, young parts glabrous, aerial roots few. Leaves 3.5-7.0 × 2.5-6.5 cm, ovate or obovate, glabrous, shining above, pale beneath, apex rounded or emarginate, basal nerves-3. Receptacles 0.6-0.8 cm across, depressed-globose, yellowish-red, sessile; in axillary pairs, basal bracts-3.

Fls. & Frts. : March-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 510. fig. 520. 1911.

Distrib. : Infrequent in deciduous forest in plains and along lower slopes of the ghats; Deogad-Port Road. Kankavli-Ghon-sari Rai. Sawantwadi-Ramghat.

F. racemosa L. Sp. Pl. 1060. 1753; Corner in Gard. Bull. Singapore 21 : 34. 1965; Sant. Fl. Khandala ed. 3, 259. 1967. *F. glomerata* Roxb. Pl. Cor. t. 123. 1798; Hook. f. Fl. Brit. India 5 : 535. 1888; Cooke, Fl. Pres. Bombay 3 : 154. 1958 (Repr. ed.). *Mar.* : *Umbar*

Tall trees, 12-18 m tall, young parts minutely pubescent, glabrous at length, usually without aerial roots, sometimes with short aerial roots. Leaves 6-12 × 4-6 cm, ovate or elliptic-lanceolate, glabrous, apex acute or obtuse, basal nerves-3. Receptacles 3.5-4.5 cm across, subglobose, smooth; on scariously bracteolate, tubercled branchlets; reddish when ripe.

Fls. & Frts. : March-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 524. fig. 531. 1911.

Distrib. : Frequent in deciduous forest in plains and also along ghats; Kankavli-Phondaghat, Sangawa. Sawantwadi-Ambolighat-Nanapani.

F. religiosa L. Sp. Pl. 1059. 1753; Hook. f. Fl. Brit. India 5 : 513. 1888; Cooke, Fl. Pres. Bombay 3 : 149. 1958 (Repr. ed.); Corner in Gard. Bull. Singapore 21 : 6. 1965; Sant. Fl. Khandala ed. 3, 257. 1967. *Mar.* : *Pimpal*.

Moderate-sized trees, young parts glabrous, usually without aerial roots. Leaves 5-14 × 1-12 cm, ovate-rotund, coriaceous, glabrous, shining, basal nerves 5-7, margins wavy. Receptacles 1.0-1.2 cm across, depressed-globose, sessile, purple; basal bracts-3.

Fls. & Frts. : March-May.

Illu. : Wight, Icon. t. 1967. 1853; Bedd. Fl. Sylv. 1. 314. 1873.

Distrib. : Infrequent, planted near temples and villages, in sacred groves; Kankavli-Bhironde. Kudal-Narur.

F. tinctoria Forst. f. ssp. *parasitica* (Willd.) Corner var. *parasitica* Corner in Gard. Bull. Singapore 17 : 476. 1960 et 21 : 75. 1965; Sant. Fl. Khandala ed. 3, 256. 1967. *F. parasitica* Klein ex Willd. in Mem. Acad. Roy. Sci. Hist. (Berlin) 102. 1798. *F. gibbosa* Bl. var. *parasitica* (Willd.) King in Ann. Roy. Bot. Gard. (Calcutta) 1 : 6. t. 2bB. 1887-1888; Cooke, Fl. Pres. Bombay 3 : 144. 1958 (Repr. ed.).

Straggling shrubs, 3-6 m tall. Leaves 4-6 × 3-4 cm, elliptic-oblong, or rhomboid, subcoriaceous, scabrid, apex acute or acuminate, basal nerves-3. Receptacles 1.0-1.5 cm across, globose to pyriform; in axillary pairs; orange-yellow, peduncles 0.8-1.2 cm long.

Fls. & Frts. : October-February.

Illus. : Wight. Icon. t. 651, 1843.

Distrib. : Uncommon in deciduous forest in plains; Kankavli-Achre Road. Kudal-Varad. Vengurla-Math forest.

F. tsjabela Burm. f. Fl. Ind. 277, 1768; Hook. f. Fl. Brit. India 5 : 514, 1888; Cooke, Fl. Pres. Bombay 3 : 150, 1958 (Repr. ed.); Corner in Gard. Bull. Singapore 21 : 7, 1965. *Mar.* : *Kel* ?

Trees, 10-15m tall, young parts glabrous, aerial roots absent. Leaves 8-16 × 3.5-6.0 cm, ovate-oblong, coriaceous, glabrous, shining above, pale beneath, apex abruptly acuminate, basal nerves 3-5. Receptacles 0.5 cm across, gobular, sessile; 2-6 fascicled on tubercles in axils of intact or fallen leaves; glabrous, pale yellow when ripe.

Fls. & Frts. : February-October.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 518, fig. 525, 1911.

Distrib. : Occasional in deciduous forest in plains and along the lower slopes of the ghats; Kudal-Chapheli, Shivapur paz. Sawantwadi-Ramghat.

CASUARINACEAE

CASUARINA L. ex Adanson

Casuarina equisetifolia J. R. & G. Forst. Char. Gen. 104, t. 52, 1776; Hook. f. Fl. Brit. India 5 : 598, 1888; Cooke, Fl. Pres. Bombay 3 : 161, 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 261, 1967.

Tall trees, 10-12 m tall, branches cylindric and jointed, resembling conifer. Leaves reduced to scales, borne in whorls of 6-8 at nodes. Flowers small, unisexual, monoecious; males in spikes, 1-3 cm long and females in heads; perianth 1-2, scarious in male flowers and absent in female flowers. Carpophores pubescent, conelike.

Fls. & Frts. : February-March.

Distrib. : Planted along shore as wind breaker; Deogad-Tar-mumbri Road.

GNETACEAE

Gnetum ula Brongn. in Duperrey, Voy. Coquille 7:12. 1829; Maheshwari & Vasil in Bot. Mon. No. 1. *Gnetum* : 9. 1961; Sant. Fl. Khandala ed. 3, 261. 1967. *G. scandens* Brandis. For. Fl. 502. 1874 et Indian Trees 688. f. 200. 1906 non Roxb. 1832; Cooke, Fl. Pres. Bombay 3 : 167. 1958 (Repr. ed.). Mar. : 'Umbli'

Evergreen lianas, ascending over 15 m, young shoots jointed and nodes swollen. Leaves 6-10 × 4-6 cm, elliptic-ovate, coriaceous, glabrous lustrous above, pale beneath, apex obtusely acuminate. Flowers dioecious, whorled in axils of cupular bracts and arranged in spikes. Fruits 3.5-4.0 cm long, ellipsoid, orange-yellow.

Fls. & Frts. : February-June.

Illus. : Wight, Icon. t. 1955. 1853.

Distrib. : Frequent in semi-evergreen and moist deciduous forests along the ghats and occasionally in sacred groves; Kudal-Narur. Sawantwadi-Ambolighat-Nanapani, Ramghat.

HYDROCHARITACEAE

BLYXA Noronha ex Du Petit — Thou.

1. Seeds ribbed with ridges	<i>B. auberti</i>
1. Seeds not ribbed, but tubercled	
2. Seeds tailed at both ends	.. <i>B. echinosperma</i>
2. Seeds not tailed	.. <i>B. octandra</i>

Blyxa auberti L. Rich. in Mem. Inst. Paris 12 (2) : 77. t. 4. 1812; Hartog in van Steenis, Fl. Males. Ser. 1, 5 (4) : 390 & 391 fig. 5 & 6 D. 1957; Subramanyam, Aquat. Ang. 59. 1962; Hemadri in Indian For. 94 : 810. 1968. *B. griffithii* Planch. ex Hook. f. Fl. Brit. India 5 : 661. 1888. *p.p.* *B. ceylanica* Hook. f. *l.c.* *B. aryzetorum* (Decne.) Hook. f. *l.c.*

Acaulescent herbs. Leaves radical, 15-20 cm long, linear, 5-7-nerved, base sheathing. Flowers bisexual; in 1-flowered, tubular spathes, 4-6 cm long; filaments filiform, anthers linear. Fruits cylindrical, up to 6 cm long. Seeds 0.15-0.20 cm long, ellipsoid.

Fls. & Frts. : August-February.

Illus. : Subramanyam, *l.c.* 152, fig. 40.

Distrib. : Frequent in stagnant, shallow water pools along the higher slopes of the ghats; Sawantwadi-Amboli, Ramghat.

B. echinosperma (Clarke) Hook. f. *Fl. Brit. India* 5 : 661. 1888; Cooke, *Fl. Pres. Bombay* 3 : 172. 1958 (Repr. ed.); Hartog in van Steenis, *Fl. Males. Ser. 1*, 5 (4) : 391. 1957; Subramanyam, *Aquat. Ang.* 59. 1962. *Hydrotropus echinospermus* Clarke in *J. Linn. Soc. Bot.* 14 : 8. t. 1. 1875.

Stemless, annual herbs in shallow ponds. Leaves 10-20 cm long, linear. Flowers bisexual, white; in 1-flowered spathes. Seeds oblong, echinate with 8-longitudinal rows of blunt spines and 0.1-0.4 cm long tails at both ends.

Fls. & Frts. : September-October.

Distrib. : Occasional in road side ponds in plains; Kankavli-Humbrat Road.

B. octandra (Roxb.) Planch. ex Thw. *Enum. Pl. Zeyl.* 332. 1864; Hartog in van Steenis, *Fl. Males. Ser. 1*, 5 (4) : 392. fig. 6 b. 1957; Subramanyam, *Aquat. Ang.* 60. 1962; Sant. *Fl. Khandala ed.* 3, 262. 1967. *Vallisneria octandra* Roxb. *Pl. Cor.* 2 : 34. t. 165. 1798. *Blyxa roxburghii* Rich. in *Mem. Inst. Paris* 12 (2) : 23-24. 77. t. 5. 1812; Hook. f. *Fl. Brit. India* 5 : 660. 1888; Cooke, *Fl. Pres. Bombay* 3 : 172. 1958 (Repr. ed.).

Acaulescent, gregarious herbs. Leaves radical, 20-35 cm long, linear, base sheathing. Flowers white, dioecious; male spathes enclosing 5-10 flowers and female spathes solitary. Seeds oblong-elliptic, white, spinous or prominently tubercled.

Fls. & Frts. : June-October.

Illus. : Subramanyam, *l.c.* 153, fig. 41.

Distrib. : Scattered in ponds in open areas; Sawantwadi-Amboli-Vengurla Road.

BURMANNIACEAE

BURMANNIA L.

Burmansia coelestis D. Don, *Prodr. Fl. Nepal.* 44. 1825; Jonker in van Steenis, *Fl. Males. Ser. 1*, 4 : 17. 1948. *B. coelestis* D. Don var. *pusilla*

(Miers) Trimen, Handb. Fl. Ceylon 4 : 138. 1898; Cooke, Fl. Pres. Bombay 3 : 174. 1958 (Repr. ed.). *B. pusilla* (Miers) Thw. Enum. Pl. Zeyl. 325. 1864; Hook. f. Fl. Brit. India 5 : 665. 1888; Sant. Fl. Khandala ed. 3, 262. 1967.

Small, annual herbs, up to 12 cm tall, stems green, slender, filiform, rarely branched. Leaves linear or scaly, inconspicuous. Flowers purplish-violet, usually solitary or sometimes 2-3 together. Fruits obovoid, truncate at top.

Fls. & Frts. : August-October.

Distrib. : Frequent in open, moist situations, among grasses, from ghats to plains; Sawantwadi-Amboli-Mahadeogad. Vengurla-Math forest.

ORCHIDACEAE

1. Epiphytic or lithophytic plants without tubers

2. Pseudobulbs present :

3. Pseudobulbs discoid, depressed .. *Eria*

3. Pseudobulbs conical or elongate :

4. Pseudobulbs of single nodes :

5. Petals fimbriate, 3-nerved .. *Bulbophyllum*

5. Petals not fimbriate, 1-nerved .. *Pholidota*

4. Pseudobulbs 2 or more noded :

6. Column-foot present :

7. Rhizome present, annulate, creeping .. *Flickingeria*

7. Rhizome absent .. *Dendrobium*

6. Column-foot absent .. *Cymbidium*

2. Pseudobulbs absent :

8. Leaves sessile, fleshy, laterally compressed .. *Oberonia*

8. Leaves petiolate, not fleshy, nor laterally compressed :

9. Lip not with spur nor saccate at base .. *Cottania*

9. Lip with spur or saccate at base :

10. Inflorescence shorter than leaves :

11. Leaf apex pointed; spur septate .. *Sarcanthus*

- 11. Leaf apex bluntly 2-lobed; spur not septate :
 - 12. Sepals pale green .. *Smithsonia*
 - 12. Sepals creamy-yellow .. *Acampe*
- 10. Inflorescence longer than leaves :
 - 13. Flowers sessile; column without foot .. *Smithsonia*
 - 13. Flowers pedicellate; column with stout foot .. *Aerides*
- 1. Terrestrial plants or tuberous epiphytes :
 - 14. Tuberous pseudobulbs present; inflorescence lateral or away from leaves :
 - 15. Inflorescence erect; lip adnate to the foot of column, spurred .. *Eulophia*
 - 15. Inflorescence decurved; lip attached to the foot, not spurred .. *Geodorum*
 - 14. Tuberous pseudobulbs absent; inflorescence terminal :
 - 16. Lip spurred, not denticulate :
 - 17. Lip fan-shaped, fimbriately dissected .. *Platanthera*
 - 17. Lip not fan-shaped, but bilobed :
 - 18. Sepals unequal, more or less lateral spreading and reflexed .. *Habenaria*
 - 18. Sepals subequal, more or less connivent .. *Peristylus*
 - 16. Lip not spurred, but denticulate .. *Malaxis*

ACAMPE Lindl.

Acampe praemorsa (Roxb.) Blatt. & McC. in J. Bombay nat. Hist. Soc. 35 : 495. 1932; Sant. et Kapadia, Orch. Bombay 233. 1966. *Epidendrum praemorsum* Roxb. Pl. Cor. 1 : 34. t. 43. 1795. *Saccolabium praemorsum* (Roxb.) Hook. f. Fl. Brit. India 6 : 62. 1890. *S. wightianum* Hook. f. l.c. *Acampe wightiana* Lindl. Fol. Orch. Acampe 2, 1853; Cooke, Fl. Pres. Bombay 3 : 209. 1958 (Repr. ed.).

Herbs with stout stems, covered by sheaths of fallen and intact leaves. Leaves 8-16 × 1.5-3.0 cm, oblong, coriaceous, channelled, apex emarginate with 2-unequal rounded lobes. Flowers creamy-yellow with dark brownish-red transverse bands; in compact, corymbose racemes, bracts minute; sepals-3, lip 3-lobed, scaccate at base; pollinia-2, yellow, stigmatic surface brownish-red. Fruits cigar-shaped.

Fls. & Frts. : February-August.

Illus. : Wight, Icon. t. 1670. 1851.

Distrib. : Frequent in deciduous forest in plains; Kankavli-Kasal, Sawantwadi-Bhedshi, Danoli. Vengurla-Vagiri forest.

AERIDES Lour.

1. Sepals and petals spotted; spur pointing back and down *A. maculosum*

1. Sepals and petals not spotted; spur pointing forward *A. crispum*

Aerides crispum Lindl. Gen. Sp. Orch. 239. 1833; Hook. f. Fl. Brit. India 6 : 45. 1890; Cooke, Fl. Pres. Bombay 3 : 203. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 122. 1966.

Robust plants, stems covered by sheaths of fallen and intact leaves. Leaves 8-16 × 2.6-3.5 cm, oblong, thick, coriaceous, apex unequally 2-lobed. Flowers rosy-pink, fragrant, up to 3 cm across; in pendulous, 15-20 cm long racemes, bracts triangular-ovate; sepals and petals spreading, lip clawed and geniculately inflexed at claw, spur going under midlobe. Fruits oblong-elliptic.

Fls. & Frts. : May-June.

Illus. : Wight, Icon. t. 1677. 1851.

Distrib. : Infrequent in scrub forest from ghats to plains; Kudal-Tambyachiwadi. Sawantwadi-Amboli, Ramghat. Vengurla (Cooke, l. c.).

A. maculosum Lindl. Bot. Res. t. 58. 1845; Hook. f. Fl. Brit. India 6 : 45. 1890.; Cooke, Fl. Pres. Bombay 3 : 203. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 120. 1966.

Stout epiphytes, stems covered with sheaths of fallen and intact leaves. Leaves 10-18 × 1.5—2.2 cm, linear-oblong or oblong, coriaceous, apex 2-lobed, lobes unequal, rounded. Flowers rose coloured, darker in the centre, 2.0-2.5 cm across; in 10-20 cm long racemes, bracts ovate; sepals obovate, lateral petals similar to sepals, lip 3-lobed, straight, spur hook-like. Fruits obovoid.

Fls. & Frts. : June.

Illus. : Wight, Icon. tt. 1674-75. 1851; Sant. et. Kapadia, l. c. 121. Pl. 30.

Distrib. : Occasional in moist deciduous forest along the ghats; Sawantwadi-Ambolighat, Danoli.

BULBOPHYLLUM Du Pettit-Thou. (*nom. cons.*)

Bulbophyllum fimbriatum (Lindl.) Reichenb. f. in Walp. Ann. Bot. Syst. 6 : 260. 1861. *Cirrhopetalum fimbriatum* Lindl. in Bot. Reg. Misc. 72. 1839; Hook. f. Fl. Brit. India 5 : 774. 1890; Cooke, Fl. Pres. Bombay 3 : 188. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 198. 1966.

Herbs with conical, ovoid, yellow, leafless (at the time of flowering) pseudobulbs on rhizomes. Leaves 2 per shoot, 4—8 × 0.9—1.8 cm, oblong-lanceolate, sessile, apex acute, base sheathing. Flowers greenish or creamy-purple with darker lines, lip red; in umbellate racemes at the apex of the scapes, bracts ovate-oblong; dorsal sepal and petals fimbriate and deep pinkish-yellow, lip yellow at base and sides crimson, column white with 2-deep crimson horns.

Fls. : May.

Illus. : Wight, Icon. t. 1655. 1851; Sant. et Kapadia, l. c. 199. Pl. 48.

Distrib. : Occasional along the ghats; Sawantwadi-Ramghat.

COTTONIA Wight

Cottonia peduncularis (Lindl.) Reichenb. f. Cat. Orch. Schiller 52. 1857; Sant. et Kapadia, Orch. Bombay 222. 1966. *Vanda peduncularis* Lindl. Gen. Sp. Orch. 216. 1833. *Cottonia macrostachys* Wight Icon. t. 1755. 1851; Hook. f. Fl. Brit. India 6 : 26. 1890; Cooke, Fl. Pres. Bombay 3 : 206. 1958 (Repr. ed.).

Stout herbs, stems elongate, closely sheathed. Leaves 8—16 × 1.2—2.0 cm, elliptic-oblong, coriaceous, sessile, recurved, sometimes straight, apex emarginate with 2-rounded lobes. Flowers brownish-yellow, veins red, with 1.2 cm long pedicels; in branched panicles with long peduncle; sepals and petals recurved backwards, lip purple with brownish-yellow streaks.

Fls. : January.

Illus. : Wight, l. c.; Sant. et Kapadia, l. c. 223. Pl. 51.

Distrib. : Occasional in semi-evergreen forest along the ghats; Sawantwadi-Ambolighat-Nanapani.

CYMBIDIUM Sw.

Cymbidium aloifolium (L.) Sw. in Nov. Act. Sci. Upsal. 6 : 77. 1799; Hook. f. Fl. Brit. India 6 : 10. 1890, (*p. p.*); Cooke, Fl. Pres. Bombay 3 : 199.

1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 206. 1966. *Epidendrum aloifolium* L. Sp. Pl. 1350. 1753.

Robust epiphytes, forming dense, thick matting over the support. Leaves 24—35 × 1—3 cm, linear-oblong, coriaceous, apex obliquely notched, base tapering. Flowers yellowish-red; in many flowered, lateral racemes; sepals oblong-lanceolate, petals oblong, lip 3-lobed, base saccate, yellow, side lobes purple. Fruits ellipsoid.

Fls. & Frts. : May-June.

Illus. : Wight, Icon. tt. 1687-1688. 1851.

Distrib. : This species is reported by Sant. & Kapadia (*l. c.*) from 'Tamboli - near Sawantwadi' based on the collection by F. X. Miranda; so it is included here.

DENDROBILUM Sw. (*nom. cons.*)

1. Flowers in fascicles

2. Column-foot distinct; lip pubescent .. *D. crepidatum*

2. Column-foot absent; lip glabrous .. *D. lawianum*

1. Flowers in racemes :

3. Midlobe of lip less than twice the length of lateral lobes .. *D. ovatum*

3. Midlobe of lip more than twice the length of lateral lobes .. *D. barbatulum*

Dendrobium barbatulum Lindl. Gen. Sp. Orch. 84. 1830; Hook. f. Fl. Brit. India 5 : 719. 1890; Cooke, Fl. Pres. Bombay 3 : 184. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 93. 1966.

Epiphytes usually on *Xeromphis* sp. and *Careya* sp. trees. Leaves 6—12 × 2—3 cm, lanceolate to ovate-lanceolate, glabrous, apex acute, base sheathing. Flowers on leafless shoots, white-pink, 2.5 cm long; usually in terminal, sometimes lateral racemes; sepals and petals alike, lateral lobes of lip obliquely ovate-oblong. Fruits ellipsoid, with 3-narrow and 3-broad bands.

Fls. & Frts. : February-May.

Illus. : Sant. et Kapadia, *l. c.* 95. Pl. 22.

Distrib. : Frequent in deciduous forest in plains and along ghats; Kankavli-Naradave, Phonda-Dindyachi Rai, Sawantwadi-Ramghat.

D. crepidatum Lindl. in Paxton, Fl. Gard. 1 : 63. f. 45. 1850-1851; Hook. f. Fl. Brit. India 5 : 740. 1890; Cooke, Fl. Pres. Bombay 3 : 185. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 101. 1966.

Pendulous epiphytes, stems tufted. Leaves 4—8 × 1.0—1.5 cm, oblong-lanceolate, glabrous, membranous, apex acute, nerves many. Flowers yellowish-white; in pairs from apical pseudobulbs; sepals oblong, fleshy, petals spreading, lip clawed, hardly lobed, apical portion spreading, rounded or emarginate. Fruits ellipsoid.

Fls. & Frts. : April-May.

Distrib. : Scattered in deciduous forest in plains and along the ghats; Kudal-Shivapur paz. Sawantwadi-Ramghat. Vengurla (Cooke, *l. c.*).

D. lawianum Lindl. in J. Linn. Soc. Bot. 3 : 10. 1859; Sant. et Kapadia, Orch. Bombay 102. 1966.

Epiphytes, pendulous, stems curving in one direction, tapering at both the ends. Leaves 4—8 × 0.8—1.5 cm, lanceolate, sessile, distichous, apex acute. Flowers white, tinged with pink; in pairs or solitary; sepals and petals alike, waxy, lip ovate-oblong, not lobed. Fruits ovoid, ribbed.

Fls. & Frts. : March-May.

Illus. : Sant. et Kapadia, *l. c.* 104. Pl. 25.

Distrib. : Frequent along the ghats; Kudal-Ghotge. Sawantwadi-Ramghat.

D. ovatum (Willd.) Kranz. in Engl. Pflanzenr. 45 : 71. 1910; Sant. et Kapadia, Orch. Bombay 91. 1966. *Cymbidium ovatum* Willd. Sp. Pl. 4 : 101. 1805. *Dendrobium chlorops* Lindl. in Bot. Reg. Misc. 44. 1844; Hook. f. Fl. Brit. India 5 : 719. 1890; Cooke, Fl. Pres. Bombay 3 : 184. 1958 (Repr. ed.).

Tufted, epiphytic herbs. Leaves 4—8 × 1.2—2.5 cm, elliptic-oblong, membranous, glabrous, apex acute. Flowers creamy-yellow, 1.6 cm across; in terminal racemes on leafless shoots; sepals and petals ovate-oblong, or obovate-oblong, lip slightly clawed at base, 3-lobed, midlobe curved downwards from lateral lobes. Fruits oblong-ovoid, ribbed.

Fls. & Frts. : February-March.

Illus. : Wight, Icon. t. 910. 1844-45; Sant. et Kapadia, *l. c.* 92. Pl. 21.

Distrib. : Occasional in deciduous forest; Kankavli-Phondaghat (Cooke, *l. c.*). Sawantwadi-Akeri.

ERIA Lindl. (*nom. cons.*)

1. Inflorescence 1-flowered	..	<i>E. reticosa</i>
1. Inflorescence many-flowered	..	<i>E. dalzellii</i>

Eria dalzellii (Dalz.) Lindl. in J. Linn. Soc. Bot. 3 : 47. 1858 (excl. descript.) ('*dalzelli*'); Cooke, Fl. Pres. Bombay 3 : 193. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 151. 1966. *Dendrobium dalzellii* Hook. ex Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 292. 1852. *E. dalzellii* Hook. f. Fl. Brit. India 5 : 789. 1890 (incl. var. *fimbriata*).

Small herbs, pseudobulbs 0.6—1.0 cm across, green, reticulate. Leaves 3—5 × 0.3—0.8 cm, oblanceolate, thin, membranous, glabrous, apex obtuse. Flowers greenish-yellow; in secund racems; sepals and petals with 2-rows of capitate glands, triangular-ovate, lip falcate, concave in basal half, column more or less at right angles to foot. Fruits yellow, ribbed.

Fls. & Frts. : August-September.

Illus. : Sant. et Kapadia, l. c. 152. Pl. 35.

Distrib. : Infrequent in shade on wet tree trunk and branches, from ghats to plains; Sawantwadi-Akeri-Mangaon forest, Chaukul. Vengurla-Math forest.

E. reticosa Wight, Icon. t. 1637. 1851; Hook. f. Fl. Brit. India 5 : 787 1890; Cooke, Fl. Pres. Bombay 3 : 193. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 146. 1966.

Small herbs, epiphytes or lithophytes, pseudobulbs reticulate, shoots arise from the base. Leaves 2, appearing together with flowers, 2—7 × 0.8—2.0 cm, ovate or broadly oblong, apex acute, mucronulate, base tapering. Flowers white, tinged with pink, sepals and petals oblong-lanceolate, lip linear-oblong, 3-lobed, column white tinged green. Fruits obovoid.

Fls. & Frts. : June-March.

Illus. : Sant. et Kapadia, l. c. 148. Pl. 34.

Distrib. : This species is reported by Cooke (l. c.) from 'S. M. Country : Ramghat' (in Sawantwadi taluka); hence it is included here.

EULOPHIA R. Br. (nom. cons.)

1. Flowers 2.0-2.2 cm across; spur greenish-white	..	<i>E. epidendrea</i>
1. Flowers 4.0-4.5 cm across; spur brown-mauve	..	<i>E. nuda</i>

Eulophia epidendrea (Retz) Fischer in Gamble, Fl. Pres. Madras 1434 1928 & in Kew Bull. 1928 : 293. 1928; Sant. et Kapadia Orch. Bombay 107. 1966. *Serapias epidendrea* Retz. Obs. Bot. 6 : 65. 1791.

Tuberous herbs, pseudobulbs epigeal, greenish-brown. Leaves 15—25 × 1—2 cm, linear-lanceolate, apex acute. Flowers pale greenish, tinged with maroon, sepals oblanceolate or oblong, tips recurved, petals elliptic, lip oblong, 3-lobed, veins reddish inside, spur bulbous, incurved.

Fls. : February.

Illus. : Wight, Icon. t. 913. 1844-1845; Sant. et Kapadia, 108 *l. c.* Pl. 16.

Distrib. : Occasional in moist, shady place along the ghats; Sawantwadi-Ramghat.

E. nuda Lindl. Gen. Sp. Orch. 180. 1833; Hook. f. Fl. Brit. India 6 : 5. 1890; Cooke, Fl. Pres. Bombay 3 : 197. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 115. 1966.

Terrestrial orchids, tubers spherical. Leaves 20-40 × 4—8 cm, elliptic-lanceolate, plicate, apex acute, base narrow. Flowers greenish-purple; in 35-50 cm long, lax racemes; sepals spreading, petals ovate-oblong, apices slightly turned upwards, lip 3-lobed, midlobe suborbicular, spur projection obconical.

Fls. : April-May.

Illus. : Wight, Icon. t. 1690. 1851.

Distrib. : This species is included here on the authority of Cooke (*l. c.*) who records it from 'S. M. Country' Ramghat (in Sawantwadi taluka) based on collection by Ritchie.

FLICKINGERIA Hawkes

Flickingeria macraei (Lindl.) Seidenf. in Dansk. Bot. Ark. 34 (1) : 39. 1980. *Dendrobium macraei* Lindl. Gen. Sp. Orch. 75. 1830; Hook. f. Fl. Brit. India 5 : 714. 1890; Cooke, Fl. Pres. Bombay 3 : 182. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 79. 1966.

Epiphytes, stems pendulous, creeping, annualate, branched. Leaves (single leaf only from upper most pseudobulb of branch) 4—10 × 1.0—2.5 cm, ovate-lanceolate, or oblong-elliptic, sessile, glabrous, apex acute or obtuse. Flowers white, tinged with yellow and pink; axillary solitary, rarely 2; sepals and petals similar, lip obovate, 3-lobed, lateral lobes winged.

Fls. : July-August.

Illus. : Sant. et Kapadia, *l. c.* 80. Pl. 16.

Distrib. : Cooke (*l. c.*) has reported this species from Ramghat S. M. Country (in Sawantwadi taluka), based on the collection by Dalzell; so it is included here.

GEODORUM Jacks.

Geodorum densiflorum (Lamk.) Schlechter in Feddes, Repert. 4 : 259. 1929; Sant. et Kapadia, Orch. Bombay 203. 1966. *Limodorum densiflorum* Lamk. Encycl. 3 : 516. 1792. *Geodorum purpureum* R. Br. in Ait. Hort. Kew ed. 2, 5 : 207. 1813; Hook. f. Fl. Brit. India 6 : 16. 1890. *G. dilatatum* R. Br. in Ait. l. c.; Hook. f. l. c. 17; Cooke, Fl. Pres. Bombay 3:198. 1958 (Repr.ed.).

Tuberous herbs, pseudobulbs exposed, globular. Leaves 2-many, 20—35 × 4—8 cm, elliptic-lanceolate or obovate-oblong, apex acute, base sheathing, many nerved. Flowers white, tinged with pink; in subcorymbose racemes; sepals and petals broadly oblong, not spreading, lip emarginate, obscurely 3-lobed, with purple marking on inner surface; pollinia depressed at centre with hair-like caudicles. Fruits ellipsoid.

Fls. & Fsts. : June-July.

Illus. : Sant. et Kapadia, l. c. 204. Pl. 50.

Distrib. : Cooke (l. c.) has reported this species from 'Wari country' (Sawantwadi) based on collection by Dalzell; so it is included here.

HABENARIA Willd.

1. Leaves cauline; inflorescence 1-sided .. *H. heyneana*
1. Leaves radical, flat on the ground or slightly above the ground; inflorescence not 1-sided :
 2. Leaves 1-2, flat on the ground .. *H. diphylla*
 2. Leaves more than 2, above the ground :
 3. Inflorescence 1-4 flowered :
 4. Terminal lobe of lip divided .. *H. crinifera*
 4. Terminal lobe of lip undivided :
 5. Spur 8-12 cm long .. *H. longicorniculata*
 5. Spur up to 4 cm long .. *H. rariflora*
 3. Inflorescence many flowered :
 6. Lateral lobes of lip broader than midlobe :
 7. Spur equal to ovary .. *H. suaveolens*
 7. Spur shorter than ovary .. *H. panchganiensis*
 6. Lateral lobes of lip narrower than midlobe :
 8. Bracts less than half the length of ovary .. *H. viridiflora*
 8. Bracts more than half the length of ovary .. *H. marginata*

Habenaria cinnifera Lindl. Gen. Sp. Orch. 323. 1835; Hook. f. Fl. Brit. India 6 : 142. 1890; Cooke, Fl. Pres. Bombay 3 : 223. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 26. 1966.

Terrestrial herbs with ovoid tubers. Leaves clustered near the base, 4—10 × 1—3 cm, elliptic-lanceolate, apex acute, base tapering. Flowers white, sepals elliptic-oblong, petals linear-oblong, lip clawed, with oblique caudate lobes, spur 3.0-3.5 cm long, clavate.

Fls. : August.

Illus. : Sant. et Kapadia, *l. c.* 23. Pl. 4. figs. 13 & 14.

Distrib. : Cooke (*l. c.*) has reported this species from 'Vengurla' based on record by Dalzell & Gibson (Bombay Fl. 269. 1861), and 'S. M. Country : Ramghat' (in Sawantwadi taluka) based on the collection by Law and Stocks; so it is included here.

H. diphylla Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 262. 1850; Hook. f. Fl. Brit. India 6 : 151. 1890; Cooke, Fl. Pres. Bombay 3 : 227. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 21. 1966.

Tuberous herbs, 10-20 cm tall. Leaves 2.5-4.0 × 2-4 cm, broadly ovate to suborbicular, glabrous, apex acute, base cordate. Flowers white, with greenish tinge; in racemes; sepals ovate, apices deflexed, petals linear-oblong, lip 3-lobed, lateral lobes filiform and at right angles to midlobe, spur 1.5-2.0 cm long, curved, apex clavate. Fruits fusiform.

Fls. & Frts. : August-September.

Illus. : Wight, Icon. t. 1715. 1851; Sant. et Kapadia, 36. Pl. 6. fig. 22.

Distrib. : Frequent in moist, open situations in plains; Kankavli-Osargaon, Phonda-Ghonsari. Malwan-Nandos. Sawantwadi-Banda. Vengurla-Math. forest.

H. heyneana Lindl. Gen. Sp. Orch. 320. 1835; Hook. f. Fl. Brit. India 6 : 148. 1890; Cooke, Fl. Pres. Bombay 3 : 225. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 32. 1966.

Terrestrial orchids, 10-16 cm tall, stems leafy. Leaves 2—4 × 0.6—1.5 cm, oblong-lanceolate, membranous, apex acute. Flowers creamy-white; in terminal spikes; sepals oblong-elliptic or oblanceolate, falcate, petals linear-oblong, lip 3-lobed, lobes deflexed, lateral lobes shorter than the middle, spur linear, bent.

- Fls.* : August.
- Illus.* : Wight, Icon. t. 1710. 1851; Sant. et Kapadia, *l. c.* 36. Pl. 5, figs. 15 & 16.
- Distrib.* : Frequent on rocky plain in open situations along ghats; Sawantwadi-Amboli-Mahadeogad and Ramghat Road, Ambolighat-top.

H. longicorniculata Grah. Cat. Pl. Bombay 202. 1839; Sant. et Kapadia, Orch. Bombay 29. 1966. *H. longecalcarata* A. Rich. in Ann. Sci. Nat. Bot. Ser. 2, 15 : 71. t. 313. 1841; Hook. f. Fl. Brit. India 6 : 141. 1890; Cooke, Fl. Pres. Bombay 3 : 223. 1958 (Repr. ed.).

Up to 50 cm tall herbs, tubers ellipsoid. Leaves 4-8, clustered at the base, 4—10 × 1.5—2.5 cm, oblong-lanceolate, apex acute. Flowers greenish-white, odorous, lateral sepals subfalcate, dorsal sepal ovate, petals ovate-oblong, lip 3-lobed, broadly ovate, midlobe longer than laterals, spur thickened below the middle. Fruits spindle-shaped.

- Fls. & Frts.* : October.
- Illus.* : Wight, Icon. t. 925. 1844-1845; Sant. et Kapadia, *l. c.* 11. Pl. 1. figs. 1 & 1'.
- Distrib.* : Occasional, in open, moist situations along the ghats; Sawantwadi-Amboli-Ramghat Road.

H. marginata Coleb. in Hook. Exot. Bot. t. 136. 1825; Hook. f. Fl. Brit. India 6 : 150. 1890; Cooke, Fl. Pres. Bombay 3 : 226. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay, 33. 1966.

Tuberous herbs, about 15-20 cm tall. Leaves 3-5, 3.5—8.0 × 0.6—2.0 cm, oblong-lanceolate, apex obtuse or acute. Flowers greensih-yellow; in dense or lax, subsecund racemes; sepals pale green, unequal, petals oblong-lanceolate, falcate, lip 3-lobed, lateral lobes equal to the middle. Fruits ellipsoid.

- Fls. & Frts.* : October.
- Illus.* : Sant. et Kapadia, *l. c.* 31. Pl. 5. fig. 17.
- Distrib.* : Scattered along the slopes of the ghats and in plains among grasses; Kankavli-Phonda-Rai and Bhairy Pathar. Sawantwadi-Kolgaon on Vengurla Road.

H. paunchganiensis Sant. et Kapadia in J. Bombay nat. Hist. Soc. 54 : 478. 1957 et Orch. Bombay 27. 1966. *H. variabilis* Blatt. & McC. in J. Bombay nat. Hist. Soc. 36 : 19-20. tt. 4-5. 1932, (non Ridley, 1886).

Herbs, 10-20 cm tall, tubers ellipsoid. Leaves 3-5, 2-8 × 0.6-2.0 cm, oblong-elliptic or oblong-lanceolate, apex acute. Flowers white; in racemes. bracts oblong-ovate; sepals unequal, laterals spreading, slightly decurved, dorsal one ovate, petals ovate, lip broadly ovate, 3-lobed, spur rounded at apex.

Fls. : August.

Illus. : Sant. et Kapadia, *l.c.* 36 Pl. 6. fig. 24.

Distrib. : Scattered, in open, moist situations along the higher slopes of the ghats; Sawantwadi-Ambolighat-top.

H. rariflora A. Rich. in Ann. Sci. Nat. Bot. Ser. 2, 15 : 70. t. 2 D. 1841; Hook f. Fl. Brit. India 6 : 136. 1890; Cooke, Fl. Pres. Bombay 3 : 221. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 15. 1966.

Terrestrial, tubernous herbs, tubers ovoid. Leaves 4-8 × 1-2 cm, broadly oblong to oblong-lanceolate, variable, apex acute. Flowers white; peduncles ebracteate; sepals unequal, dorsal one ovate, laterals oblique, spreading, petals 2-partite, lip 3-partite, lateral lobes longer than the midlobe, spur curved, apex subglobular.

Fls. & Frts. : August.

Illus. : Wight, Icon. t. 924. 1844-1845.

Distrib. : Occasional, in moist, open situations among grasses along the ghats; Sawantwadi-Ambolighat.

H. suaveolens Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 263. 1850; Hook f. Fl. Brit. India 6 : 140. 1890; Cooke, Fl. Pres. Bombay 3 : 222. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 27. 1966.

Herbs, 15-25 cm tall, tubers-2, ovoid. Leaves 3-5, radical, 4-10 × 0.6-1.5 cm, oblong or elliptic, apex acute. Flowers white, fragrant; in lax racemes; sepals ovate, unequal, laterals oblique, petals oblique, ovate, lip 3-lobed, lateral lobes truncate, spur subclavate at apex, filiform, pendulous.

Fls. : September.

Distrib. : This species has been reported by Cooke (*l.c.*) from 'between Vengurla and Malwan' based on the collection by Dalzell; so it is enumerated here.

H. viridiflora (Sw.) R. Br. Prodr. 312. 1810; Sant. et Kapadia, Orch. Bombay 35. 1966. *Orchis viridiflora* Sw. in Kongl. Vetensk. Acad. Nya. Handb. 21 : 206. 1800. *Habenaria viridiflora* (Sw.) R. Br. var. *dalzellii* Hook.

f. Fl. Brit. India 6 : 150. 1890; Cooke, Fl. Pres. Bombay 3 : 226. 1958 (Repr. ed.).

Tuberous herbs, 10-25 cm tall, tubers ellipsoid. Leaves 3-5, 2-6 × 0.15-0.45 cm, narrowly linear-oblong, apex mucronate. Flowers yellow; in racemes; sepals unequal, laterals obliquely ovate, dorsal one ovate, petals obliquely ovate, lip 3-partite, almost to the base, midlobe shorter than lateral ones, spur slender, acute at apex.

Fls. : December.

Illus. : Sant. & Kapadia, *l.c.* 31. Pl. 5. fig. 19.

Distrib. : Cooke (*l.c.*) has reported this species from Malwan based on the collection by Dalzell; hence it is included here.

MALAXIS Soland. ex. Sw.

Malaxis rheedii Sw. in Vet. Acad. Nya. Handb. Stockh. 21 : 235. 1800; Nair & Ansari in Taxon 30 : 475. 1981. *M. versicolor* (Lindl.) Abeywicz, in Ceylon J. Sci. Biol. Sci. 2 : 147. 1959; Sant. et Kapadia, Orch. Bombay 141. 1966. *Microstylis versicolor* Lindl. Gen. Sp. Orch. 21. 1830; Cooke, Fl. Pres. Bombay 3 : 179. 1958 (Repr. ed.). *M. rheedii sensu auct. non* Lindl. 1830; Wight, Icon. t. 902. 1844-1845; Hook. f. Fl. Brit. India 5 : 690. 1890.

Terrestrial or lithophytic herbs, 8-15 cm tall. Leaves 4-12 × 2-5 cm, broadly ovate, or ovate-lanceolate, glabrous, green above, purplish-green beneath, apex acute, base sheathing, margins denticulate. Flowers greenish-yellow, with purple tinge; in terminal racemes; sepals unequal, ovate, petals narrowly linear, lip semi-circular, pectinate at tip. Fruits ovate.

Fls. & Frts. : October-May.

Illus. : Sant. et Kapadia, *l.c.* 142. pl. 33.

Distrib. : Infrequent in open, moist situations along the ghats; Kankavli-Phonda Rai. Kudal-Shivapur paz. Sawantwadi-Amboli-Ramghat Road.

OBERONIA Lindl. (*nom. cons.*)

Oberonia recurva Lindl. in Bot. Reg. Misc. 8. 1839 et Fol. Orch. Oberon. 5. 1852; Hook. f. Fl. Brit. India 5 : 660. 1890; Cooke, Fl. Pres. Bombay 3 : 178. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 60. 1966.

Pendulous epiphytes, 4-7 cm tall. Leaves 2.5-4.0 × 0.5-1.5 cm, ovate to lanceolate, pale green, apex acute. Flowers 0.15 cm across, pale orange; in 2-5 cm long racemes; sepals ovate, petals obovate-spathulate, lip deep red, darker than lateral petals, 3-lobed, gland-dotted as lateral petals. Fruits obovate-oblong.

Fls. & Frts. : October-November.

Illus. : Hook. f. Icon. t. 1784 A. 1888.

Distrib. : Scattered in open scrub forest along the ghats; Kankavli-Phondaghat. Sawantwadi-Amboli-Nangartas.

PERISTYLUS Bl.

1. Leaves grouped below the middle or slightly above the ground on stem; spur equal to or longer than ovary	..	<i>P. densus</i>
1. Leaves grouped about the middle on stem; spur shorter than ovary :		
2. Lip longer than lateral sepals	..	<i>P. stocksii</i>
2. Lip shorter than lateral sepals	..	<i>P. plantagineus</i>

Peristylus densus (Lindl.) Sant. et Kapadia, Orch. Bombay 46. 1966; *Coeloglossum densum* Lindl. Gen. Sp. Orch. 302. 1835. *Habenaria stenostachya* Benth. Fl. Hongk. 362. 1861; Hook. f. Fl. Brit. India 6 : 156. 1890.

Annual herbs, 15-25 cm tall, tubers globose. Leaves 4-8 × 0.5-1.5 cm, linear to oblong-lanceolate, apex acute or obtuse. Flowers greenish-yellow to yellowish-white; in dense spikes; lateral sepals linear, dorsal one ovate-oblong, petals ovate-oblong, lip 3-lobed, lateral lobes linear-subulate, midlobe narrowly oblong, spur straight or curved.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 1709. 1851; Sant. et Kapadia, l.c. 47. Pl. 9, figs. A & B.

Distrib. : Scattered in open, moist situations along the ghats; Sawantwadi-Amboli-Mahadeogad and Ramghat Road.

P. plantagineus Lindl. Gen. Sp. Orch. 300. 1835; Cooke, Fl. Pres. Bombay 3 : 216. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 51. 1966. *Habenaria wightii* Trim. Cat. Ceyl. Pl. 91. 1885; Hook. f. Fl. Brit. India 6 : 162. 1890.

Robust plants, 40-70 cm tall with 1-2 oblong tubers. Leaves 4-8, 8-16 × 4-6 cm, broadly elliptic or elliptic-ovate, apex acute, base sheathing. Flowers pinkish-brown, sessile; in compact spikes; sepals subequal, oblong-ovate, petals elliptic-oblong, gland-dotted, lip ovate-oblong, gland-dotted, shortly 3-lobed, spur small, saccate.

Fls. : August-September.

Illus. : Wight, *Icon. t.* 921. 1844-1845; Sant. et Kapadia, *l.c.* 50. Pl. 10. figs. A & B.

Distrib. : Frequent in cleared forest areas and in open, moist situations, sometimes inside the forest from ghats to plains; Kankavli-Osargaon, Phonda-Harkol forest. Malwan-Adari-Nadruk. Sawantwadi-Akeri-Nemle forest, Amboli-Forest Nursery and Ramghat Road. Vengurla-Math forest.

P. stocksii (Hook. f.) Kranz. *Orch. Gen. Sp.* 1 : 513. 1898; Cooke, *Fl. Pres. Bombay* 3 : 215. 1958 (Repr. ed.); Sant. et Kapadia, *Orch. Bombay* 48. 1966. *Habenaria stocksii* Hook. f. *Fl. Brit. India* 6 : 158. 1890.

15-30 cm tall herbs, tubers 1-2, ellipsoid. Leaves 5-8 × 1.2-3.5 cm, obovate or elliptic-lanceolate, apex acute, margins wavy. Flowers yellowish-green, sessile; in twisted spikes; sepals fleshy, subequal, oblong-elliptic, dorsal sepal forming hood over column, petals ovate-oblong, slightly oblique, lip 3-lobed, clawed, lateral lobes narrower than midlobe, spur inflated downwards.

Fls. : August.

Illus. : Sant. et Kapadia, *l.c.* 47. Pl. 9. figs. C & D.

Distrib. : Occasional in open, moist places among grasses along the ghats; Kankavli-Phondaghat. Sawantwadi-Ramghat (Cooke, *l.c.*).

PHOLIDOTA Lindl.

Pholidota pallida Lindl. *Bot. Reg. sub-t.* 1777. 1836; Saldanha in Saldanha & Nicolson, *Fl. Hassan Dist.* 843. 1976. *P. imbricata sensu* Lindl. *Bot. Reg.* t. 1213, *non* Lindl. in Hook. *Exot. Fl.* t. 138. 1825; Hook. f. *Fl. Brit. India* 5 : 845. 1890; Cooke, *Fl. Pres. Bombay* 3 : 190. 1958. (Repr. ed.); Sant. et Kapadia, *Orch. Bombay* 175. 1966.

Pendulous epiphytes, pseudobulbs 4-6 × 2-3 cm, grooved. Leaves solitary, 12-30 × 3-6 cm, elliptic-lanceolate, coriaceous, apex acute, base tapering.

3-5 nerved. Flowers dull pink to yellowish-brown; in drooping, dense racemes; sepals subequal, dorsal sepal suborbicular, laterals sickle-shaped, petals linear-oblong, falcate, lip saccate, pink, 3-lobed, midlobe 2-lobulate.

Fls. : June-July.

Illus. : Sant. et Kapadia, *l.c.* 177. Pl. 11, figs. A & B.

Distrib. : This species is included here on the authority of Cooke (*l.c.*) who has reported from near Vengurla based on collection by Dalzell.

PLATANThERA L. C. Rich.

Platanthera susannae (L.) Lindl. Gen. Sp. Orch. 295. 1835; Cooke, Fl. Pres. Bombay 3 : 217. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 42. 1966. *Orchis susannae* L. Sp. Pl. 939. 1753. *Habenaria susannae* (L.) R Br. ex Spreng. Syst. Veg. 3 : 622. 1826; Hook f. Fl. Brit. India 6 : 137. 1890.

40-100 cm tall plants, tubers-2, ellipsoid. Leaves 5-14 × 2-5 cm, ovate-oblong or oblong-lanceolate, dark green above, pale beneath, apex acute. Flowers white, fragrant, 6.0-7.2 cm across; in terminal 2-6 flowered racemes; sepals unequal, laterals obliquely oblong, dorsal one obovate-elliptic, margins revolute, petals narrowly linear-oblong, curving along lower margin, lip-segments filiform, midlobe elliptic, dilated beyond the middle, spur much longer than ovary. Fruits ellipsoid.

Fls. & Frts. : October-November.

Illus. : Wight, Icon. t. 920. 1844-1845.

Distrib. : Occasional in open, moist situations and in shady places from ghats to plains; Kankavli-Nandgaon-Belachi Rai. Sawantwadi-Amboli-Nangartas.

SARCANTHUS Lindl.

Sarcanthus pauciflorus Wight, Icon. t. 1747. 1851; Saldanha in Saldanha & Nicolson, Fl. Hassan Dist. 846. 1976. *S. peninsularis* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 343. 1851; Hook. f. Fl. Brit. India 6 : 67. 1890; Cooke, Fl. Pres. Bombay 3 : 210. 1958 (Repr. ed.); Sant. et Kapadia, Orch. Bombay 230. 1966.

Epiphytes, pendulous, stems 20-24 cm long. Leaves 6-12 × 0.6-1.0 cm, linear-oblong, fleshy, notched and acuminate at tip. Flowers reddish-yellow;

n downwards pointing, leaf opposed racemes; sepals spreading, fleshy, yellow with red margins, broadly oblong, petals fleshy, oblong, lip white, 3-lobed, midlobe triangular, larger than lateral ones, spur arched.

Fls. : June-July.

Illus. : Wight, *l. c.*; Sant. et Kapadia, *l. c.* 231. Pl. 53, figs. A-C.

Distrib. : This species is reported by Cooke (*l. c.*) from 'village of Viridi in Wari country (Sawantwadi) based on collection by Dalzell. So it is included here.

SMITHSONIA Saldanha

1. Inflorescence longer than the leaves; spur hairy inside	<i>S. maculata</i>
1. Inflorescence shorter than the leaves; spur glabrous inside	<i>S. viridiflora</i>

Smithsonia maculata (Dalz.) Saldanha in J. Bombay nat. Hist. Soc. 71 : 74. 1974 et in Saldanha & Nicolson, Fl. Hassan Distt. 850. 1976. *Micropera maculata* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 282. 1851. *Sarcochilus maculatus* Pfitz. in Vergl. Morph. Orch. 15. 1881; Cooke, Fl. Pres. Bombay 3 : 201. 1958 (Repr. ed.). *Saccolabium maculatum* (Dalz.) Hook. f. Fl. Brit. India 6 : 64. 1890. *Gastrochilus maculatus* Kuntze, Rev. Gen. Pl. 2 : 661. 1891; Sant. et Kapadia, Orch. Bombay 277. 1966.

Epiphytic, small herbs, stems about 1 cm long. Leaves 4—8 × 1.8—2.5 cm, linear-oblong, greyish-green, mottled with purple, apex 2-lobed, base narrow. Flowers sessile; in many flowered racemes; sepals and petals subequal, yellow with red spot in the centre, obovate-oblong, lip fleshy, 3-lobed, white, midlobe transverse half-way down the spur.

Fls. : May.

Illus. : Saldanha *l. c.* 851. fig. 131.

Distrib. : Cooke (*l. c.*) has reported this species from 'Phondaghat' (in Kankavli taluka) based on the collection by Ritchie; hence it is included here.

S. viridiflora (Dalz.) Saldanha in J. Bombay nat. Hist. Soc. 71 : 75. 1974 et in Saldanha & Nicolson, Fl. Hassan Distt. 851. 1976. *Micropera viridiflora* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 282. 1851. *Saccolabium viridiflorum* Lindl. in J. Linn. Soc. 3 : 36. 1858; Hook. f. Fl. Brit. India 6 : 63. 1890. *Sarcochilus viridiflorus* (Dalz.) Cooke, Fl. Pres. Bombay 2 : 697 1907 et 3 : 201. 1958 (Repr. ed.). *Gastrochilus dalzellianus* (Sant.) Sant. et Kapadia, Orch. Bombay 228. 1966.

6-8 cm long epiphytes, stems very short, sheathed. Leaves $3.6 \times 0.9-2.0$ cm, elliptic-lanceolate or linear-oblong, apex 2-lobed, base tapering. Flowers pedicellate; in corymbose-umbellate racemes; sepals subequal, broadly ovate, dorsal sepal with yellowish-red spots, petals also greenish-white, obovate, lip white with pink dots, fleshy, 3-lobed, midlobe triangular with pointed lateral wings covering white spur.

Fls. : April-May.

Illus. : Sant. et Kapadia, *l. c.* 229. Pl. 52. figs. A-C.

Distrib. : Scattered on the outskirts of semi-evergreen forest along the ghats and in deciduous forest in plains; Sawantwadi-Ambolighat-Nanapani, Bhedshi, Hewale.

ZINGIBERACEAE

1. Inflorescence on separate, leafless shoots :

2. Anther-connectives prolonged into beaks .. *Zingiber*

2. Anther-connectives truncate, crested :

3. Anthers spurred .. *Curcuma*

3. Anthers not spurred .. *Amomum*

1. Inflorescence on leafy shoots or leaves develop after flowering :

4. Inflorescence racemose to paniculate :

5. Lip deeply bifid; ovary 1-locular .. *Glabba*

5. Lip cleft at apex; ovary 3-locular .. *Alpinia*

4. Inflorescence spicate :

6. Calyx red, teeth cuspidate .. *Cestus*

6. Calyx not red, teeth not cuspidate :

7. Connectives not spurred at base .. *Kaempferia*

7. Connectives spurred at base .. *Curcuma*

ALPINIA Roxb. (*nom. cons.*)

1. Lip 2-lobed; calyx 0.9-1.2 cm long .. *A. galanga*

1. Lip 3-lobed; calyx up to 2 cm long .. *A. speciosa*

Alpinia galanga (L.) Willd. Sp. Pl. 1 : 12. 1797; Baker in Hook f. Fl. Brit. India 6 : 253. 1892; Cooke, Fl. Pres. Bombay 3 : 244. 1958 (Repr. ed.); Burtt & Smith in Notes Roy. Bot. Gard. Edinburgh 31 (2) : 186. 1972. *Muranta galanga* L. Sp. Pl. ed. 2, 3. 1762.

Perennial, tuberous herbs. Leaves 25—40 × 3.5—8.0 cm, lanceolate, sparsely hairy above, pubescent beneath or glabrous, apex acute. Flowers greenish-white; in erect, cylindrical panicles; calyx glabrous, 1.2 cm long, corolla up to 2 cm long, staminodes linear, reddish, connectives of anthers inappendiculate. Fruits ellipsoid.

Fls. & Frts. : May-June.

Distrib. : This species is included here on the authority of Cooke (l. c.) who records it from 'Wari country wild on wadonger' (in Sawantwadi taluka) based on the record by Dalzell & Gibson (Bombay Fl. 274, 1861.).

A. speciosa (Wendl.) K. Schum. Fl. Kaiser-Wilhelms. 29, 1887 et in Engl. Pflanzenr. 20 : 339, 1904. *Zerumbet speciosum* Wendl. Sert. Hann. 1 (4) : 3, t. 19, 1798. *Alpinia nutans* (Andr.) Roscoe in J. E. Sm. Exot. Bot. 2 : t. 106, 1805; Baker in Hook. f. Fl. Brit. India 6 : 256, 1892; Cooke, Fl. Pres. Bombay 3 : 245, 1958 (Repr. ed.).

Erect, perennial herbs with rhizomatous root stock, stems leafy. Leaves 24—40 × 6—10 cm, oblong-lanceolate to elliptic, glabrescent, apex acute to acuminate. Flowers white, tinged with rosy or purple, fragrant; in terminal, drooping panicles, bracts pink; calyx cylindric, 3-toothed, corolla tube shorter than calyx, lip 3-4 cm long.

Fls. : June-July.

Distrib. : Planted in nursery; Sawantwadi-Banda-Tamboli forest nursery.

AMOMUM Roxb. (*nom. cons.*)

Amomum microstephanum Baker in Hook. f. Fl. Brit. India 6 : 239, 1892; Cooke, Fl. Pres. Bombay 3 : 139, 1958 (Repr. ed.).

Perennial herbs, 0.5-1.5 m tall, with thick, fleshy rhizomes. Leaves 40—60 × 5—8 cm, linear-lanceolate, glabrous or sparsely hairy above, pubescent beneath, apex acuminate. Flowers white with yellowish tinge; in basal, globose spikes; calyx tubular, split on one side, corolla lobes linear-oblong, lip obovate. Fruits ribbed.

Fls. & Frts. : May-June.

Distrib. : Rare, in moist situations along streams in plains; Sawantwadi-Khanale near Bhedshi, Kulkarni 129461.

COSTUS L.

Costus speciosus (Koenig) Smith in Trans. Linn. Soc. London 1 : 249 1791; Baker in Hook. f. Fl. Brit. India 6 : 249. 1892; Cooke, Fl. Pres. Bombay 3 : 243. 1958 (Repr. ed.). *Banksia speciosa* Koenig in Reiz. Obs. Bot. 3 : 75. 1783.

Erect herbs, 1-2 m tall, rootstock tuberous. Leaves spirally arranged, 10—20 × 4—6 cm, elliptic-obovate, glabrous above, white pubescent beneath, apex acute. Flowers white, zygomorphic; in dense, terminal, cone-like spikes, bracts bright red; calyx 2 cm long, 2-lipped, corolla 3-lobed, lip trumpet-shaped, staminodes absent. Fruits 3-gonous, red.

Fls. & Frts. : August-February.

Illus. : Wight, Icon. 1. 2014. 1853.

Distrib. : Frequent along the lower slopes of the ghats and at base in the undergrowth in deciduous forest; Kankavli-Phonda-Devichi Rai, Phondaghat. Sawantwadi-Ambolighat-Nanapani, Danoli, Khanale.

CURCUMA L.

1. Spikes lateral, appear before leaves	..	<i>C. neilgherrensis</i>
1. Spikes appear in the centre of previously formed tuft of leaves :		
2. Flowers whitish-yellow	..	<i>C. pseudomontana</i>
2. Flowers purple	..	<i>C. decipiens</i>

Curcuma decipiens Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 144. 1850; Baker in Hook. f. Fl. Brit. India 6 : 215. 1890; Cooke, Fl. Pres. Bombay 3 : 237. 1958 (Repr. ed.).

Tuberous herbs, 15-25 cm tall, tubers globose. Leaves 10—16 × 6—10 cm, broadly elliptic, membranous, glabrous, apex deltoid-acuminate, base subcordate. Flowers 2 in each axil of bracts; spikes 6-10 cm long, bracts pale purple; corollatube 1.8-2.2 cm long, lip obovate, 2-fld, margins crisped. Fruits subglobose.

Fls. & Frts. : June-October.

Distrib. : Frequent in shady places in deciduous forest in plains; Kankavli-Phonda-Devichi Rai, Malwan-Nandos, Sawantwadi-Akeri-Mangao forest, Banda-Padwe-Majgaon, Danoli. Vengurla-Vagiri forest.

C. neilgherrensis Wight, Icon. t. 2006. 1853; Baker in Hook. f. Fl. Brit. India 6 : 201. 1890; Cooke, Fl. Pres. Bombay 3 : 235. 1958 (Repr. ed.).

Herbs, 8-12 cm tall, tubers small, brownish. Leaves 12—20 × 3.5—5.5 cm, oblong or elliptic-lanceolate, glabrous, apex acuminate, base narrowed. Flowers showy, inodorous, white or creamy with orbicular or ovate, bright yellow lip, corolla lobes oblong, tube 1.5 cm long. Fruits globose.

Fls. & Frts. : May-June.

Illus. : Wight, l. c.

Distrib. : Scattered along the ghats in open, moist places; Kudal-Shivapur paz. Sawantwadi-Ramghat.

C. pseudomontana Grah. Cat. Pl. Bombay 210. 1839; Cooke, Fl. Pres. Bombay 3 : 236. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 273. 1967. *C. montana* Baker in Hook. f. Fl. Brit. India 6 : 214. 1890, *p. p.*

25-45 cm tall herbs, ovoid or globose tubers at the ends of roots. Leaves 15—40 × 8—12 cm, oblong-lanceolate, glabrous, apex acuminate, base narrowed into petiole. Flowers 2-3 together in a bract, in oblong spikes, bracts obovate, with purple upper half; corolla lobes oblong, lip obovate. Fruits ovoid.

Fls. & Frts. : August-September.

Distrib. : Infrequent in moist undergrowth, along the ghats and at base; Kankavli-Phonda-Harkool forest. Sawantwadi-Ramghat.

GLOBBA L.

Globba bulbifera Roxb. Asiat. Res. 11 : 358. 1810; Baker in Hook. f. Brit. India 6 : 206. 1890; Cooke, Fl. Pres. Bombay 3 : 230. 1958 (Repr. ed.).

Erect herbs, 25—40 cm tall, rhizomatous. Leaves 5—15 × 3—5 cm, oblong-elliptic or elliptic, sparsely hairy or glabrous above, pale and pubescent beneath, apex acuminate or acute, base narrowed into short petiole; sheaths hairy. Flowers yellow; in lax racemes, bracts leafy, rachis hairy; calyx 3-toothed, corolla lobes oblong. Fruits ovoid, smooth.

Fls. & Frts. : September-November.

Illus. : Wight, Icon. t. 2001. 1853.

Distrib. : Infrequent in moist, shady places in deciduous forest from lower ghats to plains; Kankavli-Phonda Rai. Malwan-Adari-Nandruk. Sawantwadi-Ramghat.

KAEMPFERIA L.

Kaempferia scaposa (Nimmo ex Grah.) Benth. ex Baker in Hook. f. Fl. Brit. India 6 : 224. 1890; Cooke, Fl. Pres. Bombay 3 : 232. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 272. 1967. *Hedychium scaposum* Nimmo ex Grah. Cat. Pl. Bombay 205. 1839.

Herbs, 20-50 cm tall, with tuberous rootstock. Leave. 10—16 × 4—6 cm, oblong-lanceolate, glabrous, apex acute or acuminate, base narrowed, sheathing. Flowers white, 2.5-4.0 cm across; in spikes, bracts elliptic, hairy; calyx tubular, corolla tube 5-7 cm long, hairy, lobes lanceolate. Fruits ovoid, hairy.

Fls. & Frts. : August-September.

Illus. : Wight, Icon. t. 2030. 1853.

Distrib. : Occasional in open, moist situations in hilly areas in plains; Malwan-Kuperighati.

ZINGIBER Boehm. (*nom. cons.*)

1. Spikes from rootstock	..	<i>Z. cernuum</i>
1. Spikes terminal, not from rootstock	..	<i>Z. neesunum</i>

Zingiber cernuum Dalz. in Hook. J. Bot. & Kew Gard. Misc. 4 : 342. 1852; Baker in Hook. f. Fl. Brit. India 6 : 245. 1892; Cooke, Fl. Pres. Bombay 3 : 240. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 274. 1967.

Erect herbs, stems leafy, up to 1.5 m tall, rootstock tuberous. Leaves 20—30 × 5—7 cm, elliptic-oblong, glabrous, punctate above, sparsely pubescent or glabrescent below, apex acuminate. Flowers white; in shortly peduncled spikes, just above the ground; calyx shortly 3-lobed, truncate, corolla lobes 3. lip 3-lobed, midlobe 2-lobed, yellow with red spots. Fruits trigonous.

Fls. & Frts. : July-August.

Distrib. : This species is included here on the authority of Cooke (l. c.), who reports it from 'S. M. Country : Ramghat' (in Sawantwadi taluka) based on Dalzell's collection.

Z. neesunum (Grah.) Ramam. in Saldanha & Nicolson, Flora of Hassan Dist. 769. 1976. *Alpinia neesana* Grah. Cat. Pl. Bombay 207. 1839. *Zingiber macrostachyum* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 4 : 342. 1852, (*nom. superfl.*); Baker in Hook. f. Fl. Brit. India 6 : 243. 1892; Cooke, Fl. Pres. Bombay 3 : 241. 1958 (Repr. ed.).

Herbs, upto 1.5 m tall with short rhizomes and fleshy roots ending in tubers. Leaves 10—20 × 3—4 cm, lanceolate, glabrous above, glaucous, pubescent beneath, apex acuminate, base narrow, sheathing. Flowers greenish-white; in 3-4 cm long spikes, bracts reddish; calyx up to 1 cm long, hyaline, corolla lobes lanceolate, lip 3-lobed, obovate, yellowish-white, lateral lobes deeply cleft. Fruits obovoid, red, pubescent.

Fls. & Frts. : August-October.

Distrib. : Uncommon, in shady, moist places along the ghats; Kankavli-Phondaghat, Sawantwadi-Ramghat (Cooke, *l.c.*).

HYPOXIDACEAE

1. Leaves plicate; perianth borne at the tip of stipe from ovary hidden in leaf bases ..	<i>Curculigo</i>
1. Leaves flat; perianth attached directly to top of exposed ovary ..	<i>Hypoxis</i>

CURCULIGO Gaertn.

Curculigo orchiloides Gaertn. *Fruct.* 1 : 63. t. 16. 1788; Hook. f. *Fl. Brit. India* 6 : 279. 1892; Cooke, *Fl. Pres. Bombay* 3 : 255. 1958 (Repr. ed.); Sant. *Fl. Khandala* ed. 3, 278. 1967.

Herbs with stout, elongated tubers. Leaves 10—25 × 1.2—2.5 cm, linear-lanceolate, glabrous or sparsely hairy, apex acute, base narrow. Flowers yellow; solitary on a short scape; perianth 0.3-0.5 cm broad, elliptic-oblong, hairy on backside, ovary hairy; stigmas-3. Fruits hypogynous, berry-like.

Fls. & Frts. : June-September.

Illus. : Wight, *Icon.* t. 2043A. 1853.

Distrib. : Frequent in moist, open areas along the ghats; Sawantwadi-Akeri-Mangaon forest, Danoli, Ramghat.

HYPOXIS L.

Hypoxis aurea Lour. *Fl. Cochinch.* 200. 1750; Hook. f. *Fl. Brit. India* 6 : 277. 1892; Cooke, *Fl. Pres. Bombay* 3 : 254. 1958 (Repr. ed.); Sant. *Fl. Khandala* ed. 3, 278. 1967.

Small herbs with subglobose rootstock. Leaves radical, 3—8 × 0.2—0.4 cm, linear, glabrous or hairy, apex acute, Flowers yellow; solitary or 2-flowered racemes (rarely), scapes hairy; perianth 0.1-0.12 cm broad, elliptic-lanceolate; anthers sagittate. Fruits obovoid, green.

Fls. & Frts. : May-June.

Distrib. : Scattered in moist, open situations along the ghats; Kudal-Shivapur Rai. Sawantwadi-Ramghat.

AMARYLLIDACEAE

1. Filaments connate at base; seeds angular	..	<i>Pancratium</i>
1. Filaments free throughout; seeds rounded	..	<i>Crinum</i>

CRINUM L.

Crinum deflexum Ker-Gawl. in J. Sci. Arts. (London) 3 : 105. 1817; Hook. f. Fl. Brit. India 6 : 281. 1892; Cooke, Fl. Pres. Bombay 3 : 257. 1958 (Repr. ed.).

Erect herbs with large, tunicated bulbs. Leaves 5-8, radical, 40—70 × 2—3 cm, linear, channelled, ensiform, glabrous, apex obtuse or acute. Flowers white; in terminal, 7-12 flowered umbels on scape; perianth tube 5-7 cm long, cylindric, lobes 5-7 cm long; stamens shorter than perianth lobes. Fruits 2.5-3.5 cm across, subglobose.

Fls. & Frts. : June.

Distrib. : Occasional in moist, shady places; Sawantwadi-Danoli.

PANCRATIUM L.

Pancratium triflorum Roxb. Fl. Ind. 2 : 126. 1832; Hook. f. Fl. Brit. India 6 : 285. 1892; Cooke, Fl. Pres. Bombay 3 : 259. 1958 (Repr. ed.).

Herbs with 3.5-5.0 cm across, globose bulbs. Leaves 15—30 × 1.2—2.0 cm, linear-lanceolate, membranous, apex acute, base narrow. Flowers white, odorous; 4-6 together in umbels on scape with single, ovate spathe; perianth tube 3.5-4.5 cm long, dilated near mouth, lobes linear, 1.8-2.5 cm long; staminal-cup bifid between the stamens. Fruits 3-angled, ovoid.

Fls. & Frts. : April-May.

Distrib. : Occasional in moist, shady places or near streams along the ghats; Sawantwadi-Mulas, Ramghat.

AGAVACEAE

DRACAENA Vand. ex L.

Dracaena terniflora Roxb. Fl. Ind. 2 : 159. 1824; Hook. f. Fl. Brit. India 6 : 328. 1892; Cooke, Fl. Pres. Bombay 3 : 272. 1958 (Repr. ed.).

Woody herbs or undershrubs, up to 1.5 m tall, stems glabrous, rarely branched. Leaves 16—25 × 4—6 cm, elliptic-oblong, coriaceous, apex acute or acuminate, base narrow, petioles 4-6 cm long. Flowers white; in racemes; perianth 1.9-2.0 cm long, tubular; stamens included. Fruits 0.6-0.8 cm across, globose, red.

Fls. & Frts. : April-October.

Illus. : Wight, Icon. t. 2054. 1853.

Distrib. : Frequent in the undergrowth in semi-evergreen and moist deciduous forests along the ghats; Kudal-Wasuli. Sawant-wadi-Ambelighat-Nanapani, Ramghat, Terwan.

TACCACEAE

TACCA J. R. & G. Forst. (*nom. cons.*)

Tacca leontopetaloides (L.) Kuntze, Rev. Gen. Pl. 2 : 704. 1891; Drenth in Blumea 20 : 375. 1972. *Leontice leontopetaloides* L. Sp. Pl. 313. 1753. *Tacca pinnatifida* Forst. Char. Gen. 70. t. 35. 1778; Hook. f. Fl. Brit. India 6 : 287. 1892; Cooke, Fl. Pres. Bombay 3 : 262. 1958 (Repr. ed.).

Perennial herbs with globose rootstock. Leaves radical, usually-1, spherical in outline, pinnately 3-partite, 30-50 cm across, segments pinnatifid, petioles 40-60 cm long. Flowers purple with greenish tinge, 1.8 cm across; in umbels on 50-80 cm long peduncles; perianth lobes-6, ovoid, urceolate. Fruits subglobose, ribbed, greenish-yellow.

Fls. & Frts. : August-September.

Distrib. : Frequent in moist, shady places in plains in deciduous forest; Kankavli-Kasal. Malwan-Kuperighati. Vengurla-Math forest, Vagiri forest near Vengurla.

DIOSCOREACEAE

DIOSCOREA L.

1. Capsules pendulous; seeds winged all around :
 2. Leaf base rounded or acute; male flowers from nodes of leafy or leafless stems .. *D. oppositifolia*
 2. Leaf base cordate; male flowers on leafless stems .. *D. belophylla*
1. Capsules reflexed; seeds winged at base only :
 3. Leaves compound, nerves less than 7 .. *D. pentaphylla*
 3. Leaves simple, nerves 7-11 .. *D. bulbifera*

Dioscorea belophylla Voigt, Hort. Suburb. Calc. 653. 1844; Sant. Fl. Khandala ed. 3, 281. 1967.

Climbers, stems twining to right, purplish-green. Leaves 5—10 × 2.5—6.0 cm, ovate-lanceolate, glabrous above, punctate beneath, apex acuminate, 7-9 nerved. Male flowers in 1-3-nate spikes, sessile, greenish, perianth-6; female flowers in spikes from nodes of leafy branches. Fruits pendulous, broader than long.

Fls. & Frts. : October-November.

Distrib. : Scattered on the edges of semi-evergreen forest along the ghats; Sawantwadi-Amboli-Hemkunj Palace vicinity and R. F.

D. bulbifera L. Sp. Pl. 1033. 1753; Cooke, Fl. Pres. Bombay 3 : 265. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 281. 1967. *D. sativa* Thunb. Fl. Jap. 151. 1784, (non Linn. 1753); Hook. f. Fl. Brit. India 6 : 295. 1892, (excl. *D. cliffortiana*).

Climbing shrubs, stems twining to left, glabrous, warted bulbils in axils of leaves. Leaves 8-20 × 6-16 cm, broadly ovate, membranous, glabrous, apex acuminate. Male flowers in slender, axillary panicles; perianth lobes linear, greenish-white, sometimes with purple tinge; female flowers in solitary or fascicled spikes, 15-20 cm long. Fruits quadrately oblong.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 878. 1844-1845.

Distrib. : Common in semi-evergreen to deciduous forests from ghats to plains; Deogad-Naringre. Kankavli-Kasal, Nandgaon-Belachi Rai, Osargaon, Phondaghat, Sawantwadi-Danoli, Ramghat, Satarda. Vengurla-Vagiri forest.

D. oppositifolia L. Sp. Pl. 1033. 1753; Hook. f. Fl. Brit India 6 : 292 1892; Cooke, Fl. Pres. Bombay 3 : 266. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 281. 1967.

Climbers, stems climbing to right, terete. Leaves opposite and alternate, 4-10 × 2.5-5.0 cm, ovate-lanceolate to elliptic-oblong, coriaceous, glabrous, apex acuminate, 5-nerved. Flowers brownish; male flowers in spikes, fascicled in leaf axils, rachis pubescent; perianth broadly ovate and female flowers in solitary or branched axillary spikes; ovary pubescent. Fruits stipitate, broader than long.

Fls. & Frts. : May-February.

Illus. : Wight, Icon. t. 813. 1844-1945.

Distrib. : Frequent in scrub jungle in plains and in moist deciduous forest along the ghats; Kankavli-Phonda-Pawnadevi Rai, Kudal-Dukanwad. Sawantwadi-Ambolighat-7th mile point, Banda-Padwe-Majgaon, Tamboli, Terwan.

D. pentaphylla L. Sp. Pl. 1032. 1753; Hook. f. Fl. Brit. India 6 : 281. 1892; Cooke, Fl. Pres. Bombay 3 : 264. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 280. 1967.

Twining, stems twining to left, young parts rufous hairy, sometimes old stems prickly. Leaflets 3-5, digitate, 4-10 × 2-4 cm, ovate-elliptic, hairy on both sides. Male flowers in axillary or terminal panicles, white hairy, bracts broadly ovate, hairy, with scarious margins; perianth ovate, brownish; female flowers in axillary, pubescent spikes, simple. Fruits quadrately oblong.

Fls. & Frts. : August-November.

Illus. : Wight, Icon. t. 814. 1844-1845.

Distrib. : Frequent in semi-evergreen and deciduous forests from ghats to plains; Kankavli-Kasal, Phondaghat. Kudal-Hanuman ghat. Sawantwadi-Amboli-Nangartas, Danoli-Kesari R. F., Ramghat.

LILIACEAE

1. Plants woody, armed	..	<i>Asparagus</i>
1. Plants herbaceous, unarmed :		
2. Leaf-tips ending into tendrils; perianth strongly undulate	..	<i>Gloriosa</i>
2. Leaf-tips not ending into tendrils; perianth not undulate :		
3. Ovary inferior; fruits berry-like	..	<i>Ophiopogon</i>

3. Ovary superior; fruits not berry-like :
 4. Rootstock short, with fascicled, fleshy roots .. *Chlorophytum*
 4. Rootstock bulbs or corms, roots not fleshy :
 5. Leaves cauline; seeds ellipsoid .. *Iphigenia*
 5. Leaves radical; seeds flat :
 6. Flowers appearing with leaves .. *Dipcadi*
 6. Flowers appearing before leaves .. *Drimia*

ASPARAGUS L.

Asparagus racemosus Willd. var. *javanicus* (Kunth) Baker in J. Linn. Soc. Bot. 14 : 624. 1875; Hook. f. Fl. Brit. India 6 : 316. 1892; Cooke, Fl. Pres. Bombay 3 : 270. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 282. 1967. *Asparagopsis javanica* Kunth, Enum. 5 : 100. 1850.

Woody climbers, much branched, with fascicled, tuberous roots, branches angular. Leaves reduced to recurved, spinescent scales; cladodes arising from axils of scaly leaves, 2-6-nate, 1.2-2.5 cm long. Flowers white; solitary or clustered in racemes; perianth linear-oblong. Fruits 0.3-0.4 cm across, subglobose, red.

Fls. & Frts. : June-August.

Distrib. : Frequent along the forest edges from ghats to plains; Kudal-Tambyachiwadi. Sawantwadi-Akeri-Mangaon forest, Ambolighat-top, Danoli, Ramghat.

CHLOROPHYTUM Ker—Gawl.

1. Scapes simple, shorter than leaves .. *C. brevicaupum*
1. Scapes branched, longer than leaves .. *C. nimmonii*

Chlorophytum brevicaupum Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 141. 1850; Hook. f. Fl. Brit. India 6 : 333. 1892; Cooke, Fl. Pres. Bombay 3 : 280. 1958 (Repr. ed.).

Erect herbs, roots fibrous. Leaves 20-35 × 1.0-2.8 cm, oblanceolate, membranous, glabrous, apex acute to acuminate. Flowers white; 3-6 flowered racemes, on 20-22 cm long, naked scapes. bracts ovate, scarious-white; perianth 0.8-1.0 cm long, linear. Fruits 0.5 × 1.0 cm, depressed-globose, horizontally ribbed. Seeds globose, papillose.

Fls. & Frts. : August-November.

Distrib. : Occasional in open, moist situations among grasses in deciduous forest in plains; Sawantwadi-Akeri, Karnyachi Rai near Bhedshi. Malwan (Cooke, *l.c.*).

C. nimmonii Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 142. 1850; Panigrahi in Kew Bull. 30 : 565. 1975. *C. orchidastrum sensu* Baker in J. Linn. Soc. Bot. 15 : 325. 1876, *p.p.*; Hook. f. Fl. Brit. India 6 : 336. 1892, *p.p.*; Cooke, Fl. Pres. Bombay 3 : 282. 1958 (Repr. ed.).

Herbs, 0.5-1.0 m tall, roots fusiform, tuberous. Leaves 20-45 × 3-8 cm, elliptic-lanceolate, glabrous, shining, apex acute, base narrowed into petiole, margins wavy. Flowers white; in distant pairs, in panicles, on 40-90 cm long scapes, bracts ovate; perianth 0.9 × 0.3 cm, oblong-lanceolate. Fruits reniform. Seeds orbicular.

Fls. & Frts. : July-August.

Illus. : Wight, Icon. 1. 2038. 1853.

Distrib. : Scattered in open, moist situations in deciduous forest from ghats to plains; Malwan-Kuperighati. Sawantwadi-Ambolighat-Nanapani.

DIPCADI Medik.

Dipcadi concanense (Dalz.) Baker in J. Linn. Soc. Bot. 11 : 399. 1871; Hook. f. Fl. Brit. India 6 : 346. 1892; Cooke, Fl. Pres. Bombay 3 : 277. 1958 (Repr. ed.); Deb & Dasgupta in J. Bombay nat. Hist. Soc. 75 : 69. 1978 et Fl. India Fasc. 7 : 3. 1981. *Uropetalum concanense* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 143. 1850.

Scapigerous herbs, bulbous. Leaves 3-4 on a bulb, 5-20 × 0.2 cm, linear, apex acute, base broad. Flowers white, 2.5-3.6 cm long; in loose racemes, on 15-25 cm long scapes; perianth 1.5 cm long, lanceolate, fimbriate. Fruits stipitate, lobes rounded. Seeds compressed, shining black, round.

Fls. & Frts. : August-September.

Illus. : Deb & Dasgupta, *l.c.* 68. fig. 10.

Distrib. : This species is reported by Cooke (*l.c.*) from Malwan' based on the collection by Dalzell and so it is included here.

DRIMIA Jacq.

Drimia indica (Roxb.) Jessop in J. South African Bot. 43 : 272. 1977. *Scilla indica* Roxb. Fl. Ind. 2 : 147. 1832. *Urginea indica* (Roxb.) Kunth, Enum. 4 : 333. 1843; Hook. f. Fl. Brit India 6 : 347. 1892; Cooke, Fl. Pres. Bombay 3 : 277. 1958 (Repr. ed.): Deb & Dasgupta, Fl. India Fasc. 7 : 17. 1981.

Bulbiferous herbs, bulbs 6-8 × 4-6 cm, ovoid. Leaves 20-30 × 0.4-0.6 cm, linear-lanceolate, ensiform, glaucous, apex acute. Flowers dingy-brown, drooping, in lax racemes, on 30-80 cm long scapes; perianth linear-oblong; anthers yellow. Fruits 1.5 cm long, ellipsoid. Seeds flat, black.

Fls. & Frts. : March-April.

Distrib. : Occasional in open situations on gravelly soil in plains; Kankavli-Sangve.

GLORIOSA L.

Gloriosa superba L. Sp. Pl. 305. 1753; Hook f. Fl. Brit. India 6 : 358. 1892; Cooke, Fl. Pres. Bombay 3 : 274. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 282, 1967.

Herbaceous climbers, with fascicled tuberous roots, forked, poisonous. Leaves 5-10 × 1.5-5.0 cm, ovate-lanceolate, sessile, glabrous, base cordate. Flowers axillary, solitary, showy; perianth segments free, linear, red and orange; stamens spreading. Fruits 4.5 cm long, oblong, green.

Fls. & Frts. : August-October.

Illus. : Wight, Icon. t. 2047. 1853.

Distrib. : Frequent in plains on edges of deciduous forest and in fields; Kankavli-Nandgaon-Belachi Rai, Phonda-Ghonsari Malwan-Dhamapur. Sawantwadi-Danoli. Vengurla (Cooke, l.c.).

IPHIGENIA Kunth

Iphigenia indica (L.) A. Gray in Kunth, Enum. 4 : 213. 1843; Hook f. Fl. Brit. India 6 : 358. 1892; Cooke, Fl. Pres. Bombay 3 : 275. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 283. 1967. *Melanthium indicum* L. Mant. Alt. 226. 1771.

Erect, 6-16 cm tall herbs, with subglobose corms, 1.5-2.0 cm across. Leaves lower 8-12 cm $\times$ 0.3-0.5 cm, linear-lanceolate, sessile, glabrous, apex acute, upper leaves gradually smaller. Flowers violet or purple-violet, 1.0-1.2 cm across; axillary, solitary; perianth linear-subulate. Fruits 1.0-1.4 cm long, oblong or obovoid.

Fls. & Frts. : August-September.

Distrib. : Frequent in open, moist situations among grasses in plains; Malwan-Kuperighati, Nandos. Sawantwadi-Akeri-Nemle forest, Danoli-Kesari R. F. Vengurla-Math forest.

OPHIOPOGON Ker—Gawl.

Ophiopogon parviflorus (Hook. f.) Hara in J. Jap. Bot. 20 : 21. 1965. *O. intermedius* D. Don var. *parviflorus* Hook. f. Fl. Brit. India 6 : 269. 1892; Cooke, Fl. Pres. Bombay 3 : 252. 1958 (Repr. ed.)

Slender herbs, with short rhizomatous rootstock. Leaves radical, 15-30 $\times$ 0.4-0.8 cm, linear-lanceolate, glabrous, apex acute or acuminate. Flowers white; in racemes, on 10-20 cm long peduncles; perianth 0.6 cm long, campanulate. Fruits subglobose, indehiscent. Seeds subglobose.

Fls. & Frts. : October-November.

Illus. : Wight, Icon. t. 2050. 1853.

Distrib. : Occasional in the undergrowth on wet soil; Sawantwadi-Chaukul.

SMILACACEAE

SMILAX L.

Smilax zeylanica L. Sp. Pl. 1029. 1753; Hook. f. Fl. Brit. India 6 : 309. 1892; Sant. Fl. Khandala ed. 3, 284. 1967. *S. macrophylla* Roxb. Fl. Ind. 3 : 793. 1832; Hook. f. l. c. 310; Cooke, Fl. Pres. Bombay 3 : 271. 1958 (Repr. ed.). *Mar.* : 'Ghotvel'.

Climbing shrubs, stems sometimes prickly. Leaves 6-15 $\times$ 3.5-6.0 cm, broadly ovate or suborbicular, glabrous, apex acuminate, petioles sometimes tendriferous. Flowers dioecious, greenish-yellow; in umbels, 1-3 on axillary peduncles; perianth linear, free. Fruits 0.8 cm across, globose, green turning reddish.

Fls. & Frts. : February-June.

Distrib. : Frequent in moist deciduous and semi-evergreen forests from ghats to plains; Kudal-Ghotge, Hanumanghat Rai. Sawantwadi-Akeri-Mangaon forest, Amboli-Hemkunj Palace vicinity, Ambolighat-Kumbheshwar, Danoli. Vengurla-Vagiri forest.

PONTEDERIACEAE

MONOCHORIA Presl

Monochoria vaginalis (Burm. f.) Presl, Rel. Haenk. 1 : 128. 1827; Hook. f. Fl. Brit. India 6 : 363. 1892; Cooke, Fl. Pres. Bombay 3 : 286. 1958 (Repr. ed.); Backer in van Steenis, Fl. Males. Ser. 1, 4 : 256. 1951; Subramanyam, Aquat. Ang. 69. 1962. *Pontederia vaginalis* Burm. f. Fl. Ind. 80. 1768.

Perennial, aquatic herbs with short rootstock. Leaves 4-8 × 3-4 cm, broadly ovate or ovate-oblong, apex acute to acuminate, base rounded, truncate or cordate. Flowers dark lilac or blue; in racemes, flowers blooming simultaneously; perianth-6, free, petaloid; stamens-6. Fruits loculicidal, explosive. Seeds brown, ribbed.

Fls. & Frts. : May-September.

Illus. : Subramanyam, l.c. 69. t. 47.

Distrib. : Frequent in wet places along river banks and in rice fields from ghats to plains; Sawantwadi-Akeri-Mangaon forest, Danoli, Gavata, Ramghat. Vengurla (Cooke, l.c.).

XYRIDACEAE

XYRIS L.

Xyris pauciflora Willd. Phytogr. 1 : 2. t. 1. f. 1. 1794; van Royan in van Steenis, Fl. Males. Ser. 1, 4 : 371. 1953.

Slender herbs, 8-16 cm tall, with bulbous rootstock. Leaves 6-12 × 0.2 cm, linear, apex acute to acuminate, minutely papillose. Flowers yellow; in globose, solitary heads on scapes, bracts oblong, brownish; sepals-3, hyaline, petals-3, clawed, connate below into tube. Fruits capsules.

Fls. & Frts. : October-February.

Distrib. : Frequent in plains in open, moist places among grasses; Kankavli-Phonda Raj, Kudal-Chapheli, Varad, Sawantwadi-Akeri.

COMMELINACEAE

1. Leaf sheaths inflated	..	<i>Amischophacelus</i>
1. Leaf sheaths not inflated :		
2. Flowers in cymes :		
3. Floral bracts inconspicuous; filaments glabrous	..	<i>Commelina</i>
3. Floral bracts large, imbricate; filaments bearded	..	<i>Cyanotis</i>
2. Flowers in panicles or in clusters of 1-5 flowers :		
4. Stamens-6, staminodes absent	..	<i>Floscopa</i>
4. Stamens-3, staminodes present	..	<i>Murdannia</i>

AMISCHOPHACELUS Rao et Kammathy

Amischophacelus axillaris (L.) Rao et Kammathy in J. Linn. Soc. (Bot.) 59 : 306. 1966. *Commelina axillaris* L. Sp. Pl. 42. 1753. *Cyanotis axillaris* (L.) Roem. & Schult. Syst. Veg. 7 : 1154. 1830; Hook. f. Fl. Brit. India 6 : 338. 1892; Cooke, Fl. Pres. Bombay 3 : 305. 1958 (Repr. ed.).

Slender, branched herbs, stems erect or decumbent-ascending, glabrous, somewhat flaccid. Leaves 4-10 × 0.4-1.0 cm, linear-elongate, glabrous, apex acute, sheaths bulged to form hollow pits. Flowers purple, 1.2-1.5 cm long, sessile; in sessile, condensed cymes, embedded in hollow pits of leaf-sheaths; outer perianth lobes lanceolate, ciliate on midrib, inner ones connate and clawed at base. Fruits oblong, beaked. Seeds pitted.

Fls. & Frts. : September-October.

Distrib. : Occasional on moist, sandy soil along coast; Malwan-Deobag.

COMMELINA L.

1. Spathes complicate, with free posterior margins :		
2. Seeds reticulate; spathes ovate-lanceolate	..	<i>C. diffusa</i>
2. Seeds smooth or faint reticulate lines; spathes cordate	..	<i>C. hasskarlitt</i>

1. Spathes cucullate, with more or less connate posterior margins :

3. Capsules 2-celled .. *C. suffruticosa*

3. Capsules 3-celled :

4. Spathes sessile or subsessile; seeds smooth, encrusted with granules .. *C. maculata*

4. Spathes stalked; seeds reticulate .. *C. paleata*

Commelina diffusa Burm. f. Fl. Ind. 18. t. 7. f. 2. 1768; Rao in Notes Roy. Bot. Gard. Edinburgh 25 : 179. 1964. *C. nudiflora* auct. Pl. (non Linn. 1753); Hook. f. Fl. Brit. India 6 : 369. 1892; Cooke, Fl. Pres. Bombay 3 : 290. 1958 (Repr. ed.).

Creeping-ascending, glabrous herbs, stems rooting from lower nodes. Leaves 2-6 × 1.2-2.0 cm, sessile, ovate-lanceolate or lanceolate, glabrous, apex acute to acuminate. Flowers pale blue to white, 1.0-1.2 cm across, cleisto-gamous; in 1-2 flowered, bifid racemes, in 1.9-3.0 cm long spathes; lateral petals clawed, obovate. Fruits broadly oblong, 5-seeded.

Fls. & Frts. : September-February.

Distrib. : Infrequent in moist, open situations in plains; Deogad-Tar-mumbri. Sawantwadi-Danoli. Vengurla-Vagiri forest.

C. hasskarlii Clarke in Comm. & Cyrt. Beng. 13. t. 3. 1874 et in DC. Mon. Phan. 3 : 157. 1881; Hook. f. Fl. Brit. India 6 : 370. 1892; Cooke, Fl. Pres. Bombay 3 : 291. 1958 (Repr. ed.).

Decumbent-ascending, annual or perennial herbs, stems creeping and rooting below, glabrous. Leaves 2.5-5.0 × 1.2-2.0 cm, lanceolate to oblong-lanceolate, glabrous, apex subacute or subobtuse, margins scabrid. Flowers blue or bluish-pink, 1.0-1.2 cm across; in bifid racemes, outer 1-2 flowered, exserted, inner 2-4 flowered, in 1.5-2.5 cm long spathes. Fruits 0.8 cm long, cylindric, 3-celled.

Fls. & Frts. : September-October.

Distrib. : Occasional in moist places along forest edges; Sawantwadi-Akeri-Mangaon.

C. maculata Edgew. in Trans. Linn. Soc. 20 : 89. 1845; Rao in Blumea 14 : 363. 1966. *C. obliqua* Buch.-Ham. ex D. Don var. *viscida* Clarke in DC. Mon. Phan. 3 : 178. 1881 (excl. var. *mathewii* Clarke). *C. paludosa* Bl. var. *viscida* (Clarke) Rao et Kammathy in Bull. Bot. Surv. India 3 : 168. 1961 (1962); Rao in Notes Roy. Bot. Gard. Edinburgh 25 : 181. 1964 (excl. Syn. *C. obliqua* var. *mathewii* & *C. paludosa* var. *mathewii*).

Suberect or ascending, fleshy herbs, up to 1 m long, stems rooting at basal nodes. Leaves 4-12 × 1.5-3.0 cm, lanceolate, leaf-sheaths setose with rufous, jointed hairs along margins. Spathes 2-4 together; flowers blue; in bifid racemes. Fruits 0.5 cm across, subglobose, shortly beaked.

Fls. & Frts. : September-October.

Distrib. : Uncommon in moist, open places along the slopes of the ghats; Sawantwadi-Amboli, Ambolighat-Nanapani.

C. patenta Hassk. in Miq. Pl. Jungh. 139. 1852; Hook. f. Fl. Brit. India 6 : 372. 1892; Cooke, Fl. Pres. Bombay 3 : 294. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 285. 1967.

Suberect herbs with ascending branches and thick, fleshy, cylindrical roots. Leaves 4-10 × 1.5-4.0 cm, ovate-lanceolate, apex acuminate. Flowers blue; in 2-4 flowered, bifid racemes, in 2-3 cm long, solitary spathes. Fruits 0.6-0.7 cm long, subglobose, 3-seeded. Seeds rounded.

Fls. & Frts. : June-September.

Illus. : Rao et Kammathy in J. Bombay nat. Hist. Soc. 59 : 61. t. 1 c. t. 3. 1962.

Distrib. : Frequent in moist, sandy areas and on gravelly slopes; Deogad-Rest House campus. Kankavli-Osargaon. Malwan-Anandval on Kasal-Malwan Road. Sawantwadi-Akeri-Mangaon forest, Amboli.

C. suffruticosa Bl. Enum. Pl. Jav. 1 : 3. 1827; Hook. f. Fl. Brit. India 6 : 374. 1892; Rao et Kammathy in J. Bombay nat. Hist. Soc. 59 : 65. t. 3. 1962; Sant. Fl. Khandala ed. 3, 285. 1967.

Robust, ascending, perennial herbs, with roots swollen at apices and tuber like. Leaves 6-12 × 2.5-4.5 cm, lanceolate or ovate-lanceolate, sessile or subsessile, pubescent, apex acuminate. Flowers pale blue or white, 0.9-1.0 cm across; in bifid racemes, outer 6-10 flowered, inner 1-flowered or absent, spathes 3-8 cm long, broadly ovate. Fruits 0.5-0.6 cm long, broader than long. Seeds 2, hemispherical.

Fls. & Frts. : September-October.

Distrib. : Occasional in open, moist situations in deciduous forest; Sawantwadi-Akeri.

CYANOTIS D. Don (nom. cons.)

1. Roots tuberous; seeds rugose, transversely ribbed .. *C. concanensis*
1. Roots fibrous; seeds rugose or plain, not ribbed :
 2. Seeds with 2 or more excavated pits on lateral faces, rugose .. *C. cristata*
 2. Seeds not excavate-pitted, but plain, pubescent .. *C. fasciculata*

Cyanotis concanensis Hassk. Comm. Ind. 114. 1870; Rao in Blumea 14 : 348. 1966. *C. stocksii* Hassk. Comm. Ind. 118. 1870. *C. sahyadrica* Blatt. in J. Bombay nat. Hist. Soc. 33 : 77. 1928; Rao in Notes Roy. Bot. Gard. Edinburgh 25 : 189. 1964.

Robust, erect or decumbent herbs, 40-70 cm tall. Leaves basal, 15-25 × 2-3 cm, upper 5-8 × 1-2 cm, oblong-lanceolate to lanceolate, apex obtuse or acute, margins bristly hairy. Flowers blue; in reddish-purple spathes, arranged in densely hairy scorpioid cymes; sepals and petals-3 each. Fruits 3-celled, trigonous, ellipsoid-subglobose, 6-seeded.

Fls. & Frts. : September-October.

Distrib. : Occasional in moist, shady places on red gravelly soil; Sawantwadi-Ambolighat.

C. cristata (L.) D. Don, Prodr. Fl. Nep. 46. 1825; Hook. f. Fl. Brit. India 6 : 385. 1892; Cooke, Fl. Pres. Bombay 3 : 304. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 288. 1967. *Commelina cristata* L. Sp. Pl. 42. 1753.

Diffuse, fleshy herbs, stems erect or decumbent, internodes distant. Leaves 3-8 × 1.2-2.0 cm, ovate-oblong or elliptic-oblong, sessile, fleshy, glabrous, apex obtuse or rounded, base cordate. Flowers blue or bluish-purple; in green spathes in scorpioid cymes; filaments bearded with bluish purple moniliform hairs. Fruits 0.2 cm long, subglobose, 3-angled.

Fls. & Frts. : June-November.

Illus. : Wight, Icon. t. 2082. 1853.

Distrib. : Common in shady as well as in open, moist situations in plains; Deogad-Rest House campus. Kankavli-Harkool, Phonda. Malwan-Nandos. Sawantwadi-Akeri-Mangaon forest, Amboli-Nangartas, Ambolighat-Nanapani, Banda, Danoli. Vengurla-Math forest, Vagiri forest.

C. fasciculata (Roth) J. & J. Schultes in Roem. & Schult. Syst. Veg. 7 (2) : 1152. 1830; Hook. f. Fl. Brit. India 6 : 387. 1892; Cooke, Fl. Pres. Bombay 3 : 303. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 287. 1967. *Tradescantia fasciculata* Heyne ex Roth, Nov. Pl. Sp. 189. 1821.

Branched, cottony herbs, stems rooted at lower nodes, pinkish in colour. Leaves $2-5 \times 0.1-0.2$ cm, oblong-lanceolate, sessile, hairy on both sides, apex acute or acuminate. Flowers pale pink; in hairy spathes longer than cymes; sepals villous, petals ovate. Fruits $0.3-0.4$ cm long, trigonous, pilose at apex. Seeds oblong.

Fls. & Frts. : August-November.

Illus. : Wight, Icon. t. 2086. 1853.

Distrib. : Frequent in moist, rocky and on gravelly areas in plains; Kankavli-Nandgaon. Sawantwadi-Danoli, Safarda.

FLOSCOPA Lour.

Floscopa scandens Lour. Fl. Cochinch. 193. 1790; Hook. f. Fl. Brit. India 6 : 390. 1892; Cooke, Fl. Pres. Bombay 3 : 306. 1958 (Repr. ed.).

Erect or subscandent herbs, stems slender, rooting at basal nodes. Leaves alternate, $4-6 \times 1.2-2.0$ cm, elliptic-lanceolate, pubescent above or glabrous on both sides, apex acuminate, sheaths 1 cm long. Flowers purple; in terminal, clustered panicles; sepals villous, petals obovate. Fruits ellipsoid, 2-seeded. Seeds rugose.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 2079. 1853.

Distrib. : Occasional in wet places in the undergrowth along the ghats; Sawantwadi-Chaukul-Soliya jungle.

MURDANNIA Royle

1. Stems tufted; leaves $0.1-0.2$ cm in breadth	..	<i>M. semeteres</i>
1. Stems not tufted; leaves more than 0.3 cm in breadth :		
2. Roots tuberous :		
3. Seeds glandular-pubescent, reticulate	..	<i>M. japonica</i>
3. Seeds not glandular pubescent, but rugose	..	<i>M. simplex</i>
2. Roots fibrous :		
4. Inflorescence axillary; calyx persistent	..	<i>M. versicolor</i>
4. Inflorescence terminal; calyx deciduous :		
5. Stems erect; seeds minutely striate	..	<i>M. dimorpha</i>
5. Stems prostrate or procumbent; seeds not striate :		

6. Ovary cells 1-ovuled; seeds slightly rugose	..	<i>M. vaginata</i>
6. Ovary cells 2-3 ovuled; seeds tuberculate :		
7. Fertile stamens 2; capsules 6-seeded	..	<i>M. nudiflora</i>
7. Fertile stamens-3; capsules 9-10 seeded	..	<i>M. spirata</i>

Murdannia dimorpha (Dalz.) Bruckn. in Engl. & Prantl, Pflanzenfam. ed. 2, 15A : 173. 1930; Sant. Fl. Khandala ed. 3, 286. 1967. *Aneilema dimorphum* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 138. 1851; Hook. f. Fl. Brit. India 6 : 377. 1892; Cooke, Fl. Pres. Bombay 3 : 297. 1958 (Repr. ed.).

Annual, glabrous herbs, branching from base, 15-25 cm tall. Leaves 3—5 × 0.6—1.0 cm, linear to oblong, folded and curved backwards. Flowers purple, 0.6-0.8 cm across; in dichotomously branched panicles, bracts cucullate; sepals reflexed; all filaments pinkish bearded. Fruits 0.4-0.5 cm long, oblong, mucronate. Seeds angular.

Fls. & Frts. : August-September.

Illus. : Wight, Icon. t. 2075. 1853.

Distrib. : Occasional in moist, open places in plains; Malwan (Cooke, *l. c.*). Sawantwadi-Satarda.

M. japonica (Thunb.) Faden in Taxon 26 : 142. 1977. *Commelina japonica* Thunb. in Trans. Linn. Soc. 2 : 332. 1794. *Aneilema herbaceum* (Roxb.) Wall. Cat. 5223, 182. 1831-1832; Cooke, Fl. Pres. Bombay 3 : 296. 1958 (Repr. ed.). *A. lineolatum* (Bl.) Kunth, Enum. 4 : 69. 1843; Hook. f. Fl. Brit. India 6 : 376. 1892. *Murdannia elata* (Vahl) Bruckn. in Engl. & Prantl, Pflanzenfam. ed. 2, 15 A : 173. 1930.

Robust herbs, up to 1.5 m tall, tubers spindle-shaped. Leaves 8—20 × 3—4 cm, broadly ovate or ovate-lanceolate, sessile, apex acute, margins white-hyaline, undulate. Flowers pale blue to white, 0.8-1.0 cm across; in dichotomously branched panicles; sepals concave, persistent; filaments bearded. Fruits 0.4-0.6 cm across, subglobose, cells 3-4 seeded in one row. Seeds yellowish-grey, angled.

Fls. & Frts. : September-October.

Illus. : Wight, Icon. t. 2072. 1853.

Distrib. : Infrequent in moist situations in the undergrowth of deciduous forest; Kankavli-Phonda Rai. Sawantwadi-Akeri-Mangaon forest, Ambolighat, Danoli-Kesari R. F., Ramghat (Cooke, *l. c.*).

M. nudiflora (L.) Brenan in Kew Bull. 1952 : 189. 1952. *Commelina nudiflora* L. Sp. Pl. 41. 1753, (excl. syn. et Ref. Fl. Zeyl.). *Aneilema nudiflorum* (L.) R. Br. Prodr. 271. 1810; Hook. f. Fl. Brit. India 6 : 378. 1892; Cooke, Fl. Pres. Bombay 3 : 298. 1958 (Repr. ed.). *A. nudiflorum* (L.) R. Br. var. *compressa* Clarke in DC. Mon. Phan. 3 : 211. 1881; Cooke, *l. c.*

Erect or decumbent, annual herbs, stems branched from base, often at basal nodes. Leaves 4—8 × 0.4—0.9 cm, linear-lanceolate to oblong, glabrous, apex subacute, margins scabrid. Flowers pink or purplish; in lax, corymbose panicles; sepals ovate-oblong; filaments bearded. Fruits 0.3 cm long, subglobose, 6-seeded. Seeds trigonous.

Fls. & Frts. : August–November.

Distrib. : Common in open, moist situations along the lower slopes of the ghats and in plains; Kankavli-Janoli river bank. Kudal-Kadaval, Nerur. Malwan-Nandos. Sawantwadi-Akeri-Mangaon forest, Ambolighat, Satarda. Vengurla-Vagiri forest.

M. semeteres (Dalz.) Sant. in Poona Agric. College Mag. 41 : 284. 1951 et Fl. Khandala ed. 3, 286. 1967. *Aneilema semeteres* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 138. 1851. *A. paniculatum* Wall. ex Clarke in DC. Mon. Phan. 3 : 215. 1881, (*non* Wight, 1853); Hook. f. Fl. Brit. India 6 : 381. 1892; Cooke, Fl. Pres. Bombay 3 : 300. 1958 (Repr. ed.).

Small, annual herbs, 5–15 cm tall, stems sheathed at base. Leaves 4–8 cm long, linear, glabrous, apex acuminate. Flowers pale violet, lilac or bluish-purple, 0.6–0.8 cm across, showy and gregarious; in cymes, pedicels filiform; sepals elliptic. Fruits 0.2–0.3 cm across, globose. Seeds minute, smooth, angular.

Fls. & Frts. : August–October.

Distrib. : Common in open, moist areas on rocks and in plains; Deogad-Naringre. Kankavli-Osargaon. Sawantwadi-Akeri-Mangaon, Danoli, Satarda.

M. simplex (Vahl) Brenan in Kew Bull. 1952 : 186. 1952; Rao in Notes Roy. Bot. Gard. Edinburgh 25 : 189. 1964. *Commelina simplex* Vahl, Enum. Pl. 2 : 177. 1806. *Aneilema sinicum* Ker-Gawl. in Bot. Reg. t. 659. 1822; Hook. f. Fl. Brit. India 6 : 379. 1892; Cooke, Fl. Pres. Bombay 3 : 299. 1958 (Repr. ed.).

Perennial herbs, stems 20–40 cm tall, erect or procumbent-ascending, glabrous. Radical leaves prominently grouped at base, linear-ensiform, up

to 30 cm long, cauline leaves $12-20 \times 1.2-2.0$ cm, linear-lanceolate, glabrous, apex acute. Flowers bluish-violet, 2.0-2.5 cm across; in lax, terminal panicles on lateral peduncles; sepals obcordate, pale blue; filaments of 2-fertile stamens bearded. Fruits 0.5-0.7 cm across, subglobose, trigonous.

Fls. & Frts. : May-October.

Distrib. : Frequent in open, moist situations from ghats to plains; Kankavli-Phondaghat. Sawantwadi-Akeri-Mangaon forest, Amboli-Mahadeogad, Danoli, Ramghat.

M. spirata (L.) Bruckn. in Engl. & Prantl, Pflanzenfam. ed. 2, 15 A : 173. 1930; Sant. Fl. Khandala ed. 3, 285. 1967. *Commelina spirata* L. Mant. 176. 1767. *Anellema spiratum* (L.) R. Br. Prodr. 271. 1810; Hook. f. Fl. Brit. India 6 : 377. 1892; Cooke, Fl. Pres. Bombay 3 : 296. 1958 (Repr. ed.).

Erect or decumbent-ascending, annual herbs, 6-15 cm tall, stems simple or branched from base. Leaves $1.2-2.5 \times 0.5-1.0$ cm, narrowly lanceolate to oblong, glabrous, apex acute to subobtus, base amplexicaul, margins crispy. Flowers bluish-pink or violet, 0.4-0.6 cm across; in 4-6 flowered cymose panicles; sepals ovate-oblong; filaments bearded. Fruits 0.4×0.2 cm, ellipsoid, trigonous, beaked.

Fls. & Frts. : August-February.

Illus. : Wight, Icon. t. 2077. 1853.

Distrib. : Frequent in moist, open and shady places from lower slopes of the ghats to plains; Kankavli-Phondaghat. Kudal-Ghotge, Kadaval. Malwan-Deobag. Sawantwadi-Akeri, Bhedshi.

M. vaginata (L.) Bruckn. in Engl. & Prantl, Pflanzenfam. ed. 2, 15A : 173. 1930; Panigrahi & Kammathy in Proc. Nat. Acad. Sci. Ind. 33 : 499. 1963. *Commelina vaginata* L. Mant. 177. 1767. *Anellema vaginatum* (L.) R. Br. Prodr. 271. 1810; Hook. f. Fl. Brit. India 6 : 381. 1892; Cooke, Fl. Pres. Bombay 3 : 300. 1958 (Repr. ed.).

Herbs, with fleshy rootstock, stems 10-25 cm tall, rooting at lower nodes. Leaves $5-15 \times 0.6-1.5$ cm, linear-lanceolate, sessile, apex acuminate. Flowers blue; solitary or 2-6 fascicled in the axils of persistent bracts, bracts narrowly oblong-obtus, truncate, sheathing; sepals ovate-oblong. Fruits 0.4 cm across, globose, cuspidate. Seeds hemispheric.

Fls. & Frts. : August-September.

Distrib. : Occasional in moist situations on gravelly soil in plains; Malwan-Kuperighati.

M. versicolor (Dalz.) Bruckn. in Engl. & Prantl, Pflanzenfam. ed. 2, 15 A : 173. 1930; Sant. Fl. Khandala ed. 3, 286. 1967. *Aneilama versicolor* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 136. 1851; Hook. f. Fl. Brit. India 6 : 378. 1892; Cooke, Fl. Pres. Bombay 3 : 298. 1958 (Repr. ed.).

Annual, gregarious herbs, stems 5-15 cm tall, rooting at lower nodes. Leaves 1.5—4.0 × 1.0—1.5 cm, ovate-lanceolate or oblong, glabrous, apex acuminate, base semi-amplexicaul. Flowers golden-yellow, 0.5-0.8 cm across; in few-flowered, axillary cymes or solitary; sepals oblong; filaments bearded. Fruits 0.4 × 0.2 cm, trigonous, 3-celled. Seeds yellowish-grey.

Fls. & Frts. : August-October.

Distrib. : Scattered in moist, open situations and along road sides from ghats to plains; Kankavli-Nandgaon, Phonda Rai, Phondaghat. Malwan (Cooke, l. c.). Sawantwadi-Akeri-Mangaon forest, Amboli, Danoli.

ARECACEAE

1. Stems climbing by means of hooked spines; spadix produced into whiplike flagellum, armed ..	<i>Calamus</i>
1. Stems erect, unarmed; spadix not whiplike, unarmed :	
2. Spadices springing from amongst leaves ..	<i>Cocos</i>
2. Spadices on stems below the leaves ..	<i>Areca</i>

CALAMUS L.

Calamus pseudo-tenuis Becc. ex Hook. f. Fl. Brit. India 6 : 445. 1892; Cooke, Fl. Pres. Bombay 3 : 317. 1958 (Repr. ed.).

Extensive climbers, stems slender, sheaths armed with straight, sharp spines, lower part of rachis with straight, needle-like spines. Leaves 1.0—1.5 m long, pinnatisect, leaflets 50 or more, 40-50 × 1.5—2.0 cm, with leaf rachis. Fruits with orange-yellow scales, margins brown, apex beaked. Seeds black.

Fls. & Frts. : February-May.

Illus. : Talb. For. Fl. Bombay Pres. & Sind 2 : 555. fig. 538. 1911.

Distrib. : Frequent in semi-evergreen forest along the higher slopes of the ghats; Sawantwadi-Amboli-Ramghat Road, Ambolighat-Nanapani, Hewale.

Note : *Areca catechu* L. and *Cocos nucifera* L. are cultivated throughout the district in plains.

PANDANACEAE

PANDANUS L. f.

Pandanus furcatus Roxb. Fl. Ind. 3 : 744, 1832; Hook. f. Fl. Brit. India 6 : 484, 1893; Cooke, Fl. Pres. Bombay 3 : 324, 1958 (Repr. ed.).

Small trees, 5-8 m tall, stems supported by stilt roots. Leaves 5—100 × 3—5 cm, linear-lanceolate, ensiform, apex acute, base caudate-acuminate, margins and keel armed with spinules. Female flowers in solitary spadix; males in compound cylindric spikes. Fruits syncarpous, oblong, 12-18 cm long, carpels obconic, cylindric, 4-6 cm long.

Fls. & Frts. : October-November.

Distrib. : Scattered along river banks in plains; Sawantwadi-Ramghat.

TYPHACEAE

TYPHA L.

Typha angustata Bory et Chaub. Exp. Sci. Mor. Bot. 2 : 338, 1832; Hook. f. Fl. Brit. India 6 : 489, 1893; Cooke, Fl. Pres. Bombay 3 : 325, 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 289, 1967.

Robust, tufted, aquatic, perennial herbs, 1-2 m tall. Leaves 80—120 × 1.2—2.5 cm, linear, thick, subcylindrical, fleshy. Flowers brown, monoecious; in compact, terminal, solitary spikes, 15-30 cm long; male flowers situated above, female flowers below, both separated by naked rachis. Fruits achenes, membranous, indehiscent.

Fls. & Frts. : September-October.

Illus. : Maheshwari, Illus. Fl. Delhi, fig. 206, 1966.

Distrib. : Occasional in water-logged areas in plains; Kankavli-Humbrat Road.

ARACEAE

1. Aquatic or semi-aquatic herbs; roots not tuberous .. *Cryptocoryne*
2. Terrestrial herbs or epiphytic, if erect tuberous, if scandent not tuberous :

- 2. Petioles winged .. *Pothos*
- 2. Petioles not winged :
 - 3. Leaves simple :
 - 4. Leaves peltate :
 - 5. Epiphytes; shoots bulbiferous .. *Romusatiu*
 - 5. Terrestrial; shoots not bulbiferous .. *Ariopsis*
 - 4. Leaves not peltate .. *Therophonum*
 - 3. Leaves pinnatipartite or pedati-sect;
 - 6. Leaves appear with flowers or slightly later; appendages of spadices long, tail like .. *Arisaema*
 - 6. Leaves appear much later than flowers; spadices not long, but cone like .. *Amorphophallus*

AMORPHOPHALLUS Bl. ex Decne. (*nom. cons.*)

- 1. Inflorescence divided by sterile portion; spadices longer than spathes .. *A. commutatus*
- 1. Inflorescence contiguous; spadices equal to the spathes .. *A. paeoniifolius*

Amorphophallus commutatus (Schott) Engl. in DC. Mon. Phan. 2 : 319. 1879; Hook. f. Fl. Brit. India 6 : 515. 1893; Cooke, Fl. Pres. Bombay 3 : 337. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 291. 1967. *Conophallus commutatus* Schott in Bonpl. 7 : 28. 1859.

Annual herbs with depressed-spherical tubers. Leaf solitary, 3-partite, 35-50 cm across, segments lanceolate, acuminate; petioles 25-40 cm long. Spathes brownish outside with white spots, pale purple inside; spadices 20-30 cm long; sterile portion 10-20 cm long, appendages obtuse, tail like, yellowish-pink coloured.

Fls. : May-June.

Distrib. : Uncommon in moist situations along the slopes of the ghats; Kudal-Hanuman ghat. Sawantwadi-Ambolighat-Kumbheshwar.

A. paeoniifolius (Dennst.) Nicolson in Taxon 26: 338, 539. 1977. *Dracontium paeoniifolius* Dennst. Schluss. 13, 21, 38. 1818 et Fort. Allg. Tentsch. Gärten.—Mag. 3 : 32, 39. 1818. *Amorphophallus campanulatus* (Roxb.) Bl. ex Decne. in Nov. Ann. Mus. Nat. Hist. Paris 3 : 366. 1834; Hook. f. Fl. Brit. India 6 : 513. 1893; Cooke, Fl. Pres. Bombay 3 : 336. 1958 (Repr. ed.). *Arum campanulatum* Roxb. Pl. Cor. 3 : 68. t. 272. 1820. *Mar.* : 'Suran'.

Perennial herbs with depressed-globose, subterranean tubers. Leaf 1, 3-partite, 50-70 cm across, with multifid segments, segments obovate-oblong, glabrous; petioles 40-60 cm long. Spathes obliquely campanulate, purple or partly yellowish-green, pale blotched outside, with red papillae in lower part; spadices 15-20 cm long; appendages longer than fertile part, with many folds and lobes, dark purple, finely warty. Fruits sessile, oblong.

Fls. & Frts. : June-September.

Distrib. : Occasional in moist, shady places along the ghats; Kudal-Hanuman ghat.

ARIOPSIS Nimmo

Ariopsis peltata Nimmo in Grah. Cat. Pl. Bombay 252. 1839; Hook. f. Fl. Brit. India 6 : 519. 1893; Cooke, Fl. Pres. Bombay 3 : 338. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 292. 1967.

Small, tuberous plants, tubers globose or ovoid. Leaf solitary, suborbicular, 4-10 cm across, thin, glabrous, apex rounded or acute. Spathes up to 2.5 cm long, cymbiform, green, then creamy, and later pale reddish; spadices shorter than spathes; male flowers dark purple; female flowers greenish-white. Fruits angled, ovoid.

Fls. & Frts. : June-August.

Illus. : Wight, Icon. t. 900. 1844-1845.

Distrib. : Frequent in moist places and rock crevices along the ghats; Kudal-Hanuman ghat, Shivapur paz. Sawantwadi-Akeri-Mangaon forest, Amboli, Danoli.

ARISAEMA Mart.

Arisaema tortuosum (Wall.) Schott, Melet. 1 : 17. 1832.; Hook. f. Fl. Brit. India 6 : 502. 1893; Cooke, Fl. Pres. Bombay 3 : 331. 1958 (Repr. ed.); Chatterjee in Bull. Bot. Soc. Bengal 8 : 136. 1954. *Arum tortuosum* Wall. Pl. As. Rar. 2 : 10. 1830.

Perennial herbs up to 1 m tall, with depressed-globose tubers. Leaves 2, pedatisect; leaflets 7-9, 10-15 × 1.5-4.0 cm, elliptic-lanceolate, or oblong-elliptic, glabrous, apex acuminate. Spathes greenish, tube 3-5 cm long, limbs 8-12 cm long; spadices usually unisexual, curved or sigmoid, with appendages much longer than spathes; stamens purple-brown. Fruits ovoid, red.

Fls. & Frts. : May-August.

Illus. : Wight, Icon. t. 788. 1844.

Distrib. : Infrequent in open, moist areas on red gravelly soil along the ghats; Kankavli-Phondaghat. Sawantwadi-Ramghat.

A. tortuosum (Wall.) Schott var. *neglectum* (Schott) Fischer in Gamble, Fl. Pres. Madras 1585. 1931 et 3 : 1105. 1957 (Repr. ed.); Chatterjee in Bull. Bot. Soc. Bengal 8 : 136. 1954. *A. neglectum* Schott in Bonpl. 7 : 26. 1859; Hook. f. Fl. Brit. India 6 : 504. 1893.

Perennial herbs with globose tubers. Leaf solitary, radical; leaflets 3-5, lanceolate, glabrous. Spathes greenish to white, 8-12 cm long; spadices equal to spathes, tips procurved; flowers dioecious.

Fls. : June.

Distrib. : Occasional in shady, moist places along the ghats; Kudal-Songad paz. Sawantwadi-Akeri-Mangaon forest.

CRYPTOCORYNE Fischer ex Wydler

1. Leaves petiolate, more than 2 cm broad ;

2. Spathes shorter than leaves; limbs not twisted .. *C. cognatoides*

2. Spathes longer than leaves; limbs twisted .. *C. huegelii*

1. Leaves sessile, upto 2 cm broad .. *C. retrospiralis*

Cryptocoryne cognatoides Blatt. & McCann in J. Bombay nat. Hist. Soc. 35 : 17. 1931.

Rhizomatous, aquatic herbs with thick, cylindrical roots. Leaves 8—18 × 2.5—4.5 cm, oblong-lanceolate, glabrous, apex acute to acuminate, margins undulate; petioles 9-15 cm long. Spathes 10-14 cm long, linear-lanceolate; spadices 4.2 cm long; male flowers in cone-like clumps at the top and female flowers grouped at base, separated by 2.5 cm long interspace.

Fls. : August.

Distrib. : Rare, in flowing stream in rock crevices of stream-bed; Kankavli-Osargaon. Kulkarni 131739 (18-8-1971).

C. huegelii Schott, Aroid. 8. t. 12. 1853; Hook. f. Fl. Brit. India 6 : 494. 1893; Blatt. in J. Bombay nat. Hist. Soc. 35 : 14. 1931.

Robust herbs. Leaves 15—18 × 2—4 cm, oblong-elliptic; petioles 15-20 cm long. Spathes 20 cm long, tube 2.5 cm long, narrow, cylindric, limb 17 cm long, linear-lanceolate, spirally twisted; spadices 1.2 cm long, tip thick, short; female flowers 4-5, males 0.4 cm long.

Fls. : August-September.

Distrib. : This species is included on the authority of Blatt. (*l. c.*) based on collection by Dalgado from 'Sawantwadi' (Sawantwadi).

C. retrospiralis Fischer ex Wydler in *Linnaea* 5 : 428. 1830; Hook. f. *Fl. Brit. India* 6 : 625. 1893; Cooke, *Fl. Pres. Bombay* 3 : 329. 1958 (Repr. ed.); Subramanyam, *Aquat. Ang.* 77. 1962.

Herbs with elongated, perennial root stock. Leaves radical, 6—20 × 1—2 cm, linear-lanceolate, glabrous, apex acute or acuminate. Spathes 1-3 together, 10-20 cm long, tubular up to 2/3 rd of its length, rest spirally twisted; spadices with monoecious flowers, represented by stamens and ovaries, both separated by 0.9-1.0 cm long naked rachis.

Fls. : October-November.

Illus. : Wight, *Icon.* t. 772. 1844; Subramanyam, *l. c.* 162. fig. 80.

Distrib. : Scattered on wet sandy river bed; Kankavli-Janoli river on Kudal road.

POTHOS L.

Pothos scandens L. *Sp. Pl.* 968. 1753; Hook. f. *Fl. Brit. India* 6 : 551. 1893 (*p. p.*); Cooke, *Fl. Pres. Bombay* 3 : 339. 1958, *p. p.* (Repr. ed.). *Mar.* : 'Kanel'

Undershrubs or shrubs, climbing by adventitious roots, stems terete, branched. Leaves 4—8 × 1—3 cm, ovate to lanceolate, coriaceous, glabrous, apex acute. Spathes 0.9-1.5 cm long, ovate, concave; spadices obovoid or subglobose, yellow, 0.4-0.6 cm across, deflexed; perianth in flowers of 6-segments. Fruits 1.2-1.8 cm long, oblong, reddish.

Fls. & Frts. : September-April.

Illus. : Wight, *Icon.* t. 776. 1844.

Distrib. : Infrequent in the undergrowth in semi-evergreen and deciduous forests; Sawantwadi-Ainoda, Akeri-Mangaon forest, Ambolighat-top, Ramghat.

REMUSATIA Schott

Remusatia vivipara (Roxb.) Schott, Melet. 1 : 18. 1832; Hook. f. Fl. Brit. India 6 : 521. 1893; Cooke, Fl. Pres. Bombay 3 : 339. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 292. 1967. *Arium viviparum* Roxb. Fl. Ind. 3 : 496. 1832.

Perennial herbs with depressed-globose tubers. Leaves 10-30 × 6-20 cm, ovate-triangular, white blotched, apex abruptly acute. Bulbiferous shoots 1-many, simple, 10-30 cm long; bulbils brown, squamosely crenate, ovoid-globose, in clusters. Spathes 10-12 cm long, tube green, tinged with red; spadices 4.5 cm long.

Fls. : August-October.

Illus. : Wight, Icon. t. 798. 1844.

Distrib. : Scattered, on forkings of tree-trunks in forest along ghats and in plains; Sawantwadi-Akeri-Nemle forest, Amboli-Nangartas, Danoli.

THERIOPHONUM Bl.

Theriophonum dalzellii Schott, Aroid. 15. 1855; Hook. f. Fl. Brit. India 6 : 513. 1893; Cooke, Fl. Pres. Bombay 3 : 334. 1958 (Repr. ed.); Sivadasan & Nicolson in Kew Bull. 37 : 278. 1982.

Small, perennial herbs, corms globose. Leaves 8-15 × 4.0-7.5 cm, variable, ovate-lanceolate to hastate-sagittate, glabrous, apex acuminate. Spathes 10-13 cm long, oblong-lanceolate; spadices 9-12 cm long, shorter than spathes; male and female flowers separated by naked rachis, appendices naked, 7-9 cm long, creamy to purplish; female flowers at base and male flowers in cylindrical mass.

Fls. : August.

Illus. : Sivadasan & Nicolson 280. l. c. fig. I. E.

Distrib. : Occasional in moist, shady places in deciduous forest; Sawantwadi-Ajgaon, Vengurla (Cooke, l.c.).

ALISMATACEAE

1. Stamens 20-24; fruits winged

..

Sagittaria

1. Stamens 3; fruits not winged

..

Wickstroemia

SAGITTARIA L.

Sagittaria sagittifolia L. Sp. Pl. 993. 1753; Hook. f. Fl. Brit. India 6 : 561. 1893; Cooke, Fl. Pres. Bombay 3 : 345. 1958 (Repr. ed.); Subramanyam, Aquat. Ang. 87. 1962.

Scapigerous herbs with stoloniferous root stock. Leaves 4-10 × 0.8-1.2 cm, sagittate, with linear to lanceolate lobes, terminal lobe acutely attenuate, basal lobes with needle-like tips, glabrous. Flowers unisexual, 1.0-1.9 cm across, white with purple claw; in whorls in racemes, on 12-25 cm long scapes; sepals and petals-3 each. Fruits obovate, with apical beak.

Fls. & Frts. : September-November.

Distrib. : This species is recorded here on the authority of Cooke (*l.c.*) who reports it from ' Malwan ' based on collection by Woodrow.

WIESNERIA Micheli

Wiesneria triandra (Dalz.) Micheli in DC. Mon. Phan. 3 : 82. 1881; Hook. f. Fl. Brit. India 6 : 562. 1893; Cooke, Fl. Pres. Bombay 3 : 346. 1958 (Repr. ed.). *Sagittaria triandra* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2 : 144. 1850.

Submerged, scapigerous herbs with fibrous roots. Leaves 5-12 × 0.4-0.9 cm, linear-lanceolate, glabrous, apex acute; petioles 6-16 cm long, sheathing at base. Flowers unisexual, white; in whorls on 10-16 cm long scapes; sepals and petals-3 each; anthers didymous. Fruits 0.3 × 0.15 cm, ovoid, apiculate.

Fls. & Frts. : August-September.

Distrib. : Infrequent in water-logged areas on rocky plains along coast; Deogad-Naringre. Malwan-Nandurk.

ERIOCAULACEAE

ERIOCAULON L.

1. Anthers white or yellow :

2. Leaves acicular, less than 0.15 cm broad

.. *E. dalzellii*

2. Leaves flat, more than 0.15 cm broad

.. *E. cinereum*

1. Anthers black :

3. Involucral bracts exceeding floral bracts :
4. Female sepals-2, rarely 3, petals glandular .. *E. xeranthemum*
4. Female sepals-3, petals eglandular .. *E. diana*
var. *longibracteatum*
3. Involucral bracts equal to or shorter than floral bracts :
5. Leaves and sheaths turn red on drying .. *E. quinquangulare*
5. Leaves and sheaths not turning red on drying :
6. Leaves linear-oblong, apex rounded and cuspidate .. *E. cuspidatum*
6. Leaves not oblong, apex not rounded and cuspidate :
7. Floral bracts much longer than the flowers, stellately spreading .. *E. stellulatum*
7. Floral bracts not much longer than the flowers, nor stellately spreading :
8. Floral bracts imbricate, closely appressed, concealing flowers .. *E. sexangulare*
8. Floral bracts not imbricate, nor closely appressed, concealing flowers :
9. One male petal enlarged and projecting beyond floral bracts .. *E. odoratum*
9. All petals in male flowers similar, not projecting beyond floral bracts :
10. Involucral bracts hairy :
11. Peduncles thickened below the heads; female sepals-2, crested .. *E. vanheurckii*
11. Peduncles not thickened; female sepals-3, not crested :
12. Involucral bracts black or dark brown; male petals with papillose apices .. *E. robustobrownianum*
12. Involucral bracts straw-coloured; male petals with glabrous apices .. *E. lanceolatum*
10. Involucral bracts glabrous :
13. Male and female flowers with 2-sepals. . *E. sedgwickii*
13. Male flowers with spathaceous sepals and female flowers with 3-sepals :
14. 2-female sepals broadly winged .. *E. elenora*
14. Female sepals not winged .. *E. diana*

Eriocaulon cinereum R. Br. Prodr. 254. 1810; Sant. Fl. Khandala ed. 3, 294. 1967. *E. sieboldianum* Sieb. & Zucc. ex Steud. Syn. Pl. 2 : 272. 1855; Hook. f. Fl. Brit. India 6 : 577. 1893; Cooke, Fl. Pres. Bombay 3 : 357. 1958 (Repr. ed.); Fyson in J. Ind. Bot. Soc. 3 : 15. 1922.

Tufted, annual herbs. Leaves 3-5 × 0.15-0.18 cm, linear-subulate, glabrous, apex acute to acuminate. Flowers in black or blackish-white heads, 0.3-0.4 cm across; involueral bracts glabrous, oblong-obovate; floral bracts lanceolate-oblong, hyaline, shining; male flowers with spathaceous sepals, petals minute and female sepals-2 or 1-3, free, filiform. Seeds ellipsoid-ovoid, reddish-brown.

Fls. & Frts. : August-October.

Illus. : Fyson, *l.c.* 3 : Pl. 50 & 51.

Distrib. : Frequent in open, moist situations near ponds in plains; Kankavli-Achre Road, Malwan-Adari, Deobag, Nandos.

E. cuspidatum Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 281. 1851; Hook. f. Fl. Brit. India 6 : 581. 1893; Cooke, Fl. Pres. Bombay 3 : 359. 1958 (Repr. ed.); Fyson in J. Ind. Bot. Soc. 2 : 317. pl. 38. 1921.

Stemless, annual herbs. Leaves 3-6 × 0.4-0.6 cm, 7-nerved, glabrous, much shorter than scapes. Scapes 8-20 cm long. Heads 0.5-0.7 cm across, hemispheric, white; involueral bracts ovate-cuneate, glabrous; floral bracts densely pubescent; sepals in both sexes-2, in female flowers with crest like wings, male petal-lobes narrow, 3, and female petals-3, unequal. Seeds ellipsoid or oblong, smooth.

Fls. & Frts. : August-October.

Illus. : Fyson, *l.c.*

Distrib. : Infrequent in wet, open places in plains; Deogad-Naringre, Kankavli-Osargaon. Malwan-Adari, Kuperighari.

E. dalzellii Koern. in Linnaea 27 : 605. 1856; Hook. f. Fl. Brit India 6 : 580. 1893. *E. rivulate* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 280. 1851, (non G. Don. ex. Benth. 1849); Cooke, Fl. Pres. Bombay 3 : 355. 1958 (Repr. ed.); Fyson in J. Ind. Bot. Soc. 3 : 14. 1922.

Submerged herbs, stems simple, elongate, leafy. Leaves tufted, 8-16 cm long, linear, glabrous, apex acute or subulate, base dilated. Scapes 4-6 together, 10-20 cm long. Heads 0.4-0.6 cm across, hemispherical or globose, white-villous; involueral bracts oblanceolate, hyaline; sepals in both the sexes-3; one of the male petals longer than rest. Seeds globose, smooth.

Fls. & Frts. : September-November.

Illus. : Fyson, *l.c.* 3 : Pl. 46.

Distrib. : Scattered in the streams in rock crevices from ghats to plains; Malwan-Dhamapur. Sawantwadi-Amboli.

E. dianae Fyson in J. Ind. Bot. Soc. 2 : 259. Pl. 11—12. 1921.

Slender herbs, glabrous, with small stems. Leaves forming a rosette, 3-5-0.3-0.5 cm, linear, glabrous, apex narrowed, subacute. Scapes 8-15 cm long, glabrous. Flowers in hemispherical heads, 0.4-0.6 cm across; involucral bracts lanceolate, straw coloured; floral bracts ovate-cuneate, white, papillose hairy at apex; male sepals spathaceous, 3-lobed, petals papillose hairy at apex; female petals-3, pilose.

Fls. & Frts. : August-February.

Illus. : Fyson, *l.c.*

Distrib. : Frequent in moist places in drying ponds, along river banks and in paddy fields in plains; Kankavli-Phonda-Rest House Campus. Sawantwadi-Danoli, Tirali.

E. dianae Fyson var. *longibracteatum* Fyson in J. Ind. Bot. Soc. 2 : 259. Pl. 13. 1921.

Herbs, 10-15 cm tall. Leaves 4-6 × 0.5 cm, linear-lanceolate, glabrous. Heads 0.4-0.6 cm across; involucral bracts glabrous, spreading, much longer than floral bracts; floral bracts obovate, papillose; flowers of both the sexes as in preceding species.

Fls. & Frts. : September-May.

Illus. : Fyson, *l.c.*

Distrib. : Frequent in open, moist situations in plains; Kankavli-Nandgaon-Belachi Rai, Phonda Rai. Kudal-Kadaval. Sawantwadi-Danoli, Tirali.

E. eleborae Fyson in J. Ind. Bot. Soc. 2 : 316. Pl. 35. 1921.

Slender herbs, 8-12 cm tall. Leaves 2.5 × 0.25 cm, linear, glabrous, apex subacute, 5 or 6 nerved at the middle. Heads 0.2-0.3 cm across, subglobose, white; involucral bracts lanceolate, acute, reflexed; floral bracts obovate, sparsely white-hairy; male sepals saphaceous and female sepals-3, 2 boat-shaped, broadly winged, third one narrow, not winged, petals-3, pilose.

Fls. & Frts. : October-November.

Illus. : Fyson, *l.c.*

Distrib. : Occasional in marshy, open areas along the ghats; Sawantwadi-Amboli-Nangartas.

E. lanceolatum Miq. ex Steud. Syn. Pl. 2 : 271. 1855; Hook. f. Fl. Brit India 6 : 577. 1893; Cooke, Fl. Pres. Bombay 3 : 357. 1958 (Repr. ed.); Fyson in J. Ind. Bot. Soc. 2 : 266. 1921.

Herbs, 8-16 cm tall, scapes hairy. Leaves 2-4 × 0.4-0.6 cm, linear-lanceolate, glabrous, apex attenuate. Heads 0.4-0.6 cm across, subglobose; involucral bracts obovate; floral bracts cuneate-oblong, hairy outside; male sepals spatheaceous, petals very small; female sepals-3, deeply boat shaped, longer than bracts. Seeds oblong, reddish-brown.

Fls. & Frts. : August-September.

Illus. : Fyson, *l.c.* Pl. 23.

Distrib. : Infrequent in moist situations, in plains; Kankavli-Ghonsari. Malwan-Kuperighati.

E. odoratum Dalz. in Hook. J. Bot. & Kew Gard. Misc. 3 : 280. 1851; Hook. f. Fl. Brit. India 6 : 572. 1893; Cooke, Fl. Pres. Bombay 3 : 355. 1958 (Repr. ed.); Fyson in J. Ind. Bot. Soc. 2 : 308. 1921.

Herbs with disciform stems or stemless. Leaves 2-5 × 0.2-0.3 cm, narrowly ensiform, glabrous, apex acuminate. Scapes filiform, 8-20 cm tall. Heads 0.4-0.6 cm across, subglobose, snow-white; involucral bracts straw-coloured, broadly obovate; floral bracts yellowish-brown, obovate-cuneate, acuminate; male sepals 3, free or connate; female sepals-2, rarely 3, boat-shaped and petals-3.

Fls. & Frts. : August-October.

Illus. : Fyson, *l.c.* Pl. 24.

Distrib. : Frequent in marshy places from ghats to plains; Deogad-Naringre. Kankavli-Osargaon. Malwan-Kuperighati. Sawantwadi-Amboli-Mahadeogad, Ambolighat-top.

E. quinquangulare L. Sp. Pl. 87. 1753; Hook. f. Fl. Brit. India 6 : 582. 1893; Cooke, Fl. Pres. Bombay 3 : 361. 1958 (Repr. ed.); Fyson in J. Ind. Bot. Soc. 2 : 204. 1921.

Gregarious herbs, stems very short. Leaves 2.5-4.0 × 0.25-0.60 cm, linear, purplish beneath, glabrous, apex acute. Scapes 5-20 cm long. Heads greyish-white, 0.4-0.5 cm across, subglobose; involucral bracts dark brown, obovate, reflexed; floral bracts oblanceolate, acuminate and hairy at apex; male sepals-2 or 3, white, papillose hairy and petals linear; female sepals-3, free, linear-spathulate, hyaline and petals narrow, pilose. Seeds pale brown.

Fls. & Frts. : February.

Illus. : Fyson, *l.c.* Pl. 9.

Distrib. : Occasional in open, moist situations in plains; Kudal-Bhadgaon.

E. robusto-brownianum Ruhl. in Engl. Pflanzenr. 13 : 77. 1903; Cooke, Fl. Pres. Bombay 3 : 363. 1958 (Repr. ed.); Fyson in J. Ind. Bot. Soc. 2 : 264. 1921; Naik, *ibid.* 52 : 111. 1973.

Robust, annual herbs. Leaves 18-20 × 1-2 cm, oblong-lanceolate, apex attenuate or obtuse. Scapes twisted, 30-40 cm long. Heads 0.8-1.2 cm across, globose, snow-white, echinate due to prominent floral bracts; involucre bracts obovate; floral bracts cuneate-obovate, apex acuminate and densely papillose; male sepals saphaceous, 3-lobed; female sepals-3, oblong-lanceolate, petals-3, hairy. Seeds subglobose, reddish-brown.

Fls. & Frts. : October-November.

Illus. : Fyson, *l.c.* Pl. 18; Naik *l.c.* 110. fig. 2.

Distrib. : Frequent in moist, open situations along the ghats; Sawantwadi-Amboli-Mahadeogad and Nangartas,Chaukul.

E. sedgwickii Fyson in J. Ind. Bot. Soc. 2 : 260. 1921.

Annual, slender herbs, stems very small. Leaves 4-10 × 0.25 × 0.40 cm, linear, glabrous, apex acute. Scapes 15-20 cm long. Heads globose, 0.6-0.8 cm across, grey to white; involucre bracts black, longer than floral bracts; floral bracts rhomboid-cuneate, densely villous; petals-3 in both the sexes, glandular. Seeds oblong-ellipsoid, red-brown.

Fls. & Frts. : September-October.

Illus. : Fyson, *l.c.* 2 : Pl. 16.

Distrib. : Occasional in open, moist situations along the ghats; Sawantwadi-Ambolighat-Nanapani.

E. sexangulare L. Sp. Pl. 87. 1753; Hook. f. Fl. Brit. India 6 : 580. 1893; Cooke, Fl. Pres. Bombay 3 : 359. 1958 (Repr. ed.); Fyson in J. Ind. Bot. Soc. 2 : 318. 1921.

Tufted herbs, with short stems. Leaves 5-15 × 1.5-2.0 cm, linear, many nerved, glabrous, apex acute. Scapes 20-30 cm long. Heads hemispherical, 0.6-0.8 cm across, base truncate; involucre bracts obovate, pale, shining; floral bracts broadly obovate, cuspidate, white pubescent; male sepals-2, connate, boat-shaped; female sepals-3, 2-boat-shaped and winged, petals-3. Seeds subglobose, ribbed.

Fls. & Frts. : October-February.

Illus. : Fyson, *l.c.* Pl. 39 & 40.

Distrib. : Scattered in marshy places and in wet fields in plains; Kudal-Sawantwadi Road, Nileli.

E. stellatum Koern. in Linnaea 27 : 620. 1856; Hook f. Fl. Brit. India 6 : 579. 1893; Cooke, Fl. Pres. Bombay, 3 : 358. 1958 (Repr. ed.); Fyson in J. Ind. Bot. Soc. 2 : 317. 1921.

Annual, slender herbs, stems short or absent. Leaves 3-5 × 0.4-0.8 cm, linear-ensiform, glabrous, apex subacute. Scapes 6-16 cm long. Heads 0.6-0.8 cm across, globose, echinulate; involucrel bracts lanceolate, scarious; floral bracts narrower than involucrel, hyaline and spreading; male sepals-2 or 3, ovate; female sepals-3, dorsally crestedly winged. Seeds oblong-globose, dark brown.

Fls. & Frts. : October-November.

Illus. : Fyson, l.c. 319.

Distrib. : Occasional in water-logged situations along the ghats; Sawantwadi-Amboli-Ramghat Road.

E. vanheurckii Muell.-Arg. in Heurck, Obs. Bot. 2 : 98. 1870. *E. thomasi* Fyson in J. Ind. Bot. Soc. 2 : 318. 1921.

Gregarious, tufted herbs. Leaves 3-5 × 0.2-0.4 cm, linear-lanceolate, glabrous, apex obtusely acuminate or mucronate. Scapes 5-10 cm long. Heads 0.2-0.4 cm across, globose, truncate at base; involucrel bracts semi-circular or obovate, dark, powdery-pubescent; floral bracts rhomboid-cuneate, pubescent; sepals-2 in both the sexes; boat shaped, winged in female flowers and petals-3, pilose.

Fls. & Frts. : August-September.

Illus. : Fyson, l.c. Pl. 41.

Distrib. : Frequent in moist, open situations in plains; Kankavli-Osargaon. Malwan-Kuperighati. Sawantwadi-Ajgaon, Satarda.

E. xeranthemum Mart. in Wall. Pl. As. Rar. 3 : 29. 1832; Hook f. Fl. Brit. India 6 : 584. 1893; Cooke, Fl. Pres. Bombay 3 : 362. 1958 (Repr. ed.); Fyson in J. Ind. Bot. Soc. 2 : 200. 1921.

Small herbs, gregarious. Leaves 2-4 × 0.15-0.30 cm, linear-lanceolate, glabrous, apex acute or acuminate. Scapes 3-6 cm long. Heads 0.4-0.6 cm across including involucrel bracts, hemispheric, few-flowered; involucrel bracts scarious, straw-coloured, shining; floral bracts hyaline, broadly obovate, truncate; male sepals-3, free or connate, hairy, petals small; female sepals-2, rarely-3, pubescent and petals-3. Seeds oblong, yellow.

Fls. & Frts. : August-October.

Illus. : Fyson, *l.c.* 201.

Distrib. : Infrequent in moist, open places in plains; Kankavli-Phondaghat. Malwan (Cooke, *l.c.*). Sawantwadi-Akeri.

Recently, Kulkarni & Desai (J. Bombay nat. Hist. Soc. 69 : 232-234. 1972) have reported *E. achiton* Koern. from Amboli (909), *E. polycephalum* Hook. f. from Malwan (1010) and *E. wightianum* Mart. from Amboli (902 & 904).

CYPERACEAE

1. Nuts enclosed in utricular scales	..	<i>Carex</i>
1. Nuts not enclosed in utricular scales :		
2. Spikelets bisexual :		
3. Nuts with three depressions at base	..	<i>Scleria</i>
3. Nuts without any depressions at base :		
4. Glumes distichous :		
5. Rachilla articulated, deciduous :		
6. Spikes sessile	..	<i>Kyllinga</i>
6. Spikes stalked	..	<i>Mariscus</i>
5. Rachilla not articulated, persistent :		
7. Stigmas-2	..	<i>Pycnus</i>
7. Stigmas-3	..	<i>Cyperus</i>
4. Glumes spiral :		
8. Inflorescence pseudolateral	..	<i>Schoenoplectus</i>
8. Inflorescence terminal and/or axillary :		
9. Hypogynous bristles and/or scales present :		
10. Leaves absent or reduced to sheaths	..	<i>Eleocharis</i>
10. Leaves present :		
11. Stigmas-2, style base dilated	..	<i>Rhynchospora</i>
11. Stigmas-3, style base not dilated	..	<i>Fuirena</i>
9. Hypogynous bristles and/or scales absent	..	<i>Fimbristylis</i>
2. Spikelets unisexual	..	<i>Scleria</i>

CAREX L.

Carex glauca Boeck. in *Linnaea* 40 : 353. 1876; Hooper in Saldanha & Nicolson, *Fl. Hassan Dist.* 660. 1976. *C. mercurensis* Hochst. ex Steud. var. *major* Steud. ex Clarke in Hook f. *Fl. Brit. India* 6 : 719. 1894; Cooke, *Fl. Pres. Bombay* 3 : 421. 1958 (Repr. ed.).

Tufted perennials, 60-80 cm tall, stems triquetrous, smooth. Leaves shorter than stems, 0.7-1.0 cm broad, linear, flat, ligulate, minutely puberulous. Panicles pyramidal, rachis appressed pubescent; spikelets 1-2 cm long, linear-oblong; female flowers 6-10 in lower part, in the upper few males; glumes dark reddish-brown, with short, scabrid aristae. Utricles 0.40-0.45 cm long, ovate-lanceolate. Nuts brown, trigonous.

Fls. & Frts. : October.

Distrib. : Occasional along the ghats; Kankavli-Phondaghat.

CYPERUS L.

1. Spikelets strongly, laterally compressed :
 2. Spikelets spicate or racemose in arrangement :
 3. Rachilla internodes corky, clasping nuts .. *C. odoratus*
 3. Rachilla internodes not corky :
 4. Rachilla of the spikelets distinctly winged :
 5. Leaves short, rarely 1/2 as long as stems .. *C. pangorei*
 5. Leaves more than 1/2 as long as stems or longer :
 6. Glumes obtuse-mucronate, strongly green keeled .. *C. exaltatus*
 6. Glumes obtuse, not or hardly keeled .. *C. distans*
 4. Rachilla of the spikelets not or hardly winged :
 7. Glumes 3-nerved, keel glabrous .. *C. iria*
 7. Glumes 5-6-nerved, keel scabrid .. *C. alulatus*
 2. Spikelets stellate or digitate in arrangement :
 8. Inflorescence single heads .. *C. leucocephalus*
 8. Inflorescence not in single heads :
 9. Connectives of anthers produced into setulose appendages .. *C. haspan*
 9. Connectives of anthers produced into smooth appendages .. *C. tenuispica*
1. Spikelets not compressed .. *C. arenarius*

Cyperus alulatus Kern in Reinwardtia 1 : 463-466. fig. 1. 1952. *C. iria* L. var. *rectangularis* Kuekunth. in Engl. Pflanzenr. 101 : 152. 1935.

Annual herbs with triquetrous stems, 25-30 cm tall. Leaves as long as stems or longer, linear, 0.4-0.5 cm broad. Spikes 2-3 cm long, in umbellate cymes, rachis flexuous, scabrid, bracts 5-8, unequal, up to 15 cm long; spikelets 0.3-0.5 cm long, greenish-yellow; glumes ovate, 0.2 cm long, winged with serrulate margins in the upper part; stigmas and stamens-2 each. Nuts obovoid, reddish-brown.

Fls. & Frts. : August-September.

Illus. : Kern l. c. 99. fig. 2.

Distrib. : Occasional in wet, open situations and in fields in plains; Malwan-Nandos.

C. arenarius Retz. Obs. Bot. 4 : 9. 1786; Clarke in Hook. f. Fl. Brit. India 6 : 602. 1893; Cooke, Fl. Pres. Bombay 3 : 378. 1958 (Repr. ed.).

Perennial herbs with creeping rhizomes, stems solitary, 15-20 cm tall. Leaves terete, 0.2-0.3 cm in breadth, coriaceous, recurved. Spikelets in globose heads, 1.2-2.5 cm across, sessile, pale brown in colour, bracts 2-3, up to 8 cm long; glumes 0.3-0.4 cm long, elliptic-obtuse or ovate, convex, obscurely keeled, margins hyaline; stigmas and stamens-3 each. Nuts 0.12 cm long, trigonous, obovoid.

Fls. & Frts. : August-September.

Distrib. : Occasional in coastal sandy soil; Deogad-Sandy Coast near Rest House.

C. distans L. f. Suppl. 103. 1781; Clarke in Hook. f. Fl. Brit. India 6 : 606. 1893; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 610. 1974.

Perennial herbs with subterranean stoloniferous rhizomes, stems smooth, 40-60 cm tall. Leaves sub-basal, as long as stems or longer, 0.8-1.0 cm broad, apex gradually acuminate, scabrid in the upper part. Spikes in compound umbels, usually open, bracts 4-6, spreading, primary rays 6-12 up to 15 cm long; spikelets spicate, lower ones at right angles to rachis, 0.8-1.5 cm long; glumes oblong-ovate, hardly keeled; stamens and stigmas-3 each. Nuts oblong-cylindrical or obovoid, blackish-brown.

Fls. & Frts. : October-November.

Distrib. : Scattered along the higher ghats; Kankavli-Phondaghat. Sawantwadi-Amboli-Ramghat Road.

C. exaltatus Retz. Obs. Bot. 5 : 11. 1789; Clarke in Hook. f. Fl. Brit. India 6 : 617. 1893; Cooke, Fl. Pres. Bombay 3 : 386. 1958 (Repr. ed.); Kern in van Steenis, Fl. Males. Ser. 1, 7 : 602. 1974.

Glabrous, perennial herbs, with very short rhizomes, stems up to 150 cm long. Leaves linear-lanceolate with prominent midrib, shorter or equal to the stems, 0.9-1.5 cm wide, glabrous, scabrous along the margins. Spikes in compound umbels, digitately arranged, cylindric, rachis visible among spikelets; spikelets spicately arranged, subdistichous, almost at right angles to rachis, oblong to linear, compressed; glumes ovate to broadly ovate, 0.15-0.20 cm long, keels green; stamens and stigmas-3 each. Nuts ellipsoid, apiculate, yellowish-brown.

Fls. & Frts. : September-October.

Illus. : Kern in Reinwardtia 2 : 99. fig. 2. 1952.

Dls rib. : Occasional in moist, open situations in plains; Sawantwadi-Vengurta Road Jungle.

C. haspan L. Sp. Pl. 45. 1753; Clarke in Hook. f. Fl. Brit. India 6 : 600. 1893; Cooke, Fl. Pres. Bombay 3 : 376. 1958 (Repr. ed.); Kern in van Steenis, Fl. Males. Ser. 1, 7 : 624. 1974.

Slender, perennial herbs with short, creeping, rhizomes, stems 15-20 cm tall. Leaves usually shorter than stems, 0.3-0.4 cm wide. Spikelets in simple or compound umbels, 3-8 together, up to 1 cm long; glumes elliptic or ovate-oblong, 0.1 cm long, obtuse, sometimes shortly mucronate, dark brown; stamens usually-1, rarely 2, stigmas-3. Nuts sharply angular, trigonous, smooth to slightly warty.

Fls. & Frts. : January-March.

Illus. : Kern l.c. 626. fig. 56.

Distrib. : Scattered in open, moist situations and in fields in plains; Kudal-Bhadgaon. Sawantwadi-Bhedshi.

C. iris L. Sp. Pl. 45. 1753; Clarke in Hook. f. Fl. Brit. India 6 : 606. 1893; Cooke, Fl. Pres. Bombay 3 : 380. 1958 (Repr. ed.); Kern in van Steenis, Fl. Males. Ser. 1, 7 : 616. 1974.

Tufted, annual herbs, stems triquetrous, up to 60 cm tall. Leaves few, shorter than stems, 0.3-0.5 cm wide, scabrid towards apex; papery sheaths. Spikes lax, cylindrical, in umbels, bracts 3-5, 5-10 cm or more long; spikelets compressed, 5-20 in a spike, linear-oblong, golden-yellow; glumes orbicular-obovate, keeled, obtuse; stamens-2 or 3, stigmas-3. Nuts obovate-ellipsoid, trigonous, black.

Fls. & Frts. : August-February.

Distrib. : Frequent in wet, open situations in plains; Deogad-Naringre. Kankavli-Ghonsari, Osargaon. Sawantwadi-Akeri-Mangaon forest.

C. leucocephalus Retz. Obs. Bot. 5 : 11. 1789; Clarke in Hook. f. Fl. Brit. India 6 : 602. 1893; Cooke, Fl. Pres. Bombay 3 : 377. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 299. 1967

Slender herbs with very short rhizomes, stems 8-15 cm tall, slightly thickened below the inflorescence. Leaves shorter than the stems, sometimes longer, 0.05-0.10 cm wide. Heads globose, terminal, 0.6-1.5 cm across, bracts-3, 1-4 cm long; spikelets elliptic, 0.3-0.5 cm long, pale brown; glumes oblong-lanceolate, 0.1-0.2 cm long, whitish or pale brown; stigmas-3. Nuts ellipsoid, trigonous.

Fls. & Frts. : June-August.

Distrib. : Infrequent in moist, open situations along the ghats and in hilly areas in plains; Kankavli-Phondaghat. Sawantwadi-Akeri, Amboli-Moose Plateau, Danoli.

C. odoratus L. Sp. Pl. 46. 1753; Cooke, Fl. Pres. Bombay 3 : 372. 1958 (Repr. ed.); Kern in van Steenis, Fl. Males. Ser. I, 7 : 645. 1974. *Mariscus ferox* Clarke in Hook. f. Fl. Brit. India 6 : 624. 1893. *Pycnus polystachyos* P. Beauv. Fl. Ow. 2 : 48. t. 86. fig. 1. 1807; Clarke in Hook. f. l.c. 592.

Annual herbs, 20-50 cm tall, stems stout, triquetrous in the upper part. Leaves linear, upto 1.2 cm broad, subcoriaceous. Inflorescence compound, 5-15 cm across; primary rays obliquely patent, spikes ovoid; glumes distant, broadly ovate; stamens-3. Nuts oblong, trigonous or narrowly ovoid, brown to black.

Fls. & Frts. September-January.

Distrib. : This species is reported by Cooke (l.c.) from 'Malvan' based on collection by Woodrow; hence it is included here.

C. pangorei Rottb. Descr. Pl. Rar. Programm. 18. 1772; Sant. Fl. Khandala ed. 3, 300. 1967. *C. tegetum* Roxb. Fl. Ind. 1 : 208. 1832; Clarke in Hook. f. Fl. Brit. India 6 : 613. 1893; Cooke, Fl. Pres. Bombay 3 : 384. 1958 (Repr. ed.).

Glabrous, perennial herbs, rhizomes creeping, stout, stems 60-120 cm long, trigonous. Leaves few, 0.3-1.8 cm wide, linear, apex acuminate. Umbels

loose, 5-10 rays, bracts leafy, exceeding rays; spikes broadly ovate with distant, few spikelets; spikelets linear, lax-flowered; glumes 0.2-0.3 cm long, elliptic, distant, with narrow keel, red-brown; stamens-3. Nuts oblong, brown.

Fls. & Frts. : October-February.

Distrib. : Infrequent along streams in plains; Kankavli-Kudal Road. Sawantwadi-Dodamarg, Gavata.

C. tenuispica Steud. Syn. Pl. Glum. 2 : 11. 1857; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 625. 1974. *C. flavidus* Clarke in Hook. f. Fl. Brit. India 6 : 600. 1893, (*non* Retz. 1789); Cooke, Fl. Pres. Bombay 3 : 375. 1958 (Repr. ed.).

Annual herbs with fibrous roots, stems 10-30 cm long, triquetrous, smooth. Leaves flat, flaccid, shorter or longer than stems, 0.2-0.4 cm wide, apex gradually acuminate. Umbels compound, bracts 2-3, unequal, rays 5-10, unequal; spikelets digitately arranged, 3-9 together, compressed, 0.2-0.5 cm long; glumes ovate, slightly keeled at apex, obtuse, 0.08-0.09 cm long, purplish-green; stamens-2, stigmas-3. Nuts white, ovoid-globose, trigonous, finely reticulate.

Fls. & Frts. : August-February.

Illus. : Kern *l.c.* 628. fig. 58.

Distrib. : Frequent in wet, open situations and in fields in plains; Kankavli-Osargaon. Malwan-Kuperighati. Sawantwadi-Akri-Mangaon, Gavata.

ELEOCHARIS R. Br.

1. Nuts triquetrous	..	<i>E. retroflexa</i>
1. Nuts biconvex	..	<i>E. geniculata</i>

Eleocharis geniculata (L.) Roem. & Schult. Syst. Veg. 2 : 150. 1817; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 536. 1974. *Scirpus geniculatus* L. Sp. Pl. 48. 1753. *Eleocharis capitata* R. Br. Prodr. 225. 1810; Clarke in Hook. f. Fl. Brit. India 6 : 627. 1893; Cooke, Fl. Pres. Bombay 3 : 404. 1958 (Repr. ed.).

Tufted annuals, stems slender, 10-20 cm long, smooth. Sheaths appressed at base, purplish tinged. Spikelets globose or ovoid, 0.4-0.8 cm long; glumes broadly ovate-oblong, 0.2 cm long, membranous, reddish-brown, keel greenish; bristles 5-8, coarse, reddish, longer than nuts; stamens 2-3 and stigmas-2. Nuts obovate, smooth, shining black.

Fls. & Frts. : February-May.

Distrib. : Infrequent in open, moist situations in plains; Kudal-Bhadgaon, Kochre.

E. retroflexa (Poir.) Urb. Symb. Ant. 2 : 165. 1900; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 534. 1974. *Scirpus retroflexus* Poir. in Lamk. Encycl. 6 : 753. 1804. *Eleocharis chaetaria* Roem. & Schult. Syst. Veg. 2 : 154. 1817; Clarke in Hook. f. Fl. Brit. India 6 : 629. 1983; Cooke, Fl. Pres. Bombay 3 : 404. 1958 (Repr. ed.).

Tufted, gregarious, annual herbs, stems angular, often curved, 5-10 cm tall. Sheaths reddish at base. Spikelets 0.15-0.20 cm long, compressed; glumes 0.25 cm long, boat-shaped or ovate, membranous, 3-nerved, midnerve greenish, sides reddish; bristles-6, unequal, white to yellowish scabrous, longer than nuts; stamens-3, stigmas-3. Nuts obovoid, conspicuously cancellate.

Fls. & Frts. : January-March.

Distrib. : Scattered in open, moist places and along streams in plains; Sawantwadi-Akeri, Gavata.

FIMBRISTYLIS Vahl (nom. cons.)

1. Spikelets solitary, rarely 2-3 :

2. Nuts smooth or finely striate .. *F. schoenoides*

2. Nuts transversely ridged or trabeculate :

3. Glumes obtuse; stigmas-2 .. *F. acuminata*

3. Glumes apiculate; stigmas-2-3 .. *F. tetragona*

1. Spikelets many :

4. Stigmas-3, styles triquetrous :

5. Cauline leaves well developed .. *F. woodrowii*

5. Cauline leaves on fertile shoots reduced to sheaths .. *F. miliacea*

4. Stigmas-2, styles flat :

6. Spikelets all sessile .. *F. argentea*

6. Spikelets not sessile :

7. Leaves ligulate :

8. Glumes hairy in upper half; nuts smooth or faintly striolate .. *F. ferruginea*

8. Glumes glabrous ; nuts vertically ridged :

9. Spikelets 0.1-0.15 cm wide, angled due to keels of glumes .. *F. bisumbellata*
9. Spikelets 0.2-0.4 cm wide not angled .. *F. dichotoma*
7. Leaves eligulate :
10. Glume-margins not hyaline; nuts semi-transparent .. *F. aestivalis*
10. Glume-margins hyaline; nuts black .. *F. cymosa*

Fimbristylis acuminata Vahl, Enum. Pl. 2 : 285. 1805; Clarke in Hook. f. Fl. Brit. India 6 : 631. 1893; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 588. 1974.

Glabrous, perennial herbs with very short rhizomes, stems slender, tufted 10-20 cm tall, angled. Leaves reduced to sheaths. Spikelets terminal, 0.6-1.0 cm long, ovoid, terete; glumes spiral, ovate, reddish-brown, slightly keeled, apex obtuse or acute; stamens 2-3. Nuts biconvex, broadly obovate or orbicular, brownish.

Fls. & Frts. : August-February.

Distrib. : Infrequent in moist, open situations and in fields in plains; Kankavli-Osargaon. Kudal-Bhadgaon. Sawantwadi-Vengurla Road.

F. aestivalis (Retz.) Vahl, Enum. Pl. 2 : 288. 1805; Clarke in Hook. f. Fl. Brit. India 6 : 637. 1893; Cooke, Fl. Pres. Bombay 3 : 395. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 301. 1967; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 584. 1974. *Scirpus aestivalis* Retz. Obs. Bot. 4 : 12. 1786.

Tufted, annual herbs, stems 6-16 cm tall, angular. Leaves shorter than stems, narrow, apex acute, sheaths red-brown, membranous. Umbels compound, rays erect; spikelets few, oblong, 0.4 cm long, bracts 3-5, exceeding umbels; glumes 0.15 cm long, oblong, keels raised and excurrent, brown, lower glumes and bracts pubescent; stamens-1, stigma-2. Nuts broadly ellipsoid, compressed.

Fls. & Frts. : February-June.

Distrib. : Frequent in moist, open places and in fields in plains and along ghats; Malwan-Achre-Kaziwada sada. Sawantwadi-Akeri, Amboli-Ramghat Road, Ambolighat, Gavata.

F. argentea (Rottb.) Vahl, Enum. Pl. 2 : 294. 1805; Clarke in Hook. f. Fl. Brit. India 6 : 640. 1893; Cooke, Fl. Pres. Bombay 3 : 395. 1958 (Repr. ed.); Kern in van Steenis, Fl. Males. Ser. 1, 7 : 586. 1974. *Scirpus argenteus* Rottb. Programm. 27. 1772.

Small, annual herbs, with white fibrous roots, stems 8 cm tall, tufted, trigonous. Leaves shorter than stems, slender, glabrous, canaliculate, sheaths red dotted. Spikelets cylindric in heads, 1 cm across; glumes triangular-ovate, 0.12 cm long, membranous, with green, herbaceous keels, brown or silvery-grey; stamens-1 and stigmas-2. Nuts orbicularly ovoid, pale.

Fls. & Frts. : February-March.

Distrib. : Occasional in moist, open situations; Sawantwadi-Akeri-Mangaon.

E. bisumbellata (Forssk.) Bub. Dodec. 30. 1850; Sant. Fl. Khandala ed. 3, 301. 1967; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 579. 1974. *Scirpus bisumbellatus* Forssk. Fl. Aegypt.-Arab. 1 : 15. 1775.

Caespitose annual herbs, stems slender, 10-15 cm tall. Leaves flat, shorter than or as long as stems, pubescent. Umbels compound, rays 2-3 cm long; spikelets ellipsoid, angled, rachilla elongating; glumes ovate-oblong, reddish-brown, 0.12 cm long, with green, sharp apiculate keels; stigmas-2. Nuts obovate, pale to dark brown.

Fls. & Frts. : May.

Distrib. : Occasional in wet areas along streams along ghats; Sawantwadi-Ramgaon.

E. cymosa R. Br. Prodr. 228. 1810; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 557. 1974. *E. spathacea* Roth, Nov. Pl. Sp. 24. 1821; Clarke in Hook. f. Fl. Brit. India 6 : 640. 1893; Cooke, Fl. Pres. Bombay 3 : 396. 1958 (Repr. ed.).

Shortly rhizomatous, perennial herbs, stems tufted, rigid, 10-20 cm tall, swollen at base, many leaved at base. Leaves much shorter than stems, narrow, flat, abruptly acuminate, scabrid along the margins. Umbels compound, often contracted, bracts 2-3, short, rigid; spikelets ellipsoid, 0.3-0.5 cm long, rachilla broadly winged; glumes broadly ovate, obtuse, notched at apex, keeled, ferrugineous, 0.1-0.2 cm long; stigmas 2-3. Nuts obovate, shortly stipitate, tubercled.

Fls. & Frts. : August-September.

Distrib. : Occasional, in moist, sandy and rocky areas along coast; Malwan-Along sea shore.

E. ferruginea (L.) Vahl, Enum. Pl. 2 : 291. 1805; Clarke in Hook. f. Fl. Brit. India 6 : 638. 1893; Cooke, Fl. Pres. Bombay 3 : 396. 1958 (Repr. ed.).

ed.); Sant. Fl. Khandala ed. 3, 301. 1967; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 572. 1974. *Scirpus ferrugineus* L. Sp. Pl. 50. 1753.

Tufted, perennial herbs with creeping short rhizomes, stems 15-20 cm tall, rigid, striate, smooth. Cauline leaves much shorter than stems, 4-8 cm long, erect, gland-dotted, scabrid at tip, lower sheaths bladeless. Umbels subcompound, usually contracted, bracts 2-3, shorter or slightly longer than inflorescence; spikelets ovoid to ellipsoid, 0.5-1.5 cm long, terete, densely flowered; glumes ovate to oblong, 0.3-0.4 cm long, red-brown, obtuse, apiculate; stamens-3 and stigmas-2. Nuts obovate, strongly compressed, pale brown.

Fls. & Frts. : September-October.

Distrib. : Infrequent in moist places along river tank in plains; Kankavli-Kudal Road. Sawantwadi-Jungle on Vengurla Road.

E. miliacea (L.) Vahl, Enum. Pl. 2 : 287. 1805; Clarke in Hook. f. Fl. Brit. India 6 : 644. 1893; Cooke, Fl. Pres. Bombay 3 : 397. 1958 (Repr. ed.); Kern in van Steenis, Fl. Males. Ser. 1, 7 : 552. 1974. *Scirpus miliaceus* L. Syst. Veg. ed. 10, 868. 1759.

Glabrous, annual herbs, roots fibrous, stems tufted, actually angled, 15-30 cm tall, base clothed with 2-3 tubular, oblique, bladeless sheaths. Leaves shorter or as long as stems, dorsiventrally flattened, equitant, with prominent midribs, apex gradually acuminate. Umbels loosely compound, primary rays several, bracts 3-5, shorter or longer than inflorescence; spikelets ovoid to subglobose, 0.1-0.25 cm long; glumes ovate to broadly ovate, obtuse, brown, keeled; stamens-1 or 2. Nuts narrowly obovate, obtusely trogonous.

Fls. & Frts. : October-February.

Distrib. : Infrequent in moist situations along the streams in plains; Kankavli-Kudal Road. Kudal-Bhadgaon. Sawantwadi-Gavata.

E. schoenoides (Retz.) Vahl, Enum. Pl. 2 : 286. 1805; Clarke in Hook. f. Fl. Brit. India 6 : 634. 1893; Cooke, Fl. Pres. Bombay 3 : 394. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 302. 1967; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 573. 1974. *Scirpus schoenoides* Retz. Obs. Bot. 5 : 14. 1789.

Perennial herbs, rhizomes short, stems densely tufted, compressed, smooth, 15-25 cm tall. Leaves shorter than stems, glaucous, narrow, with involute, spinulose-scabrous along margins, 0.1 cm wide. Spikelets 1-2,

globose-ovoid, free, 0.6 cm long, bracts erect, glumelike; glumes broadly ovate, obtuse, apiculate, 0.2-0.3 cm long, reddish-brown; stamens-3 and stigmas-2. Nuts ellipsoid, flattened, stipitate, brownish.

Fls. & Frts. : August-September.

Distrib. : Occasional in moist areas in plains; Kankavli-Osargaon.

F. tetragona R. Br. Prodr. 226. 1810; Clarke in Hook f. Fl. Brit. India 6 : 631. 1893; Cooke, Fl. Pres. Bombay 3 : 393. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 302. 1967; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 590. 1974.

Glabrous, glaucous, perennial herbs with short rhizomes, stems 20-30 cm tall, quadrangular, strongly ribbed, smooth. Leaves of the flowering stems reduced to 2-3, obliquely truncate, 2-6 cm long, bladeless sheaths or uppermost sometimes with short blades. Spikelets terminal, globose or ovoid, 0.6-1.5 cm long, densely flowered; glumes oblong-ovate, closely imbricate, obtuse, rounded on back, dull brown, apex mucous; stamens 1-3. Nuts narrowly obovate or cylindric, trabeculate.

Fls. & Frts. : October-February.

Distrib. : Uncommon in moist situations in fields in plains; Kankavli-Achre Road. Kudal-Bhadgaon, Varad.

F. woodrowii Clarke in Bull. Misc. Inf. 227. 1898 et J. Linn. Soc. 34 : 68. 1898; Cooke, Fl. Pres. Bombay 3 : 398. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 302. 1967.

Densely tufted herbs, stems 8-15 cm tall, angled, somewhat flattened. Leaves shorter than stems, flat, 0.1-0.16 cm wide. Umbels subcompound, shortly stalked spikelets, bracts 2-3, leaflike; spikelets linear-lanceolate, 0.2-0.3 cm long; glumes ovate, 0.1-0.12 cm long with sharp, curved, minutely excurrent keels, sides brown; stamens-1. Nuts obovate, obtusely trigonous, pale yellow to white.

Fls. & Frts. : August-September.

Distrib. : Scattered in wet, open situations from lower ghats to coastal areas; Kankavli-Osargaon, Phondaghat. Malwan (Cooke, l.c.).

FUIRENA Rottb.

1. Glumes few per spikelet, each with stout, recurved apical acumen ..	<i>F. umelan</i>
1. Glumes many per spikelet, each with ciliate subapical arista ..	<i>F. ciliaris</i>

Fuirena ciliaris (L.) Roxb. Fl. Ind. 1 : 184. 1820; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 519. 1974. *Scirpus ciliaris* L. Mant. Alt. 182. 1771. *Fuirena glomerata* (auct. non Lamk. 1791); Clarke in Hook. f. Fl. Brit. India 6 : 666. 1893; Cooke, Fl. Pres. Bombay 3 : 412. 1958 (Repr. ed.).

Annual herbs, stems slender, 15-25 cm tall, obtusely angled, pubescent at the top or throughout. Leaves 3-5 × 0.3-0.8 cm, linear-lanceolate, acuminate, sheaths hispid. Spikelets clustered, terminal, on 1-2 peduncles; spikelets ovoid, terete, 0.6-0.8 cm long, squarrose; glumes obovate, short-hairy throughout, 0.1-0.15 cm long; bristles-3, scaberulous and scales-3, clawed, quadrate, thickened at tip. Nuts trigonous, obovoid.

Fls. & Frts. : January-March.

Illus. : Kern l.c. 517. fig. 32.

Distrib. : Infrequent in open, moist places and in fields in plains; Kudal-Bhadgaon. Sawantwadi-Akeri, Tirali.

F. uncinata (Willd.) Kunth, Enum. 2 : 184. 1837; Clarke in Hook. f. Fl. Brit. India 6 : 666. 1893; Cooke, Fl. Pres. Bombay 3 : 413. 1958 (Repr. ed.). *Scirpus uncinatus* Willd. Sp. Pl. 1 : 300. 1798.

Tufted, annual herbs, stems 10-20 cm tall, hispid-pubescent. Leaves 3-5 × 0.3-0.5 cm, linear, sparsely hairy, apex acuminate, 3-5 nerved, sheaths also hairy. Spikelets crowded, simple or lobed clusters, ovoid, 0.3-0.5 cm long, echinate, yellowish-green becoming brown; glumes obovate, rigid, 0.3 cm long, pubescent; bristles-3, retrorsely-scabrid, scales-3, shortly stalked, quadrate or orbicular. Nuts obovoid, trigonous, pale brown.

Fls. & Frts. : January-March.

Distrib. : Scattered in open, moist situations and in fields in plains; Kudal-Bhadgaon, Nileli.

KYLLINGA Rottb. (nom. cons.)

1. Glumes twice as long as nuts, crested	..	<i>K. nemoralis</i>
1. Glumes equalling to, somewhat exceeding nuts, not crested	..	<i>K. brevifolia</i>

Kyllinga brevifolia Rottb. Descr. Ic. Pl. 13. t. 4. f. 3. 1773; Clarke in Hook. f. Fl. Brit. India 6 : 588. 1893 et Ill. Cyper. t. 1. f. 1-4. 1909; Kern in Backer & Bakh. f. Fl. Java 3. : 470. 1968 *Cyperus brevifolius* (Rottb.) Hassk. Cat. Hort. Bogor. 24. 1844; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 656. 1974.

Perennial, rhizomatous herbs, stems slender, 10-20 cm tall, triquetrous, smooth. Leaves shorter than stems, 0.1-0.3 cm wide, rigid, scabrid along the margins in the upper part. Heads truncate-conical, 0.5-1.0 cm across, bracts 3-4, short; spikelets elliptic-oblong or oblong-lanceolate, closely packed, 1 or 2 flowered, 0.2-0.3 cm long; glumes elliptic-lanceolate, acutely keeled, mucronulate; stamens 1-2 and stigmas-2. Nuts biconvex, obovate or elliptic, compressed, yellowish-brown.

Fls. & Frts. : August-February.

Illus. : Kern *l.c.* 558. fig. 70.

Distrib. : Frequent in moist, open places from lower slopes of the ghats to plains; Kudal-Nileli. Sawantwadi-Ambolighat-Nanapani, Banda, Vengurla Road forest. Vengurla-Vagiri forest.

K. nemoralis (Forst.) Dandy ex Hutch. Fl. W. Trop. Afr. 2 : 487. 1936. *Thryocephalon nemorale* J. R. & G. Forst. Char. Gen. Pl. 130. 1776. *Kyllinga monocephala* Rottb. Descr. Ic. Pl. 13. t. 4. f. 4. 1773, *nom. superfl.*; Clarke in Hook. f. Fl. Brit. India 6 : 588. 1893; Cooke, Fl. Pres. Bombay 3 : 390. 1958 (Repr. ed.). *Cyperus kyllinga* Endl. Cat. Hort. Acad. Vinodb. 1 : 94. 1842; Sant. Fl. Khandala ed. 3, 299. 1967; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 659. 1974.

Slender, perennial herbs, rhizomes horizontally creeping, stems 10-15 cm tall, triquetrous. Leaves shorter than stems, flaccid or rigid, linear, 0.2-0.3 cm wide, scabrid along the margins in the upper half. Heads ovoid-globose, 0.8-1.2 × 0.6-1.0 cm, usually 1-3 sessile heads, white, bracts 3-4, spreading; spikelets obliquely ovate-elliptic, 0.2-0.3 cm long; glumes with broad, opaque, ciliate wing and acute tip; stamens-2. Nuts biconvex, oblong-obovate, yellowish-brown.

Fls. & Frts. : October-November.

Distrib. : Occasional in moist places in plains; Sawantwadi-Vengurla Road Jungle.

MARISCUS Vahl (*nom. cons.*)

1. Spikelets markedly compressed; glumes aristate :

2. Spikelets digitate; glumes with membranous sides .. *M. maderaspatanus*

2. Spikelets crowded; glumes with rigid sides .. *M. squarrosus*

1. Spikelets not markedly compressed; glumes not aristate :

3. Spikelets bearing 1-2 (rarely-3) nuts .. *M. panicus*

3. Spikelets bearing more than 3 nuts :

4. Glumes closely imbricate; nuts black	..	<i>M. javanicus</i>
4. Glumes loose; nuts brown	..	<i>M. compactus</i>

Mariscus compactus (Retz.) Bold. Zakfl. Landbouwstr. 77. 1916. *Cyperus compactus* Retz. Obs. Bot. 5 : 10. 1789. *C. dilutus* Vahl, Enum. Pl. 2 : 357. 1805; Cooke, Fl. Pres. Bombay 3 : 389. 1958 (Repr. ed.); Kern in van Steenis, Fl. Males. Ser. 1, 7 : 638. 1974. *Mariscus microcephalus* Presl, Rel. Haenk. 1 : 182. 1828; Clarke in Hook. f. Fl. Brit. India 6 : 624. 1893.

Rhizomatous, perennial herbs, stems terete or obtusely trigonous, smooth, 20-30 cm tall. Leaves equal to or longer than stems, 0.5-0.8 cm wide, rigid, strongly channelled, glaucous, margins scabrous in the upper half. Umbels compound or decompound, rays spreading, bracts reflexed; spikes globose, 1-2 cm across; spikelets linear-lanceolate, subterete, 0.5-1.2 cm long; glumes convolute, oblong-lanceolate, keels 3-nerved, green, reddish-brown; stamens and stigmas-3 each. Nuts oblong-linear, trigonous.

Fls. & Frts. : October-November.

Distrib. : Occasional in wet, open areas among grasses in plains; Kudal-Varad.

M. javanicus (Houtt.) Merr. & Metc. in Lingn. Sc. J. 21 : 4. 1945. *Cyperus javanicus* Houtt. in Nat. Hist. 2, 13 Aanw. Pl. (1) : t. 88. f. 1. 1782; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 635. 1974. *C. pennatus* Lamk. Illustr. 1 : 144. 1791; Cooke, Fl. Pres. Bombay 3 : 389. 1958 (Repr. ed.). *Mariscus albescens* Gaud. in Freyc. Voy. Bot. 415. 1826; Clarke in Hook. f. Fl. Brit. India 6 : 623. 1893.

Perennial herbs, rhizomes very short, stems tufted, 25-30 cm tall, obtusely trigonous, papillose. Leaves longer than stems, coriaceous, 0.5-1.0 cm wide, apex acuminate, scabrous on the keel and along margins. Umbels compound, bracts 3-6, widely spreading; spikelets oblong to elliptic, 0.5-0.8 cm long, at right angles to rachis; glumes ovate, brown to purplish, obtuse, 5-9 nerved; stamens and stigmas-3 each. Nuts ellipsoid, trigonous.

Fls. & Frts. : April-May.

Illus. : Kern l. c. 636. fig. 63.

Distrib. : Occasional on wet, sandy soil; Kudal-Kochre river bank.

M. maderaspatanus (Willd.) Napper in J. E. African Nat. Hist. Soc. 28, 124 : 10. 1971; Hooper in Saldanha & Nicolson, Fl. Hassan Distt. 690. 1976. *Cyperus maderaspatanus* Willd. Sp. Pl. 1 : 278. 1798.

Annual herbs, stems tufted, 4-6 cm tall. Leaves equal to or longer than stems, few, 0.1 cm wide, weak, canaliculate, lower sheaths membranous. Inflorescence digitate with few rays, bracts much exceeding rays, spreading; spikelets linear, 0.6-1.8 cm long; glumes narrowly oblong, 0.15-0.20 cm long, strongly nerved, straw coloured, keeled, apex erecto-patent. Nuts oblong, punctulate.

Fls. & Frts. : August-September.

Distrib. : Scattered in moist, open places in plains; Malwan-Nandos. Sawntwadi-Akeri Mangaon forest.

M. panicus (Rottb.) Vahl, Enum. Pl. 2 : 373. 1805; Clarke in Hook. f. Fl. Brit. India 6 : 620. 1893. *Kyllinga panicca* Rottb. Deser. Ic. Pl. 15, t. 4, f. 1. 1773. *Cyperus panicus* (Rottb.) Boeck. in Linnæa 36 : 381. 1870, p.p.; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 643. 1974.

Perennial, rhizomatous herbs, rhizomes emitting slender stolons, stems 15-25 cm tall, tufted. Leaves shorter or as long as stems, 0.4-0.6 cm wide. Umbels simple of spikes with 5-8 rays, bracts 5-6, exceeding rays; spikelets in 3-9, cylindric to obovoid spikes, 1-flowered, greenish, patent, 0.2-0.3 cm long; glumes : lowest and second empty, 3rd fertile, ovate, 4th oblong; stamens-3. Nuts oblong, pale brown, slightly curved.

Fls. & Frts. : August-October.

Distrib. : Infrequent in moist places in plains; Malwan-Nandos. Sawantwadi-Vengurla Road forest.

M. squarrosus (L.) Clarke in Hook. f. Fl. Brit. India 6 : 623. 1893; Hooper in Saldanha & Nicolson, Fl. Hassan Distt. 690. 1976. *Cyperus squarrosus* L. in Torner, Cent. Pl. 2 : 6. 1756; Sant. Fl. Khandala ed. 3, 300. 1967; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 631. 1974. *C. aristatus* Rottb. Deser. Rar. Programm. 22. 1772; Clarke in Hook. f. l.c. 606; Cooke, Fl. Pres. Bombay 3 : 380. 1958(Repr. ed.).

Small, annual herbs, stems tufted, triquetrous, 5-8 cm tall. Leaves shorter than the stems or sometimes equal, 0.1-0.2 cm wide, 1-nerved, flaccid; sheaths inflated, purple. Inflorescence simple, spikes crowded, bracts 2-4, exceeding spikes; spikelets oblong to oblong-linear, 0.25-0.30 cm long; glumes elliptic-ovate to elliptic-oblong, 0.1-0.2 cm long, reddish-brown, with clear nerves and recurved arista. Nuts obovate, trigonous, stipitate.

Fls. & Frts. : August-September.

Distrib. : Occasional in wet, open places in plains; Deogad-Naringre Road.

PYCREUS P. Beauv.

1. Apex of glumes obtuse and distinctly mucronate .. *P. pumilus*
1. Apex of glumes obtuse to acute, sometimes mucronulate :
 2. Surfaces of nuts horizontally marked with white raised lines; surface-cells vertically elongated .. *P. diaphanus*
 2. Surfaces of nuts puncticulate; surface-cells small, isodiametric .. *P. sanguinolentus*

Pycnus diaphanus (Roem. & Schult.) Hooper & Koyama in Saldanha & Nicolson, Fl. Hassan Distt. 691. 1976. *Cyperus diaphanus* Schrad. ex Roem. & Schult. Mant. 2 : 477. 1824. *C. latespicatus* Boeck. Flora 42 : ' 433 ' (441). 1859; Cooke, Fl. Pres. Bombay 3 : 368. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 298. 1967. *Pycnus latespicatus* (Boeck.) Clarke in Hook. f. Fl. Brit. India 6 : 590. 1893. *Cyperus diaphanus* Schrad. ex Roem. & Schult. var. *latespicatus* (Boeck.) Kern in van Steenis, Fl. Males. Ser. 1, 7 : 653. 1974.

Tufted annual herbs, stems 15-20 cm tall, smooth, trigonous. Leaves flat, gradually narrowed upwards, 0.1-0.2 cm wide, margins scabrid in the upper part. Simple umbels, rays 2-3; spikelets oblong, horizontally spreading, 1-2 cm long; glumes red-brown, membranous, ovate, obliquely patent, keeled, obtuse, sides nerveless; stamens and stigmas-2 each. Nuts laterally compressed, obovate or broadly obovate, stipitate.

Fls. & Frts. : August-September.

Distrib. : Occasional in wet, open situations along the ghats; Sawantwadi-Amboli-Ramghat Road.

P. pumilus (L.) Nees in Linnæa 9 : 283. 1834; Clarke in Hook. f. Fl. Brit. India 6 : 591. 1893; Hooper in Saldanha & Nicolson, Fl. Hassan Distt. 693. 1976. *Cyperus pumilus* L. in Torner, Cent. Pl. 2 : 6. 1756; Cooke, Fl. Pres. Bombay 3 : 370. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 300. 1967; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 650. 1974.

Small, annual herbs, stems slender, tufted, 8-15 cm tall, almost filiform. Leaves shorter or longer than stems, scabrid along margins in the upper part. Umbels simple; spikelets divergent, oblong to linear, 0.1-0.2 cm long; glumes ovate, obliquely patent, reddish-brown, sharply keeled, sides pale. Nuts biconvex, oblong-obovate, apiculate, shining brown.

Fls. & Frts. : August-February.

Illus. : Kern l.c. 651. fig. 66.

Distrib. : Frequent in wet, open places in plains; Kankavli-Osargaon, Sawantwadi-Akeri, Bhedshi-Konal R. F.

P. sanguinolentus (Vahl) Nees in Linnaea 9 : 283. 1834; Clarke in Hook. f. Fl. Brit. India 6 : 590. 1893; Hooper in Saldanha & Nicolson, Fl. Hassan Distt. 694. 1976. *Cyperus sanguinolentus* Vahl, Enum. Pl. 2 : 351. 1805; Cooke, Fl. Pres. Bombay 3 : 369. 1958 (Repr. ed.); Kern in van Steenis, Fl. Males. Ser. 1, 7 : 646. 1974.

Rhizomatous, annual or perennial herbs, stems decumbent at base, trigonous, rooting at nodes, 15-20 cm tall. Leaves shorter or longer than stems, 0.1-0.3 cm wide, soft, flat; sheaths reddish-brown. Umbels simple, short; spikelets oblong to oblong-lanceolate, 0.6-1.0 cm long; glumes ovate, keeled, ferruginous, sides brownish pale to whitish, obtuse, muticous. Nuts broadly obovate to orbicular, brown to black, apiculate.

Fls. & Frts. : September-October.

Distrib. : Frequent in wet, sandy areas and in fields (though collected once) in plains; Kankavli-Kudal Road.

RHYNCHOSPORA Vahl (nom. cons.)

Rhynchospora wightiana (Nees) Steud. Syn. Pl. Glum. 2 : 148. 1855; Clarke in Hook. f. Fl. Brit. India 6 : 669. 1893; Cooke, Fl. Pres. Bombay 3 : 415. 1958 (Repr. ed.); Kern in van Steenis, Fl. Males. Ser. 1, 7 : 718. 1974. *Haplostyllis wightiana* Nees in Nov. Act. Ac. Caes. Leop.-Car. 19. Suppl. 1 : 101. 1843.

Tufted herbs, stems 10-18 cm tall, slender, trigonous. Leaves linear, basal, 2-4 cm long, grass-like. Heads 0.8-1.5 cm across, terminal, solitary, bracts 3-6, unequal; spikelets lanceolate, 0.6-1.9 cm long, reddish-brown; glumes narrowly elliptic-lanceolate, lower 3-4 glumes empty; hypogynous bristles-6, scabrous. Nuts narrowly oblong, compressed, dark brown or black, covered with papillae.

Fls. & Frts. : September-November.

Illus. : Kern, l.c. 719. fig. 101. C-D.

Distrib. : Frequent in moist, open places among grasses and in fields; Kudal-Chapheli, Sawantwadi-Akeri Rest House Campus, Amboli R. F., Mandkhel.

SCHOENOPLECTUS (Reichenb.) Palla (nom. cons.)

1. Stems spongy, stems and bracts septate	..	<i>S. articulatus</i>
1. Stems not spongy, stems and bracts not septate :		
2. Hypogynous bristles present	..	<i>S. juncoides</i>
2. Hypogynous bristles absent	..	<i>S. lateriflorus</i>

Schoenoplectus articulatus (L.) Palla in Bot. Jahrb. Syst. 10 : 299. 1888; Hooper in Saldanha & Nicolson, Fl. Hassan Distt. 697. 1976. *Scirpus articulatus* L. Sp. Pl. 47. 1753; Clarke in Hook. f. Fl. Brit. India 6 : 656. 1893; Cooke, Fl. Pres. Bombay 3 : 406. 1958 (Repr. ed.); Kern in van Steenis, Fl. Males. Ser. 1, 7 : 513. 1974.

Annual or perennial herbs, stems densely tufted, terete, 15-30 cm tall. Sheaths bladeless, brownish. Inflorescence spherical, of many crowded spikelets, below the middle, bracts terete, generally exceeding stems; spikelets 0.6-1.2 cm long, brown, ovoid-oblong; glumes broadly ovate, 0.4 cm long, keeled, mucronate. Nuts obovate, trigonous, black.

Fls. & Frts. : October-May.

Illus. : Kern, *l.c.* 513. fig. 31.

Distrib. : Frequent in open, muddy fields and in shallow ponds; Kankavli-Humbrat Road, Phonda-Harkul forest. Kudal-Kerude, Varad. Sawantwadi-Akeri-Mangaon forest, Danoli.

S. juncoides (Roxb.) Palla in Bot. Jahrb. Syst. 10 : 299. 1888; Hooper in Saldanha & Nicolson, Fl. Hassan Distt. 697. 1976. *Scirpus juncoides* Roxb. Fl. Ind. 1 : 218. 1820; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 512. 1974. *S. erectus* Clarke in Hook. f. Fl. Brit. India 6 : 656. 1893 (*auct. non* Poir. 1805).

Glabrous, annual herbs, stems slender, terete, 20-30 cm tall, tufted. Leaves reduced to bladeless sheaths. Inflorescence pseudolateral, capitate, bracts much shorter than stems, looking like continuation of stems; spikelets sessile, 3-4 in a head, ovoid or elliptic-oblong, 0.8-1.2 cm long; glumes broadly ovate, concave, reddish-brown, keeled at apex, obtuse; bristles 5-6, stout, unequal, retrorsely scabrid. Nuts strongly dorsi-ventrally compressed, biconvex, broadly obovate, black.

Fls. & Frts. : February-March.

Distrib. : Occasional in wet, open places in plains; Kudal-Bhadgaon.

S. lateriflorus (Gmel.) Lye in Bot. Not. 124 : 290. 1971; Hooper in Saldanha & Nicolson, Fl. Hassan Distt. 698. 1976. *Scirpus lateriflorus* Gmel. Syst. Nat. 2, 1 : 127. 1791; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 514. 1974. *S. supinus* L. var. *uninodis* Clarke in Hook. f. Fl. Brit. India 6 : 656. 1893 (*non Isolepis uninodis* Delile, 1813); Cooke, Fl. Pres. Bombay 3 : 406. 1958 (Repr. ed.). *S. supinus* *auct. non* L. (1753); Clarke in Hook. f. *l.c.* 644; Cooke, *l.c.*

Annual herbs, stems tufted, noded, weak, subterete, 8-15 cm tall. Leaves reduced to 2-3, bladeless sheaths, slightly broad upwards. Inflorescence pseudolateral, sometimes capitate, usually 4-10 spikelets, one of the rays developed; spikelets oblong-ovoid, many flowered, angular; glumes ovate, reddish, keeled throughout, apiculate. Nuts broadly elliptic to orbicular, triquetrous, black.

Fls. & Frts. : August-May.

Distrib. : Infrequent in open, moist places and in rice fields in plains; Deogad-Naringre. Kankavli-Digwal Road, Phonda-Harkul forest. Sawantwadi-Akeri-Mangaon forest.

SCLERIA Bergius

1. Disk reduced to ferruginous glandular patch at base; rugulose depressions at base of nuts	..	<i>S. lithosperma</i>
1. Disk well developed; nuts without depressions at base :		
2. Inflorescence spreading; nuts reticulate	..	<i>S. terrestris</i>
2. Inflorescence narrow; nuts smooth or sometimes slightly transversely rugulose	..	<i>S. levis</i>

Scleria levis Rtez. Obs. Bot. 4 : 13. 1786; Kern in van Steenis, Fl. Males. Ser. 1, 7 : 732. 1974. *S. hebecarpa* Nees in Wight, Contrib. Bot. Ind. 117. 1834; Clarke in Hook. f. Fl. Brit. India 6 : 689. 1894; Cooke, Fl. Pres. Bombay 3 : 419. 1958 (Repr. ed.).

Perennial, rhizomatous herbs, stems tufted, triquetrous, scabrid on angles, 20-30 cm tall. Leaves linear, equally distributed along stems, narrowed into acute apex, 0.3-0.6 cm wide, scabrid along margins in the upper half. Inflorescence lateral and terminal, erecto-patent, bracts leafy; spikelets in clusters; female spikelets ovate; glumes ovate-lanceolate; male spikelets lanceolate; glumes ovate-lanceolate; stamens-3. Nuts 0.2-0.3 cm long, slightly trigonous, ovoid-globose, white.

Fls. & Frts. : November-February.

Illus. : Kern l.c. 724. fig. 104. 6.

Distrib. : Scattered in shady places in deciduous forest in plains; Sawantwadi-Danoli, Khanale.

S. lithosperma (L.) Swartz, Prodr. Veg. Ind. Occ. 18. 1788; Clarke in Hook. f. Fl. Brit. India 6 : 685. 1894; Cooke, Fl. Pres. Bombay 3 : 418. 1958 (Repr. ed.); Kern in van Steenis, Fl. Males. Ser. 1, 7 : 740. 1974. *Scirpus lithospermus* L. Sp. Pl. 51. 1753.

Perennial herbs with nodulose rhizomes, stems slender, triquetrous, 25-30 cm tall. Leaves rigid, narrowly linear, greyish-green, aggregated towards middle of the stems, gradually narrowed, 0.2-0.4 cm wide. Inflorescence slender, narrow, almost spicate panicles; spikelets 0.3-0.5 cm long, ferruginous; ovate to lanceolate. Nuts ovoid, obtusely trigonous, shining, white.

Fls. & Frts. : October-November.

Illus. : Kern, l. c. 725. fig. 105. 19.

Distrib. : Occasional in shady places in deciduous forest in plains; Sawantwadi-Vengurla Road jungle.

S. terrestris (L.) Fassett in *Rhodora* 26 : 159. 1924; Kern in van Steenis, *Fl. Males. Ser. 1*, 7 : 733. 1974. *Zizania terrestris* L. *Sp. Pl.* 991. 1753. *S. elata* Thw. *Enum. Pl. Zeyl.* 353. 1864; Clarke in Hook. f. *Fl. Brit. India* 6 : 690. 1894.

Robust herbs, stems 1.5 m tall, stout, sharply triangular, angles scabrid. Leaves 40-60 × 0.9—1.5 cm, 3-nerved, glabrous, margins ciliate, sheaths sharply trigonous. Inflorescence large panicles; spikelets sessile or shortly peduncled, 0.3-0.4 cm long; female spikelets ovate and male spikelets lanceolate. Nuts globose or broadly ellipsoid, white or pale brown, quadrately tessellate or reticulate, ridges hairy, disk bluntly 3-lobed, lobes short.

Fls. & Frts. : September-October.

Illus. : Kern, l. c. 724. fig. 104. 9.

Distrib. : Occasional in the undergrowth in deciduous forest in plains; Sawantwadi-Danoli-Kesari R. F.

POACEAE (GRAMINEAE)

1. Culms woody with culm-sheaths (reduced leaves) :

2. Hairs on back of culm-sheaths reddish-brown; spikelets in globose heads

Dendrocalamus

2. Hairs absent on back of culm-sheaths; spikelets not in globose heads

Bambusa

1. Culms not woody, without culm-sheaths :

3. Spikelets unisexual, in separate inflorescences or in the same inflorescence in different parts :

4. Spikelets monoecious

..

Colea

4. Spikelets dioecious

..

Spinifex

3. Spikelets bisexual or with male or barren and bisexual mixed in the same inflorescence :
5. Leaves tessellately veined .. *Cenotheca*
5. Leaves not tessellately veined :
6. Inflorescence feathery (spikelets silky, non bristly hairy) .. *Saccharum*
6. Inflorescence not feathery
7. Inflorescence simple, unbranched racemes or spikes with each spikelet or its pedicel arising directly from central axis :
8. Spikelets subtended by bristles longer than spikelets :
9. Upper lemma rugose; bristles persistent .. *Setaria*
9. Upper lemma smooth; bristles deciduous .. *Pennisetum*
8. Spikelets not subtended by bristles :
10. Spikelets awned :
11. Awns not geniculate :
12. Glumes unawned .. *Tripogon*
12. Glumes awned :
13. Spikelets in pairs, 1-axillary and 1-pedicelled .. *Glyphochloa*
13. Spikelets not in pairs, all pedicelled .. *Perotis*
11. Awns geniculate :
14. Spikelets many flowered; both glumes awned .. *Indopoa*
14. Spikelets 1-2 flowered; glumes one awned or both unawned :
15. Spikelets solitary :
16. Lemma 3-awned : .. *Danthonidium*
16. Lemma 1-awned :
17. Glumes rounded on back, upper with tuft of hairs above the middle .. *Pogonochne*
17. Glumes keeled and compressed, without tuft of hairs .. *Dimeria santapauli*
15. Spikelets in pairs :
18. Upper glume 2-lobed and awned .. *Bhidoa*

18. Glumes not lobed, nor awned :
19. Upper lemma of sessile spikelet 2-lobed .. *Schizachyrium*
19. Upper lemma of sessile spikelet not lobed :
20. Glumes glabrous .. *Pseudodichanthium*
20. Glumes tubercle based hairy .. *Heteropogon*
10. Spikelets unawned :
21. Spikelets sunk in rachis .. *Oropetium*
21. Spikelets not sunk in rachis :
22. Spikelets compressed :
23. Spikelets laterally compressed, all pedicelled .. *Zovsia*
23. Spikelets dorsally compressed, 1-sessile .. *Manisuris*
22. Spikelets spherical .. *Hackelochloa*
7. Inflorescence compound, variously branched with 2 or more spikelets per branch (branches pedicel like in *Coelachne* & *Sacciolepis*) :
24. Inflorescence digitate, whorled, crowded spikes or racemes :
25. Inflorescence interrupted by spathes :
26. Involucre of modified, usually sterile spikelets present at the base of fertile spikelets .. *Themeda*
26. Involucre of modified spikelets absent .. *Alpuda*
25. Inflorescence not interrupted by spathes :
27. Spikelets in groups of 2 or 3, 1-sessile and 1-2 pedicelled, sometimes reduced to pedicels :
28. Leaves all petiolate .. *Spodiopogon*
28. Leaves sessile or lower ones petiolate :
29. Sessile spikelets accompanied by pedicels .. *Arthraxon*
29. Sessile spikelets accompanied by well-developed pedicelled spikelets :
30. Spikelets-sessile and pedicelled-dissimilar :
31. Joints of rachis and pedicel of pedicelled spikelets swollen or rounded .. *Ischaemum*
31. Joints of rachis and pedicel of pedicelled spikelet not swollen .. *Dichanthium*
30. Spikelets similar :
32. Awn from base of upper lemma .. *Arthraxon*

32. Awn from tip of upper lemma .. *Eulalia*
27. Spikelets grouped or solitary but all sessile or pedicelled :
33. Spikelets 3-many flowered :
34. Spikelets unawned .. *Eleusine*
34. Spikelets awned :
35. Inflorescence spicate or cylindrical .. *Elytrophorus*
35. Inflorescence digitate or umbellate or secund racemes :
36. Axis of raceme ending into a mucro .. *Dactyloctenium*
36. Axis of raceme not ending into a mucro .. *Chloris*
33. Spikelets 1-2 flowered :
37. Lower glume reduced or absent :
38. Upper lemma with firm involute margins *Paspalum*
38. Upper lemma with hyaline, flat margins .. *Digitaria*
37. Lower glume well developed but shorter than the upper :
39. Upper lemma membranous or hyaline :
40. Spikelets bearded at base; upper glume glabrous along the margins .. *Dimeria*
40. Spikelets not bearded at base; upper glume ciliate along the margins .. *Alloteropsis*
39. Upper lemma crustaceous or coriaceous :
41. Glumes awned or aristate :
42. Plants aquatic; upper glume aristate .. *Pseudoraphis*
42. Plants not aquatic; glumes awned .. *Opismenus*
41. Glumes awnless, not aristate :
43. Ligules absent .. *Echinochloa*
43. Ligules present :
44. Spikelets dorsally compressed; lower glume towards axis .. *Brachiaria*
44. Spikelets not compressed; lower glume away from axis .. *Paspalum*
24. Inflorescence clearly paniculate :
45. Spikelets awned, awns much longer than spikelets :
46. Lemmas 3-awned at tip .. *Aristida*
46. Lemmas 1-awned, sometimes subtended by 2-small setae :

47. Spikelets in groups of 2-3, with 1-sessile :
48. Pedicels with median translucent furrow .. *Capillipedium*
48. Pedicels without median translucent furrow .. *Chrysopogon*
47. Spikelets all pedicelled :
49. Lemmas 2-per spikelet :
50. Upper lemma bearded on sides above the middle .. *Jansenella*
50. Upper lemma not bearded .. *Arundinella*
49. Lemmas 1-per spikelet :
51. Glumes reduced to 1/4 the size of spikelets .. *Oryza*
51. Glumes equalling spikelets .. *Garnotia*
45. Spikelets awnless or if with cusp then cusp shorter than spikelets :
52. Spikelets many flowered .. *Eragrostis*
52. Spikelets 1-2 flowered :
53. Spikelets 1-flowered .. *Sporobolus*
53. Spikelets 2-flowered :
54. Spikelets subtended by bristles on pedicels .. *Setaria*
54. Spikelets not subtended by bristles :
55. Panicles cylindrical, dense :
56. Glumes unequal .. *Sacciolepis*
56. Glumes subequal .. *Coelachne*
55. Panicles open, lax :
57. Glumes equal .. *Isachne*
57. Glumes unequal :
58. Spikelets gibbous, laterally compressed .. *Cyrtoloccum*
58. Spikelets not gibbous, nor compressed .. *Panicum*

ALLOTEROPSIS J. Presl ex C. Presl

Alloteropsis cimicina (L.) Stapf in Prain, Fl. Trop. Afr. 2 : 487. 1919; Bor, Grass. Burm. Ceyl. Ind. & Pak. 276. 1960. *Milium cimicinum* L. Mant. Alt. 184. 1771. *Axonopus cimicinius* (L.) P. Beauv. Ess. Agrost. 12. 1812; Hook. f. Fl. Brit. India 7 : 64. 1896; Cooke, Fl. Pres. Bombay 3 : 441. 1958 (Repr. ed.).

Tufted annuals, 25-40 cm tall, culms erect, hairy or glabrous. Leaves 5—8 × 1—2 cm, ovate-lanceolate, base cordate, with bulbous based hairs along margins. Racemes 4-6, sub-verticillate, rachis scabrid; spikelets ovoid-elliptic, 0.3-0.5 cm long; lower glume ovate-lanceolate, 5-nerved, upper glume ovate-elliptic, purplish hairy; upper lemma abruptly aristate.

Fls. & Frts. : August-September.

Illus. : Blatt. & McCann, Bombay Grass. t. 83. 1934.

Distrib. : Occasional in open places and along fields and edges in plains; Malwan-Kuperighati, Nandos.

APLUDA L.

Apluda mutica L. Sp. Pl. 82. 1753; Bor, Grass. Burm. Ceyl. Ind. & Pak. 93. 1960; Sant. Fl. Khandala ed. 3, 303. 1967. *A. varia* Hack. in DC. Mon. Phan. 6 : 196. 1889; Hook. f. Fl. Brit. India 7 : 150. 1896; Cooke, Fl. Pres. Bombay 3 : 474. 1958 (Repr. ed.).

Slender perennials, culms erect-ascending, reddish-purple, 1.0-1.5 m tall. Leaves 6—18 × 0.3—1.9 cm, linear-lanceolate, base narrowed, hairy on both sides. Racemes in fascicles of 6-8, combined into leafy panicles; spikelets 1 sessile and 2-pedicelled; sessile spikelets bisexual and 2-flowered, 0.2-0.3 cm long; lower glume dorsally gibbous; in pedicelled spikelets often one reduced to glumes; glumes minutely tuberculate on back.

Fls. & Frts. : October-May.

Illus. : Blatt. & McCann, Bombay Grass. t. 20, 1934.

Distrib. : Frequent along the ghats and in open areas in plains; Kankavli-Phondaghat. Kudal-Bhadgaon, Shivapur paz. Sawantwadi-Akeri-Mangaon.

ARISTIDA L.

1. Glumes not awned or with a notched apex and short mucro between lobes	..	<i>A. adscensionis</i>
1. Glumes awned :		
2. Lateral awns reduced or if present, of different texture	..	<i>A. redacta</i>
2. Lateral awns well developed and of the same texture	..	<i>A. setacea</i>

Aristida adscensionis L. Sp. Pl. 82. 1753; Hook. f. Fl. Brit. India 7 : 224. 1896; Cooke, Fl. Pres. Bombay 3 : 529. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 407. 1960.

Tufted perennials, culms slender, 30-80 cm tall, erect or procumbent-ascending, simple or branched. Leaves 5-15 cm long, linear, narrow, hairy or glabrous. Inflorescence contracted panicles, rachis filiform; spikelets pedicelled, bisexual; lower glume 0.4-0.6 cm long, oblong-lanceolate, awns 0.1 cm long, upper glume 0.8-1.0 cm long, both the glumes muticous; lemmas keeled, equal to or shorter than upper glume, with lateral awns shorter than the central one.

Fls. & Frts. : February-April.

Illus. : Blatt. & McCann, Bombay Grass. t. 138. 1934; Bor, l. c. 408. fig. 43.

Distrib. : Infrequent in open places in coastal hilly areas; Malwan-Achre-Kaziwadasada, Kunkavle. Vengurla-Sea coast, H. M. Chibber s. n. (3-5-1911).

A. redacta Stapf in Kew Bull. 1892: 85. 1892; Hook. f. Fl. Brit. India 7 : 227. 1896; Cooke, Fl. Pres. Bombay 3 : 531. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 412. 1960.

Annuals, 15-30 cm tall, culms tufted, usually simple. Leaves 5-10 cm long, involute, hairy above, glabrous below. Inflorescence lax, terminal panicles, open, 6-12 cm long; glumes shortly aristate; lower glume lanceolate, 0.6 cm long, upper often suppressed; lemmas passing into coriaceous, swollen twisted column.

Fls. & Frts. : September-October.

Distrib. : Occasional in open situations among other grasses; Kankavli-Nandgaon-Belachi Rai.

A. setacea Retz. Obs. Bot. 4 : 22. 1786; Hook. f. Fl. Brit. India 7 : 225. 1896; Cooke, Fl. Pres. Bombay 3 : 529. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 412. 1960.

Perennials, 1.0-1.5 m tall, culms stout. Leaves 8-18 cm long, linear, involute, smooth. Inflorescence contracted panicles, 6-10 cm long; spikelets 0.15 cm long (excluding awns), erect; glumes long awned, awns 0.3-0.5 cm long, upper glume slightly longer than the lower, 1.8-2.0 cm long; lemmas 3-awned, awns subequal.

Fls. & Frts. : September-November.

Illus. : Blatt. & McCann, Bombay Grass. t. 139. 1934.

Distrib. : Frequent in open situations in moist places in plains; Kankavli-Kudal Road. Sawantwadi-Kolgaon, Nemale.

ARTHRAOXON P. Beauv.

1. Awns of spikelets 15-20 cm long .. *A. jubatus*
1. Awns of spikelets up to 2.5 cm long :
2. Lower glume of sessile spikelet rounded on back :
3. Pedicelled spikelets present .. *A. lanceifolius*
3. Pedicelled spikelets absent *A. hispidus*
2. Lower glume of sessile spikelet 2-keeled :
4. Lower glume of sessile spikelet woolly with shaggy silky hairs .. *A. lanceolatus*
var. *raizadæ*
4. Lower glume of sessile spikelet glabrous on back .. *A. lanceolatus*
var. *meeboldii*

Arthraxon hispidus (Thunb.) Makino in Bot. Mag. Tokyo 26 : 214. 1912; Bor, Grass. Burm. Ceyl. Ind. & Pak. 99. 1960; Jain in J. Ind. Bot. Soc. 51 : 173. 1972; Welzen in Blumea 27 : 266. 1981. *Phalaris hispida* Thunb. Fl. Jap. 44. 1784. *Arthraxon ciliaris* P. Beauv. Ess. Agrost. 111. t. 11 fig. 6. 1812; Hook. f. Fl. Brit. India 7 : 145. 1896; Cooke, Fl. Pres. Bombay 3 : 489. 1958 (Repr. ed.). *A. guartinianus* (A. Rich.) Nash in N. Amer. Flora 17 : 99. 1912; Bor, l. c. 102; Sant. Fl. Khandala ed. 3, 304. 1967; Jain, l. c. 179. *A. nudus* (Steud.) Hochst. in Flora 39 : 188. 1856; Bor, l. c. 101; Jain l. c. 178.

Erect-procumbent grass up to 45 cm tall, culms slender, nodes thickened. Leaves 2—4 × 0.8—1.5 cm, ovate to lanceolate. Racemes 3-6 or sometimes more; spikelets 0.35-0.40 cm long, greenish to greenish-purple; lower glume rounded, many-nerved, scabrid on back, minutely toothed along margins, upper glume hispid at apex; anthers-2.

Fls. & Frts. : October-November.

Illus. : Jain, l. c. 177. figs. 13 & 15.

Distrib. : Infrequent in open, moist situations and in shady places from ghats to plains; Kankavli-Achre Road, Phonda-Bhairi Pathar, Phondaghat. Sawantwadi-Ambolighat-Nanapari.

A. jubatus Hack. in DC. Mon. Phan. 6 : 358. 1889; Hook. f. Fl. Brit. India 7 : 147. 1896; Cooke, Fl. Pres. Bombay 3 : 489. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 100. 1960; Sant. Fl. Khandala ed. 3, 304. 1967; Jain in J. Ind. Bot. Soc. 51 : 174. 1972; Welzen in Blumea 27 : 280. 1981.

Small annuals, 5-10 cm tall, culms slender, glabrous. Leaves 1.5—3.0×0.4—0.6 cm, lanceolate, thin, hairy on both sides, base subcordate. Racemes few, on common peduncle, in linear-lanceolate, hairy spathes; sessile spikelets 0.8 cm long (excluding awns); lower glume linear, 2-nerved, upper glume shorter than the lower, lanceolate; lemmas linear, narrow, glabrous.

Fls. & Frts. : October-December.

Illus. : Blatt. & McCann, Bombay Grass. t. 50. 1934; Jain, *l. c.* 172. fig. 9.

Distrib. : Occasional on damp rocks along the ghats; Sawantwadi-Ambolighat-top.

A. lanceolatus (Roxb.) Hochst. var. *meeboldii* (Stapf) Welzen in *Blumea* 27 : 295. 1981. *A. meeboldii* Stapf in *Kew Bull.* 1908 : 449. 1908; Cooke, *Fl. Pres. Bombay* 3 : 488. 1958 (Repr. ed.); Bor, *Grass. Burm. Ceyl. Ind. & Pak.* 101. 1960; Sant. *Fl. Khandala* ed. 3, 304. 1967; Jain in *J. Ind. Bot. Soc.* 51 : 177. 1972.

Procumbent-ascending annuals, 15-25 cm tall, culms slender, terete, nodes pubescent. Leaves 1.5-3.5×0.4-1.5 cm, ovate or ovate-lanceolate, sparsely hairy, base cordate. Racemes 2-4, 3-5 cm long; joints of rachis silky hairy; sessile spikelets 0.6-0.8 cm long, callus bearded; lower glume 2-keeled, narrowed, linear-lanceolate, 0.6-0.7 cm long, tubercled, tubercles gradually converted into spinules at apex, upper glume lanceolate, membranous, equal to lower glume; pedicelled spikelets lanceolate; glumes glabrous.

Fls. & Frts. : September-October.

Illus. : Blatt. & McCann, Bombay Grass. t. 47. 1934; Jain, *l. c.* 177. fig. 23.

Distrib. : Occasional in open areas along the ghats; Kankavli-Phondaghat.

A. lanceolatus (Roxb.) Hochst. var. *raizadae* (Jain, Hemadri et Deshpande) Welzen in *Blumea* 27 : 287. 1981. *A. raizadae* Jain, Hemadri et Deshpande in *J. Ind. Bot. Soc.* 51 : 103-106. 1972; Jain, *l. c.* 108.

Procumbent-ascending annuals, culms up to 35 cm tall, rooting at lower nodes. Leaves 1.2—3.0×0.6—1.2 cm, ovate to ovate-lanceolate, sparsely bulbous based hairy on both sides and along the margins, base amplexicaul to cordate. Racemes 2-4, sometimes solitary, up to 4 cm long; rachis joints densely hairy; sessile spikelets dorsally compressed; lower glume 0.5-0.65 cm long, densely woolly on back with silky shaggy hairs, keel prominently toothed in the upper half, upper glume keeled, shorter than the lower glume; pedicelled spikelets 0.45 cm long, dorsally compressed.

Fls. & Frts. : September-October.

Illus. : Jain et al. *l. c.* 172. figs. 6-9 & 177. fig. 21.

Distrib. : Scattered in open situations and along roadsides and ghats; Kankavli-Phondaghat. Sawantwadi-Amboli-Hiranyakeshi, Ambolighat-Nanapani.

A. lancifolius (Trin.) Hochst. in *Flora* 39 : 188. 1856; Bor, *Grass. Burm. Ceyl. Ind. & Pak.* 100. 1960; Sant. *Fl. Khandala* ed. 3, 304. 1967; Jain in *J. Ind. Bot. Soc.* 51 : 176. 1972; Welzen in *Blumea*, 27 : 288. 1981. *Andropogon lancifolius* Trin. in *Mem. Acad. Imp. Sci. St. Petersburg*, Ser. 6, 2 : 271. 1832. *Arthraxon microphyllus* Hochst. *l. c.*; Hook. f. *Fl. Brit. India* 7 : 147. 1896; Cooke, *Fl. Pres. Bombay* 3 : 488. 1958 (Repr. ed.). *A. prionodes* (Steud.) Dandy in *Andrews, Fl. Pl. Sudan* 3 : 399. 1956; Bor, *l. c.* 101; Jain, *l. c.* 179. *A. lancifolius* (Trin.) Hochst. var. *hindustanicus* Jain et Deshpande, *l. c.* 176.

Slender annuals, culms and branches filiform, 10-25 cm tall, culms sometimes rooting at nodes. Leaves 1-3 × 0.1-0.2 cm, linear-lanceolate, membranous, hairy. Racemes 2-4, subdigitate; rachis joints shorter than spikelets; spikelets in pairs; sessile spikelets 0.3-0.4 cm long, laterally compressed, lanceolate; lower glume 6-nerved, rounded on back, hispid; lower glume of pedicelled spikelets 0.25-0.30 cm long, shortly bifid at apex.

Fls. & Frts. : September-October.

Illus. : Blatt. & McCann. *Bombay Grass.* t. 48. 1934; Jain, *l. c.* 172. figs. 7 & 8.

Distrib. : Frequent in open situations from ghats to plains; Kankavli-Phonda-Bhairi Pathar, Phondaghat. Malwan-Sindhudurg. Sawantwadi-Amboli-Mahadeogad and Nangartas, Ambolighat-Nanapani, Kolgaon, Ramghat.

ARUNDINELLA Raddi

1. Upper lemma awnless or with very small awn	..	<i>A. leptochloa</i>
1. Upper lemma with geniculate awn :		
2. Spikelets 0.15-0.2 cm long	..	<i>A. pumila</i>
2. Spikelets more than 0.2 cm long :		
3. Pedicel shorter than lower glume; glumes scabrid on nerves	..	<i>A. nepalensis</i>
3. Pedicel equal to or longer than lower glume, glabrous	..	<i>A. metzlii</i>

Arundinella leptochloa (Nees ex Steud.) Hook. f. *Fl. Brit. India* 7 : 76. 1896; Bor, *Grass. Burm. Ceyl. Ind. & Pak.* 423. 1960. *Panicum leptochloa* Nees

ex Steud. Syn. Pl. Glum. 1 : 62. 1854. *Arundinella gigantea* Dalz. in Dalz. & Gibs. Bombay Fl. 293. 1861; Hook. f. *l. c.*; Cooke, Fl. Pres. Bombay 3 : 525. 1958 (Repr. ed.).

Perennials, culms slender, 40-80 cm tall, smooth. Leaves 8—30 × 2.2-3.5 cm, linear-lanceolate, hairy or glabrous. Panicles terminal, 10-15 cm long, dull purple, branches and axis of panicles scabrid; spikelets 0.22-0.37 cm long; lower glume ovate, 0.2 cm long, scaberulous on keel, upper glume 0.2-0.3 cm long, narrowly ovate, acuminate; lower lemma ovate, upper lemma elliptic, hyaline.

Fls. & Frts. : October-June.

Illus. : Blatt. & McCann, Bombay Grass. t. 130. 1934.

Distrib. : Frequent in open situations and on sandy river bed from ghats to plains; Kankavli-Kudal Road, Kudal-Bhadgaon, Kerude, Parwadwadi, Sawantwadi-Amboli R. F., Ambolighat-Nanapani, Padwe-Majgaon, Tirali.

A. metzii. Hochst. ex Miq. in Verh. Konink. Nederl. Inst. 3 (Pt. 4) : 31. 1851; Hook. f. Fl. Brit. India 7 : 72. 1896; Cooke, Fl. Pres. Bombay 3 : 523. 1958 (Repr. ed.); Bor. Grass. Burm. Ceyl. Ind. & Pak. 423. 1960; Sant. Fl. Khandala ed. 3, 305. 1967. *A. lawii* Hook. f. Fl. Trim. Handb. Fl. Ceyl. 5 : 180. 1900; Cooke, *l. c.* *A. pygmaea* Hook. f. *l. c.*; Cooke, *l. c.* 522.

Annuals or perennials, culms 10-45 cm tall, slender, tufted, nodes hairy. Leaves 8—16 × 0.4—0.4—0.8 cm, linear, glabrous or sparsely hairy. Panicles 3-10 cm long; rachis slender, branches fascicled, filiform; spikelets 0.3-0.4 cm long, ovoid-lanceolate; lower glume 0.2-0.25 cm long, ovate-lanceolate, strongly 3-nerved, hairy or glabrous, upper glume 0.3 cm long, 5-nerved, with a mucro.

Fls. & Frts. : October-November.

Distrib. : Frequent in open situations in fields from ghats to plains; Kankavli-Achre Road, Kudal Road, Nandgaon, Phonda-Bhairy Pathar, Phondaghat, Sawantwadi-Amboli R. F.

A. nepalensis Trin. Gram. Panic. 62. 1826; Bor. Grass. Burm. Ceyl. Ind. & Pak. 423. 1960; Sant. Fl. Khandala ed. 3, 304. 1967. *A. brasiliensis* Hook. f. Fl. Brit. India 7 : 73. 1896, (*non* Raddi, 1823); Cooke, Fl. Pres. Bombay 3 : 524. 1958 (Repr. ed.).

Perennials, 1.0-1.5 m tall, culms stout, with hard rootstock, nodes hairy or glabrous. Leaves 10-25 × 0.4—1.0 cm, linear-lanceolate, hairy. Panicles pyramidal, 10-15 cm long, effuse; rachis glabrous; spikelets 0.4-0.5 cm long, ovate-lanceolate, glabrous; lower glume 0.3 cm long, ovate, ribs scabrid,

upper glume 0.5 cm long, ovate-lanceolate; lower lemma obtuse, bifid at apex.

Fls. & Frts. : October-November.

Distrib. : Occasional in moist situations along river banks in plains; Kankavli-Nandgaon-Belachi Rai.

A. pumila (A. Rich.) Steud. Syn. Pl. Glum. 1 : 114. 1854. ; Bor, Grass. Burm. Ceyl. Ind. & Pak. 423. 1960; Sant. Fl. Khandala ed. 3, 304. 1967. *Acratherum pumilum* Hochst. ex A. Rich. Tech. Fl. Abyss. 2 : 414. t. 100. 1861. *Arundinella tenella* Nees ex Steud. l. c. 115; Hook. f. Fl. Brit. India 7 : 71. 1896; Cooke, Fl. Pres. Bombay 3 : 522. 1958 (Repr. ed.).

Delicate annuals, culms slender, 8-20 cm tall. Leaves 3-8 × 0.5-1.5 cm, linear-lanceolate, hairy, margins ciliate. Panicles 8-16 cm long, effuse, feathery; spikelets ovate, 0.15-0.18 cm long; lower glume ovate-lanceolate, membranous, nerved, upper glume with a few scattered hairs; lower lemma obtuse, upper lemma scabrid, awned.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass. t. 127. 1934.

Distrib. : Frequent in open, moist situations from ghats to plains; Kankavli-Phonda, Phondaghat.

BAMBUSA Schreb. (*nom. cons.*)

Bambusa arundinacea (Retz.) Roxb. Pl. Cor. t. 79. 1796. ; Hook. f. Fl. Brit. India 7 : 395. 1896; Cooke, Fl. Pres. Bombay 3 : 569. 1958 (Repr. ed.); Sant. Fl. Khandala ed. 3, 305. 1967. *Bambos arundinacea* Retz. Obs. Bot. 5 : 24. 1788.

Armed shrubs or trees, 10-15 m tall, with stout root stock, culms tufted, internodes hollow, 20-30 cm long, branches armed at nodes; culm-sheaths broad triangular, 20-30 cm long, scabrous brown inside. Leaves 10-15 × 2-3 cm, linear to linear-lanceolate, greyish-green. Inflorescence large, leafless compound panicles; spikelets in congested heads in spicate branchlets, 1.2-2.4 cm long, with 1-3 empty glumes and lemmas, oblong, usually mucronate; palea 2-keeled. Granins oblong.

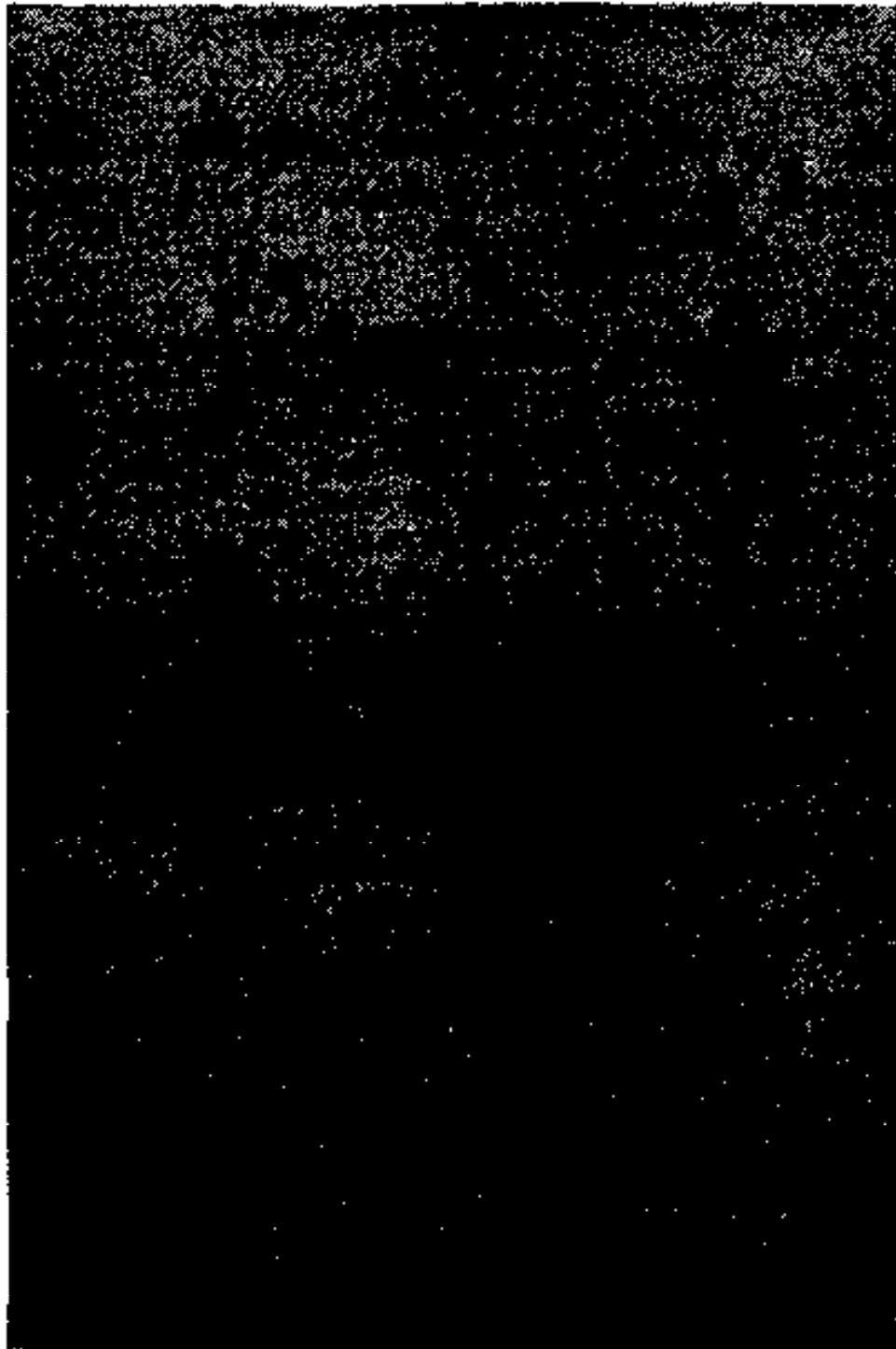
Fls. & Frts. : February-May.

Illus. : Bedd. Fl. Sylv. t. 321. 1873.

Distrib. : Infrequent in open scrub jungle in plains and planted; Sawantwadi-Akeri, Hewale, Khanale.

BHIDEA Stapf ex Bor

Bhidea burnsiiana Bor in Kew Bull. 1948 : 445, 1949 et Grass. Burm. Ceyl. Ind. & Pak. 103, 1960; Sant. Fl. Khandala ed. 3, 305, 1967.



Bhidea burnsiiana Bor

Tufted annuals, 8-15 cm tall, culms slender, nodes hairy. Leaves 3-6 cm long, narrowly linear-lanceolate, margins bulbous based hairy. Racemes 1-3,

2-3 cm long; sessile spikelets 0.5-0.8 cm long (excluding awns) with geniculate awns; lower glume 0.5-0.7 cm long, oblong-lanceolate, flat or depressed, winged in the upper half, wing obliquely ovate, upper glume 0.4-0.6 cm long, rounded, tip forked, with 2 long projections; pedicels hairy on one side; pedicelled spikelets ovate-lanceolate; lower glume 0.5-0.6 cm long, obliquely winged, upper glume linear, longer than lower one.

Fls. & Frts. : September-October.

Illus. : Bor, l. c. 104. fig. 2.

Distrib. : Scattered in plains on rocky areas; Malwan-Adari-Nandruk, Dhamapur.

BRACHIARIA Griesb.

Brachiaria ramosa (L.) Stapf in Prain, Fl. Trop. Afr. 9 : 542. 1919; Bor, Grass. Burm. Ceyl. Ind. & Pak. 284. 1960; Sant. Fl. Khandala ed. 3, 306. 1967. *Panicum ramosum* L. Mant. 1 : 29. 1767; Hook. f. Fl. Brit. India 7 : 36. 1896, p. p.; Cooke, Fl. Pres. Bombay 3 : 449. 1958 (Repr. ed.).

Decumbent-ascending annuals, culms rooting at basal nodes, nodes hairy. Leaves 3—5 × 0.4—0.6 cm, lanceolate, glabrous or finely pubescent, base cordate. Racemes 5 or more, 3-5 cm long; rachis scabrid; spikelets 0.3 cm long; lower glume ovate-rounded, glabrous, 5-nerved, upper glume 7-nerved, pubescent; upper lemma transversely rugose, apiculate.

Fls. & Frts. : August-September.

Illus. : Blatt. & McCann, Bombay Grass. t. 86. 1934.

Distrib. : Occasional in open, moist situations on gravel along river bank; Kankavli-Janoli river bank.

CAPILLIPEDIUM Stapf

1. Lower glumes of both the spikelets unequal .. *C. assimile*

1. Lower glumes of both the spikelets equal .. *C. filiculme*

Capillipedium assimile (Steud.) A. Camus in Lecomte, Fl. Gen. dei. Indo-Chine 7 : 314. 1922; Bor, Grass. Burm. Ceyl. Ind. & Pak. 110. 1960. *Andropogon assimilis* Steud. in Zoll. Syst. Verz. 58. 1854 et Syn. Pl. Glum. 1 : 397. 1854; Hook. f. Fl. Brit. India 7 : 179. 1896, p. p.; Cooke, Fl. Pres. Bombay 3 : 501. 1958 (Repr. ed.).

Perennials, 30-50 cm tall, culms branched from base, rooting at basal nodes, nodes bearded. Leaves 4-8 × 0.3-0.5 cm, linear-lanceolate, glabrous,

apex finely acuminate. Racemes 0.5-1.2 cm long, glabrous, in lax panicles; spikelets 0.2-0.3 cm long, pale green, distant, callus bearded; sessile spikelets with lower glumes lanceolate, intra-carinal 3-nerved, upper glumes also 3-nerved; pedicelled spikelets with male florets, barren.

Fls. & Frts. : September-October.

Illus. : Blatt. & McCann, Bombay Grass. t. 31. 1934.

Distrib. : Occasional in open situations and along roadsides in plains; Kankavli-Achre Road.

C. filiculme (Hook. f.) Stapf in Hook. Icon. Pl. sub-tab. 3085. 1922; Bor, Grass. Burm. Ceyl. Ind. & Pak. 111. 1960; Sant, Fl. Khandala ed. 3, 306. 1967. *Andropogon filiculmis* Hook. f. Fl. Brit. India 7 : 181. 1896; Cooke, Fl. Pres. Bombay 3 : 502. 1958 (Repr. ed.).

Slender, decumbent-ascending perennials, 35-40 cm tall, culms weak, branched, nodes bearded. Leaves 3-6 × 0.25-0.35 cm, linear-lanceolate, glabrous above, hairy beneath, apex finely acuminate. Panicles 3-4 cm long, branches filiform; sessile spikelets 0.3 cm long, oblong-lanceolate, callus densely villous; lower glume villous below the middle, 5-7 nerved, upper glume glabrous, 3-nerved; pedicelled spikelets equal to sessile spikelets, narrow.

Fls. & Frts. : September-October.

Distrib. : Occasional in open situations and along hedges in plains; Kankavli-Humbrat Road, Phonda-Bhairy Pathar.

CENTOTHECA Desv.

Centotheca latifolia (Osb.) Trin. Fund. Agrost. 141. 1820; de Froidville in Blumea 19 : 59. 1971. *Holcus latifolius* Osb. Dagb. Ostind. Resa. 247. 1757. *Centotheca lappacea* (L.) Desv. in Nour. Bull. Sci. Soc. Philom. Paris 2 : 189. 1810; Hook. f. Fl. Brit. India 7 : 332. 1896; Cooke, Fl. Pres. Bombay 3 : 566. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 457. 1960.

Perennials, 40-100 cm tall, culms tufted, stout, erect. Leaves 8-16 × 2.5-3.0 cm, lanceolate to ovate, base unequal sided. Panicles 8-10 cm long; spikelets 0.4-0.6 cm long, oblong-ovate, 1-many flowered; lower and upper glumes unequal, membranous, 3-5 nerved, shorter than lemmas; lemmas oblong, obtuse, or emarginate, with mucro, 5-7 nerved, bulbous based hairy or sometimes glabrous.

Fls. & Frts. : September-October.

Illus. : Bor, *l.c.* 457. fig. 50.

Distrib. : Occasional in shady places along road sides in plains; Malwan-Dhamapur.

CHLORIS Swartz

Chloris montana Roxb. Fl. Ind. 1 : 331. 1820; Hook. f. Fl. Brit. India 7 : 292. 1896; Bor, Grass. Burm. Ceyl. Ind. & Pak. 466. 1960.

Erect or ascending annuals, culms 25-30 cm tall, rooting at basal nodes, hairy for a short distance below the spikes. Leaves 3-8 × 0.1-0.5 cm, lanceolate, glabrous. Spikes 3-5 cm long; rachis glabrous; lower and upper glumes herbaceous, glabrous; barren lemmas-3, fertile lemmas obovate to oblanceolate, slightly hairy along sides, 0.2-0.6 cm long, bifid at apex, all the lemmas awned.

Fls. & Frts. : September-October.

Distrib. : Occasional in moist, open places in the fort; Malwan-Sindhudurg fort.

CHRYSOPOGON Trin.

1. Pedicels less than half as long as spikelets	..	<i>C. fulvus</i>
1. Pedicels half as long as the spikelets or longer :		
2. Pedicels glabrous	..	<i>C. aciculatus</i>
2. Pedicels rufous hairy	..	<i>C. orientalis</i>

Chrysopogon aciculatus (Retz.) Trin. Fund. Agrost. 188. 1820; Bor, Grass. Burm. Ceyl. Ind. & Pak. 115. 1960. *Andropogon aciculatus* Retz. Obs. Bot. 5 : 22. 1789; Hook. f. Fl. Brit. India 7 : 188. 1896; Cooke, Fl. Pres. Bombay 3 : 504. 1958 (Repr. ed.).

Perennials, with creeping, woody rhizomes, culms erect or decumbent-ascending, 20-40 cm tall, nodes glabrous. Leaves mostly basal, 3-8 × 0.3-0.5 cm, linear, glabrous, apex obtuse or acute. Panicles erect, purplish, 8-12 cm long, with 4-5, 2 cm long racemes; sessile spikelets 0.3-0.35 cm long, callus brownish hairy; lower glume bidentate, 0.3-0.33 cm long, 3-nerved, upper glumes aristate, ciliate.

Fls. & Frts. : August-June.

Distrib. : Frequent in open areas, along field edges and roadsides in plains; Kankavli-Osargaon. Malwan-Dhamapur. Sawantwadi-Akeri-Mangaon forest, Danoli.

C. fulvus (Spreng.) Chiov. Fl. Somal. 1 : 327. 1929; Bor, Grass. Burm. Ceyl. Ind. & Pak. 116. 1960; Sant. Fl. Khandala ed. 3, 307. 1967. *Pollinia fulva* Spreng. Pugill. 2 : 10. 1825. *Andropogon monticola* Schult. ex Roem. & Schult. Syst. Veg. 2, Mant. Pl. 665. 1827; Hook. f. Fl. Brit. India 7 : 192. 1896; Cooke, Fl. Pres. Bombay 3 : 505. 1958 (Repr. ed.).

Tufted perennials, 25-40 cm tall, culms slender, nodes glabrous. Leaves 4-12 × 0.3-0.6 cm linear, rigid, glaucous, hairy towards base, apex acute. Panicles 5-8 cm long; rachis slender, smooth, whorled; sessile spikelets 0.4-0.6 cm long; lower glume linear, forked at apex, upper glume keeled, with arista rufous hairy in the lower 2/3 portion; pedicelled spikelets equal to sessile spikelets; lower glume with aristae.

Fls. & Frts. : September-October.

Illus. : Blatt. & McCann, Bombay Grass. 1. 42. 1934.

Distrib. : Occasional in open places along the ghats; Sawantwadi-Ramghat.

C. orientalis (Desv.) A. Camus in Lecomte, Fl. Gen. de l'Indo-Chine 7 : 332. 1922; Bor, Grass. Burm. Ceyl. Ind. & Pak. 118. 1960. *Rhaphis orientalis* Desv. Opusc. 69. 1831. *Andropogon wightianus* Nees ex Steud. Syn. Pl. Glum. 1 : 395. 1854; Hook. f. Fl. Brit. India 7 : 191. 1896.

Slender, conspicuous perennials, culms 35-45 cm tall, internodes 8-10 cm long, nodes glabrous. Leaves mostly collected at base, 5-10 × 0.2-0.6 cm, linear, pubescent, apex abruptly acute. Panicles 8-16 cm long, branches ascending; spikelets loosely arranged; sessile spikelets 0.6-0.7 cm long, awns 5-6 cm long; lower glume hispid at apex, upper glume awned; pedicelled spikelets hairy. 1.3 cm long; lower and upper glumes awned.

Fls. & Frts. : September-October.

Distrib. : Scattered in open, moist situations from ghats to plains; Kankavli-Phonda. Sawantwadi-Ambiol-Ramghat Road.

COELACHNE R. Br.

1. Glumes glabrous; callus of upper florets present	..	<i>C. simplilaseula</i>
1. Glumes pubescent; callus of upper florets absent	..	<i>C. minuta</i>

Coelachne minuta Bor in J. Bombay nat Hist. Soc. 58 : 317. 1961; Ved Prakash & Kulkarni in Bull. Bot. Surv. India 21 (1-4) : 221. 1979 (1981). *C. ghatica* Naik in Reinwardtia 9 : 393. 1980 (*synon. nov.*).

Perennials, with long, creeping stems, rooting at nodes, 5-10 cm long, nodes hairy. Leaves 0.6-3.0 × 0.25-0.4 cm, lanceolate, hirsute on nerves above, glabrescent beneath, apex acute. Panicles effuse, 3-5 cm long; spikelets globose, 0.1-0.13 cm long, on slender, 0.15-0.2 cm long pedicels; lower glume broadly ovate, upper glume ovate-oblong; lower lemma longer than upper lemma.

Fls. & Frts. : August-October.

Illus. : Naik, *l.c.* 394, fig. 1.

Distrib. : Occasional in muddy, open situations along the ghats; Sawantwadi-Amboli-Ramghat Road.

C. simpliciuscula (Steud.) Munro ex Benth. in J. Linn. Soc. Bot. 19 : 93. 1881; Bor, Grass. Burm. Ceyl. Ind. & Pak. 576. 1960. *Panicum simpliciuscum* Wight & Arn. ex Steud. Syn. Pl. Glum. 1 : 96. 1854. *Coelachne pulchella* R. Br. var. *simpliciuscula* (Steud.) Hook. f. Fl. Brit. India 7 : 270. 1896.

Delicate, erect or decumbent-ascending annuals or perennials, 15-20 cm long. Leaves 1.0-3.0 × 0.1-0.3 cm, linear-lanceolate, scabrid on nerves above, apex acute. Panicles interrupted, spiciform, 2-5 cm long; spikelets ovate, 0.15-0.2 cm long; lower and upper glumes 0.05-cm or less long, suborbicular, persistent, membranous, subequal; lower lemma 0.2 cm and upper lemma 0.18 cm long, slightly puberulous or glabrous, longer than glumes.

Fls. & Frts. : October-April.

Illus. : Bor, *l.c.* 575, fig. 61 A.

Distrib. : Infrequent along streams and in muddy areas on ghats; Sawantwadi-Amboli-Nangartas.

COIX L.

Coix lacryma-jobi L. Sp. Pl. 972. 1753; Hook. f. Fl. Brit. India 7 : 100. 1896; Cooke, Fl. Pres. Bombay 3 : 517. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 254. 1960; Sant. Fl. Khandala ed. 3, 307. 1967.

Aquatic, robust annuals or perennials, culms 1.0-1.5 m tall, rooting at base, nodes glabrous. Leaves 8-20 × 2-5 cm, lanceolate, glabrous, apex acuminate. Racemes spiciform; spikelets basal female in a hard, polished

utricle-like bract; male spikelets terminal; lower glume lanceolate-elliptic, keeled, upper glume lanceolate; lower lemma scarious.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass. t. 1. 1934.

Distrib. : Frequent in moist, sandy areas along streams in plains; Kankavli-Achre Road, Humbrat, Phondaghat. Sawantwadi-Akeri, Bhedshi Road.

CYRTOCOCCUM Stapf

1. Spikelets hispidulous; branches of panicles glabrous .. *C. trigonum*

1. Spikelets glabrous; branches of panicles pilose .. *C. oxyphyllum*

Cyrtococcum oxyphyllum (Steud.) Stapf in Hook. Icon. Pl. 3096. 1922; Bor, Grass. Burm. Ceyl. Ind. & Pak. 291. 1960. *Panicum oxyphyllum* Steud. Syn. Pl. Glum. 1 : 65. 1854.

Perennials, 30-50 cm long, culms geniculately ascending, rooting at nodes. Leaves 5-10 × 0.6-1.5 cm, lanceolate, glabrous above, puberulous beneath, apex acute. Panicles contracted, 4-7 cm long, branches remote; spikelets 0.15 cm long, ovate, shortly pedicelled; lower glume about 1/2 the length of lower lemma, obtuse; lower lemma 5-nerved, ovate; upper lemma slightly shorter than the lower one.

Fls. & Frts. : September-October.

Illus. : Blatt. & McCann, Bombay Grass. t. 110. 1934.

Distrib. : Scattered in shady, moist places from ghats to plains; Kankavli-Phondaghat. Sawantwadi-Ambolighat-top, jungle on Vengurla Road.

C. trigonum (Retz.) A. Camus in Bull. Mus. Hist. Nat. Paris 27 : 118. 1921; Bor, Grass. Burm. Ceyl. Ind. & Pak. 292. 1960. *Panicum trigonum* Retz. Obs. Bot. 3 : 9. 1783; Hook. f. Fl. Brit. India 7 : 56. 1896.

Perennials, trailing, culms decumbent, branching, interlaced below, branches erect. Leaves 2.5-5.0 cm long, linear-lanceolate, glabrous. Panicles 2.5-4.0 cm long, contracted; spikelets 0.15 cm long, elliptic, shortly pedicelled, glumes and lemmas dissimilar; lower glume 1/2 the length of lemmas, 3-nerved, pale brown so also upper one; lower lemma 5-nerved, pale brown, upper one naked or bearded at tip.

Fls. & Frts. : August-November.

Distrib. : Sawantwadi-Ramghat, Talkat forest nursery near Banda

DACTYLOCTENIUM Willd.

Dactyloctenium aegyptium (L.) P. Beauv. Ess. Agrost. 15. 1812; Bor, Grass. Burm. Ceyl. Ind. & Pak. 489. 1960; Sant. Fl. Khandala ed. 3, 308. 1967. *Cynosurus aegyptius* L. Sp. Pl. 72. 1753. *Eleusine aegyptiaca* (L.) Desf. Fl. Atlant. 1 : 85. 1798; Hook. f. Fl. Brit. India 7 : 295. 1896; Cooke, Fl. Pres. Bombay 3 : 560. 1958 (Repr. ed.).

Annuals, culms creeping, rooting below, ascending upwards, nodes glabrous. Leaves 3-6 × 0.3-0.4 cm, linear, glabrous or scabrid, margins scabrid. Spikes 2-6, in digitate umbels, 1.5-2.5 cm long; rachis flat; spikelets accrescent upwards, 2-3 flowered, 0.2-0.25 cm long; lower glume acute, keel winged, upper glume awned; lemmas 7-nerved, mucronate.

Fls. & Frts. : November-February.

Illus. : Blatt. & McCann, Bombay Grass. t. 176. 1934; Bor, *l.c.* 490. fig. 54.

Distrib. : Infrequent in moist places, in fields and on open hill-tops in plains; Sawantwadi-Bhedshi, Danoli.

DANTHONIDIUM Hubb.

Danthonidium gammiel (Bhide) Hubb. in Hook. Icon. P sub-tab. 3331. 1937; Bor, Grass. Burm. Ceyl. Ind. & Pak. 479. 1960. *Danthonia gammiel* Bhide in J. Proc. As. Soc. Bengal, n. s. 7 : 513. 51. t. 6. 1912.

Tufted annuals, 10-30 cm tall, culms furrowed, nodes glabrous. Leaves 4-8 × 0.3-0.4 cm, linear, glabrous. Racemes terminal, solitary; spikelets 3.0-3.5 cm long, awned; lower glume 1.6-2.0 cm long, awned, glabrous, 3-5 nerved, upper glume 1.3-1.5 cm long, awned, 3-nerved; lower lemma 0.3 cm long, oblong, 3-awned, central one longer than the two on either side, line of hairs below the awn.

Fls. & Frts. : September-October.

Illus. : Bor, *l.c.* 480. fig. 53.

Distrib. : Rare on rocky plains in muddy area along the ghat; Sawantwadi-Amboli-Nangartas. (Kulkarni. 121566).

DENDROCALAMUS Nees

Dendrocalamus strictus (Roxb.) Nees in Linnaea 9 : 476. 1834; Hook. f. Fl. Brit. India 7 : 404. 1896; Cooke, Fl. Pres. Bombay 3 : 572. 1958 (Repr. ed.). *Bambusa stricta* Roxb. Pl. Cor. 1 : 58. t. 80. 1798.

Densely tufted, unarmed trees, culms erect, branching from root stock, culm-sheaths triangular. Leaves $2.5-5.0 \times 1.5-3.0$ cm, linear-lanceolate, hairy, pellucid-glandular, apex acute. Inflorescence compound panicles; spikelets ovate, spinulose, 1.0-1.5 cm long; basal 2-3 glumes empty, many nerved, hairy at tip, ovate; lemmas keeled, emarginate or truncate at tip; stamens-6.

Fls. & Frts. : October-February.

Distrib. : Frequent in open situations along lower slopes of the ghats and in hilly areas in plains; Kankavli-Phonda-Mahtardeo Rai. Kudal-Ghotge, Nerur. Malwan-Achre. Sawantwadi-Ramghat.

DICHANTHIUM Will.

1. Nodes of stems bearded; pedicels of pedicelled spikelets equal to or slightly longer than half the length of sessile spikelets .. *D. annulatum*
1. Nodes of stems glabrous; pedicels of pedicelled spikelets less than half the length of sessile spikelets .. *D. caricosum*

Dichanthium annulatum (Forssk.) Stapf in Prain, Fl. Trop. Afr. 9 : 178. 1917; Bor, Grass. Burm. Ceyl. Ind. & Pak. 133. 1960; Sant. Fl. Khandala ed. 3, 308. 1967. *Andropogon annulatus* Forssk. Fl. Aegypt.-Arab. 173. 1775; Hook. f. Fl. Brit. India 7 : 196. 1896; Cooke, Fl. Pres. Bombay 3 : 508. 1958 (Repr. ed.).

Perennials, erect or decumbent-ascending, culms 20-50 cm tall, tufted, nodes sometimes purple tinged. Leaves $4-16 \times 0.3-0.5$ cm, linear, glabrous or hirsute with bulbous based hairs on upper surface. Racemes 2-4, 5-7 cm long; sessile spikelets 0.3-0.4 cm long, oblong; lower glume 2-keeled, tubercled hairy on keels in upper half, 5-nerved, upper glume 3-nerved; lower lemma empty.

Fls. & Frts. : February-March.

Illus. : Blatt. & McCann, Bombay Grass. t. 62. 1934.

Distrib. : Occasional in open areas, along road sides in plains; Malwan-Kolamb on way to Kalawli creek.

D. caricosum (L.) A. Camus in Bull. Mus. Hist. Nat. Paris 27 : 549. 1921; Bor, Grass. Burm. Ceyl. Ind. & Pak. 134. 1960. *Andropogon caricosus* L. Sp. Pl. ed. 2, 1480. 1763; Hook. f. Fl. Brit. India 7 : 196. 1896; Cooke, Fl. Pres. Bombay 3 : 507. 1958 (Repr. ed.).

20-30 cm tall, annual herbs, culms erect, from geniculate base, slender, tufted. Leaves $5-10 \times 0.2-0.4$ cm, linear, glabrous, margins scabrous. Racemes

2-4, 3-7 cm long; sessile spikelets 0.4-cm long, obovate; lower glume 0.3 cm long, 7-9 -nerved, rounded or truncate and ciliate at apex, upper glume longer than the lower one, 0.4 cm long, with acute apex; lower lemma equal to lower glume.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass. t. 61. 1934.

Distrib. : Occasional along road sides, in open places in plains; Kankavli-Kudal Road.

DIGITARIA Heist. ex Fabric.

1. Rachis trigonous, filiform; hairs on spikelets clavate-tipped :

2. Tips of pedicels glabrous .. *D. abludens*

2. Tips of pedicels hairy .. *D. stricta*

1. Rachis flat; hairs on spikelets not clavate-tipped .. *D. ciliaris*

Digitaria abludens (Roem. & Schult.) Veldk. in Blumea 21 : 53. 1973. *Panicum abludens* Roem. & Schult. Syst. Veg. 2 : 457. 1817. *Paspalum pedicellare* Trin. (ex Steud. Nom. Bot. ed. 2, 2 : 272. 1841. nom.) ex Hook. f. Fl. Brit. India 7 : 19. 1896. *Digitaria pedicellaris* (Hook. f.) Prain, Bengal Pl. 1182. 1903; Cooke, Fl. Pres. Bombay 3 : 458. 1958 (Repr. ed.). *D. granulalis* (Trin. ex Spreng.) Henr. Mon. Gen. *Digitaria* 302. 1950; Bor, Grass. Burm. Ceyl. Ind. & Pak. 301. 1970.

Tufted annuals, culms 20-30 cm tall, slender. Leaves 3—6 × 0.2—0.4 cm, linear-lanceolate, glabrous or hairy above. Racemes subdigitate, 3-6 (up to 10), 3-5 cm long (up to 8 cm); spikelets unequally pedicelled, elliptic-oblong, 0.15 cm long; lower glume absent, upper glume 5-nerved, hairy, thinly membranous; lemmas elliptic, dark brown, shining.

Fls. & Frts. : August-October.

Illus. : Blatt. & McCann, Bombay Grass. t. 80. 1934; Veldk. l. c. 54. fig. 11. d.

Distrib. : Occasional in open, moist situations in plains; Deogad-Naringre.

D. ciliaris (Retz.) Koeler, Descr. Gram. Gallia et Germania 27. 1802; Veldk. in Blumea 21 : 32. 1973. *Panicum ciliare* Retz. Obs. Bot. 4 : 16. 1786. *Paspalum sanguinale* Lamk. var. *ciliare* (Retz.) Hook. f. Fl. Brit. India 7 : 15. 1896, p. p. *Digitaria sanguinalis* Scop. var. *ciliaris* (Retz.) Prain, Bengal Pl.

1181. 1903; Cooke, Fl. Pres. Bombay 3 : 457. 1958 (Repr. ed.). *D. adscendens* (H. B. & K.) Henr. in Blumea 1 : 92. 1934; Bor, Grass. Burm. Ceyl. Ind. & Pak. 298. 1960.

Slender annuals, culms 40-100 cm tall, decumbent-ascending. Leaves 4—10 × 0.5—0.8 cm, linear-lanceolate, appressedly hairy, margins scabrous. Racemes 2-6 (sometimes more), 5-8 cm long; spikelets 0.25-0.30 cm long, oblong-elliptic or ovate-elliptic; lower glume very small or sometimes absent; upper glume 1/2 as long as lemmas lemmas appressed and long hairy between the nerves, membranous. Grains whitish.

Fls. & Frts. : August-February.

Illus. : Blatt. & McCann, Bombay Grass. t. 78. 1934; Veldk. l. c. 35. fig. 5. a.

Distrib. : Frequent in open, moist areas in plains; Kankavli-Osargaon Road. Malwan-Sindhudurgfort. Sawantwadi-Satarda, Tirali.

D. stricta Roth ex Roem. & Schult. Syst. Veg. 2 : 474. 1817; Bor, Grass. Burm. Ceyl. Ind. & Pak. 305. 1960; Sant. Fl. Khandala ed. 3, 309. 1967. *Paspalum royleanum* Thw. Enum. Pl. Zeyl. 358. 1864; Hook. f. Fl. Brit. India 7 : 18. 1896. *Digitaria royleana* (Thw.) Prain, Bengal. Pl. 1181. 1903; Cooke, Fl. Pres. Bombay 3 : 459. 1958 (Repr. ed.).

Erect annuals, 10-25 cm tall, culms tufted, slender, nodes glabrous. Leaves 2—5 × 0.3—0.4 cm, linear-lanceolate, glabrous or sparsely scabrid. Racemes 2-3, subdigitate, 3-5 cm long; spikelets elliptic, 0.15 cm long; lower glume absent; upper glume obtuse, hairy, much smaller than lemmas; lower lemma hairy, upper one dark brown or purple.

Fls. & Frts. : August-February.

Illus. : Blatt. & McCann, Bombay Grass. t. 82. 1934.

Distrib. : Frequent in open, moist places in plains; Kankavli-Phonda-ghat. Malwan-Nandos. Sawantwadi-Bhedshi. Vengurla-Vagiri forest.

DIMERIA R. Br.

1. Spikelets 0.8-1.2 cm long	..	<i>D. blatterii</i>
1. Spikelets less than 0.8 cm long :		
2. Racemes solitary	..	<i>D. santapauil</i>
2. Racemes more than 1 (rarely solitary) :		

- 3. Rachis circinate twisting at maturity .. *D. woodrowii*
- 3. Rachis not circinate twisting at maturity :
 - 4. Spikelets 0.5-0.7 cm long :
 - 5. Upper glume with corky wing on back .. *D. stapfiana*
 - 5. Upper glume without corky wing .. *D. gracilis*
 - 4. Spikelets less than 0.4 cm long :
 - 6. Spikelets parallel to rachis, pedicellate .. *D. hohenackeri*
 - 6. Spikelets not parallel to rachis, sessile or subsessile : *D. ornithopoda*

Dimeria blatteri Bor in Kew Bull. 1949 : 70. 1949 et Grass. Burm. Ceyl. Ind. & Pak. 140. 1960.

Annuals, 35—80 cm tall, culms slender, tufted, nodes bearded. Leaves 3—5 × 0.15—0.25 cm, linear or linear-lanceolate, hairy on both sides, bulbous-based hairy along the margins, apex finely acute. Racemes 2—4, 4—6 cm long; spikelets pedicelled, laterally compressed; lower glume elliptic-oblong, hairy all along keel, long hairs at tip, margins hyaline, upper glume 0.6-0.9 cm long, linear-oblong, hairy along keel.

Fls. & Frts. : October-November.

Illus. : Bor, l. c. 143. fig. 4 : 18.

Distrib. : Occasional in open situations along higher slopes of the ghats; Sawantwadi-Ramghat.

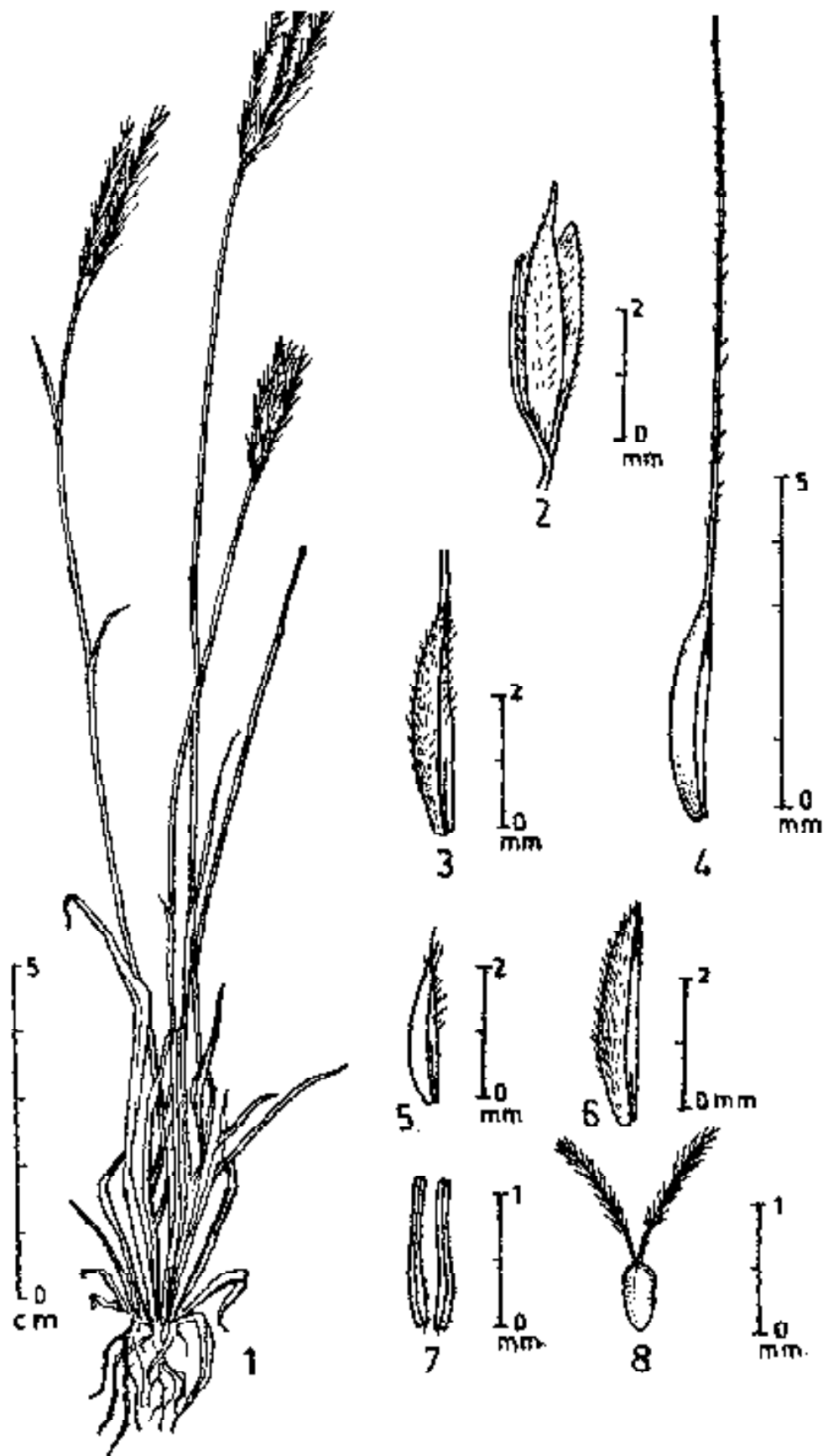
D. gracilis Nees ex Steud. Syn. Pl. Glum. 1 : 413. 1855; Hook. f. Fl. Brit. India 7 : 105. 1896; Cooke, Fl. Pres. Bombay 3 : 463. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 140. 1960.

Perennials, 25-100 cm tall, culms tufted, nodes bearded. Leaves 6—12 × 0.2—0.5 cm, linear-lanceolate, glabrous or hairy on both sides, especially on nerves, margins bulbous-based hairy. Racemes 2-many, 4-10 cm long, rachis filiform; spikelets 0.4-0.5 cm long, pedicelled, laterally compressed; lower glume linear-oblong, appressed or silky hairy, few long hairs at tip, keeled, upper glume narrowly linear-oblong, 0.3-0.4 cm long, appressed or silky hairy, few long hairs at tip, keeled.

Fls. & Frts. : September-November.

Illus. : Bor, l. c. 141. fig. 3:4.

Distrib. : Frequent in open situations from ghats to plains; Kan-kavli-Nandgaon. Malwan-Adari-Nandruk. Sawantwadi-Akeri, Amboli R. F. and Hiranyakeshi, Ramghat.



Dimeria hohenackeri Hochst. ex Miq.

1. whole plant; 2. spikelet; 3. upper glume; 4. upper lemma 5. lower lemma; 6. lower glume; 7. stamens; 8. ovary with style and stigma.

D. hohenzackeri Hochst. ex Miq. in Verh. Nederl. Inst. 3 : 35. 1851; Hook. f. Fl. Brit. India 7 : 103. 1896; Bor, Grass. Burm. Ceyl. Ind. & Pak. 142. 1960.

Tufted annuals, 10-50 cm tall, culms slender, nodes hairy. Leaves 2—6 × 0.1—0.3 cm, linear to linear-lanceolate, sparsely hairy or mostly glabrous, margins bulbous-based hairy. Racemes 2-6, 4-8 cm long; spikelets 0.3-0.4 cm long, laterally compressed; lower glume narrowly linear-oblong, hairy, not or slightly keeled, long hairy in upper half, upper glume equal or slightly shorter than the lower one, hairy, rounded on back.

Fls. & Frts. : October-February.

Illus. : Bor, *l. c.* 143. fig. 4 : 23.

Distrib. : Scattered in open areas in grassy patches along slopes of the ghats to plains; Kankavli-Phonda-Bhairi pathar. Sawantwadi-Tirali.

D. ornithopoda Trin. Fund. Agrost. 167. t. 14. 1820; Hook. f. Fl. Brit. India 7 : 104. 1896; Cooke, Fl. Pres. Bombay 3 : 462. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 142. 1960.

Leafy annuals, 15-30 cm tall, culms slender, tufted, nodes hairy. Leaves 2—5 × 0.15—0.2 cm, linear to linear-lanceolate, hairy on both sides. Racemes 2-3, 2-4 cm long; spikelets 0.18-0.2 cm long; lower glume linear, hairy, few long hairs at tip, upper glume linear, equal to or slightly longer than the lower one, hairy, keeled narrowly.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass. t. 4. 1934; Bor, *l. c.* 141. fig. 3 : 8.

Distrib. : Infrequent in open areas from lower slopes of the ghats to plains; Kankavli-Kudal Road, Phonda, Phondaghat.

D. santapanii Almeida in J. Bombay nat. Hist. Soc. 66 : 510. 1970.

Annuals, 15-20 cm tall, culms tufted, nodes hairy. Leaves 3—6 × 0.1—0.15 cm, linear, glabrous. Racemes 3-5 cm long; spikelets 0.5-0.6 cm long, dark brown; lower glume linear, rounded on back and rough, tip pointed with a few long hairs, rest glabrous, upper glume 0.4 cm long or more, rounded on back and rough, tip pointed.

Fls. & Frts. : September-October.

Illus. : Almeida, *l. c.* 511.

Distrib. : Occasional on rocky plain along coastal hilly areas; Malwan-Adari.

D. stapfiana Hubb. ex Pilg. in Engl. & Prantl, *Pflanzenfam.* 14 C : 109. 1940; Bor, Grass. Burm. Ceyl. Ind. & Pak. 144. 1960. *D. diandra* (Stapf) Stapf ex Bhide in J. Proc. As. Soc. Bengal, n. s. 7 : 516. 1911 (non Griff. 1851).

Annuals, tufted, 25-50 cm tall, culms slender, nodes bearded. Leaves 4-10 × 0.2-0.25 cm, linear, hairy on both sides, margins bulbous-based hairy. Racemes 2-4, 4-6 cm long; spikelets 0.5-0.8 cm long, laterally compressed, pedicellate; lower glume linear-oblong, 0.6-0.8 cm long, margins ciliate, rounded on back, few long hairs at tip, narrow, linear, upper glume 0.5-0.6 cm long, with ciliate keel, hairy, shorter than the lower one.

Fls. & Frts. : October-February.

Illus. : Bor, *l. c.* 143. fig. 4 : 13.

Distrib. : Frequent in open situations on red gravel in plains; Kankavli-Nandgaon, Phonda. Kudal-Nileli. Malwan-Achre. Sawantwadi-Amboli, Bhedshi Road from Sawantwadi.

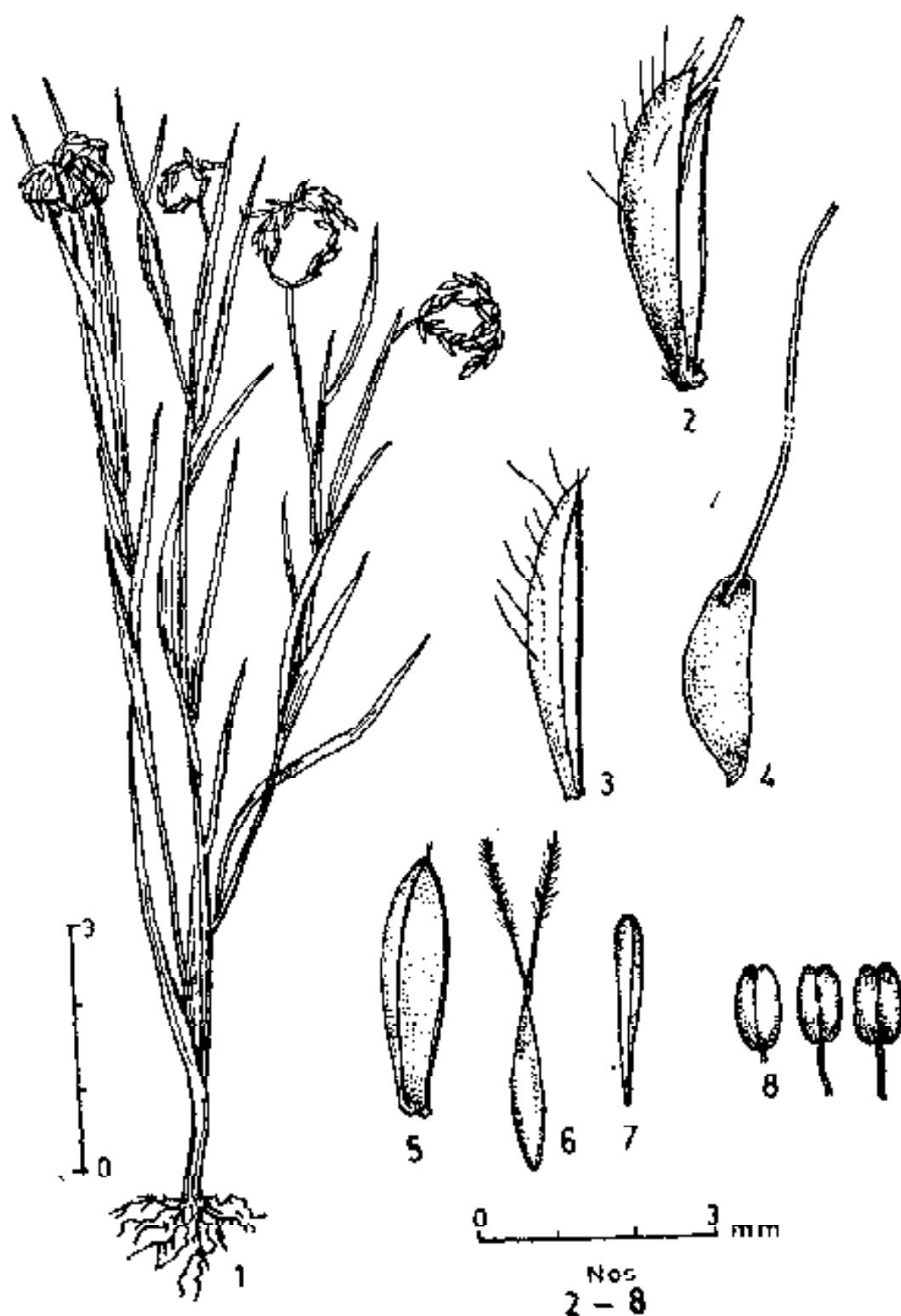
D. woodrowii Stapf in Hook. Icon. Pl. sub-tab. 2312. 1894; Hook. f. Fl. Brit. India 7 : 104. 1896; Cooke, Fl. Pres. Bombay 3 : 462. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 144. 1960.

Small annuals, 8-12 cm tall, culms slender, tufted, nodes hairy. Leaves 3-6 × 0.1-0.15 cm, linear, glabrous, margins bulbous-based hairy. Racemes 2, 2.0-2.5 cm long; spikelets 0.3-0.4 cm long, distant, pedicellate, laterally compressed, imperfectly awned; lower glume linear, glabrous or sparsely hairy, upper glume narrow and equal or slightly shorter than the lower one, deciduous hairy, glabrous at length.

Fls. & Frts. : September-February.

Illus. : Blatt. & McCann, Bombay Grass. t. 5. 1934; Bor, *l. c.* 143. fig. 4 : 22.

Distrib. : Frequent on rocky plains along coastal hilly areas; Deogad-Rest House campus. Malwan-Achre-Kaziwada-sada, Adari-Nandruk.



Dimeria woodrowii Stapf

1. whole plant; 2. spikelet; 3. upper glume; 4. upper lemma;
5. lower glume; 6. ovary with style and stigma; 7. lower lemma;
8. stamens.

ECHINOCHLOA P. Beauv.

1. Spikes thickened; lower lemma cuspidate .. *E. frumentacea*
 1. Spikes not thickened; lower lemma not cuspidate .. *E. colonum*

Echinochloa colonum (L.) Link, Hort. Berol. 2 : 209. 1833; Bor, Grass. Burm. Ceyl. Ind. & Pak. 308. 1960; Sant. Fl. Khandala ed. 3, 309. 1967. *Panicum colonum* L. Syst. Nat. ed. 10, 870. 1759; Hook. f. Fl. Brit. India 7 : 32. 1896; Cooke, Fl. Pres. Bombay 3 : 447. 1958 (Repr. ed.).

Decumbent-ascending annuals, culms 30-100 cm tall, rooting at base, nodes glabrous. Leaves 5-15 × 0.45—0.8 cm, linear-lanceolate, glabrous, margins minutely scaberullate. Racemes spiciform, distant, 5-10, 1.5-2.0 cm long; spikelets 0.3-0.35 cm long, ovoid; lower glume 1/2 as long as lower lemma, broadly ovate, upper glume broadly ovate, cuspidate, hairy; lower lemma ovate, hairy, upper lemma glabrous, polished.

Fls. & Frts. : August-February.

Illus. : Blatt. & McCann, Bombay Grass. t. 94. 1934; Bor, l. c. 309. fig. 34.

Distrib. : Frequent in moist, open situations, in fields and water logged areas in plains; Kankavli-Ghonsari, Osargaon, Phonda-Bhairi Pathar. Sawantwadi-Akeri-Mangaon, Bhedshi, Satarda. Vengurla-Vagiri forest.

E. frumentacea Link, Hort. Berol. 1 : 204. 1827; Bor, Grass. Burm. Ceyl. Ind. & Pak. 311. 1960. *Panicum stagninum* (Retz.) P. Beauv. var. *frumentacea* Trim. Cat. Ceyl. Pl. 104. 1885; Hook. f. Fl. Brit. India 7 : 31. 1896; Cooke, Fl. Pres. Bombay 3 : 447. 1958 (Repr. ed.).

Robust annuals, 30-150 cm tall, culms tufted, nodes glabrous. Leaves 6—15 × 0.6—1.0 cm, linear-lanceolate, glabrous, margins minutely scaberullate. Spikes 3-8, 2.0-2.5 cm long; spikelets 0.3-0.4 cm long; lower glume 1/2 as long as the lower lemma, ovate, 0.2 cm long, upper glume 0.3-0.4 cm long, ovate, 3-5 nerved; lower lemma broadly ovate, 0.4 cm long, 5-7 nerved, scabrid on either side, upper lemma white, polished, elliptic.

Fls. & Frts. : September-February.

Distrib. : Cultivated in coastal areas, found as an escape; Deogad-Tar-mumbri. Malwan-Adari Road.

ELEUSINE Gaertn.

1. Spikes 0.3-0.4 cm broad; seeds oblong	..	<i>E. indica</i>
1. Spikes 0.5-0.8 cm broad; seeds globose	..	<i>E. coracana</i>

Eleusine coracana (L.) Gaertn. Fruct. 1 : 8. t. 1. fig. 11. 1789; Hook. f. Fl. Brit. India 7 : 294. 1896; Cooke, Fl. Press. Bombay 3 : 561. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 492. 1960; Sant. Fl. Khandala ed. 3, 310. 1967. *Cynosurus coracatus* L. Syst. Nat. ed. 2, 10 : 875. 1759. Mar. : 'Nagli'.

Robust perennials, 25-100 cm tall. Leaves 5—25 × 0.4—0.6 cm, linear-lanceolate, glabrous, margins scabrous. Spikes 3-5, 3.5-6.0 cm long; spikelets 0.6-0.7 cm long lower glume 0.5 cm long, linear-lanceolate, 3-5 nerved, apex mucronate, upper glume 0.45 cm long, elliptic, glabrous, keel scabrid; lemmas 0.25-0.4 cm long, ovate-elliptic, 1-3 nerved, keel scabrid. Grains brownish-red.

Fls. & Frts. : September-October.

Illus. : Blatt. & McCann, Bombay Grass. t. 173. 1934.

Distrib. : Cultivated on the slopes of the ghats; Kankavli-Phonda-Bhairi Pathar, as an escape.

E. indica (L.) Gaertn. Fruct. 1 : 8. 1789; Hook. f. Fl. Brit. India 7 : 293. 1896; Cooke, Fl. Pres. Bombay 3 : 560. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 493. 1960; Sant. Fl. Khandala ed. 3, 310. 1967. *Cynosurus indicus* L. Sp. 72. 1753.

Annuals, 15-30 cm tall, culms tufted. Leaves 6—15 × 0.25—0.4 cm, linear-lanceolate, glabrous. Spikes 2-3 (rarely 3), subdigitate, 4-8 cm long; spikelets 0.4-0.5 cm long; lower glume 0.25 cm long, ovate, 3-nerved, keel scabrous, upper glume 0.3 cm long, elliptic, 1-3 nerved, keel scabrous; lemmas 0.2-0.3 cm long, ovate-oblong, keeled, keels scabrous.

Fls. & Frts. : September-February.

Illus. : Blatt. & McCann, Bombay Grass. t. 172. 1934.

Distrib. : Infrequent in open, moist situations in plains; Malwan-Sindhudurg fort. Sawantwadi-Bhedshi.

ELYTROPHORUS P. Beauv.

Elytrophorus spicatus (Willd.) A. Camus in Lecomte, Fl. Gen. de l'Indo-Chine 7 : 547. 1923; Bor, Grass. Burm. Ceyl. Ind. & Pak. 493. 1960. *Dactylois*

spicata Willd. in Ges. Naturf. Freunde Berlin, Neue Schr. 3 : 416. 1801. *Elytrophorus articulatus* P. Beauv. Ess. Agrost. 67. t. 14. fig. 2. 1812; Hook. f. Fl. Brit. India 7 : 306. 1896; Cooke, Fl. Pres. Bombay 3 : 567. 1958 (Repr. ed.).

Tufted annuals, 6-16 cm tall. Leaves 4-10 × 0.2-0.4 cm, linear, glabrous. Inflorescence 4-16 cm long, interrupted; spikelets 0.5 cm long; lower glume 0.3 cm long, ovate, awned, margins hyaline, ciliate, upper glume 0.3 cm long, elliptic, abruptly narrowed into awn, margins hyaline, ciliate; lemmas 0.4 cm long, ovate, 1-3 nerved, awned, awn scabrous.

Fls. & Frts. : January-March.

Illus. : Blatt. & McCann, Bombay Grass. t. 188. 1934.

Distrib. : Occasional in moist, open areas in plains; Sawantwadi-Khanale near Bhedshi.

ERAGROSTIS P. Beauv.

1. Spikelets breaking up from above downwards; rachis fragile :
 2. Keels of palea ciliate .. *E. tenella*
 2. Keels of palea scabrid or smooth, not ciliate :
 3. Spikelets loose, scattered, few flowered .. *E. japonica*
 3. Spikelets densely clustered, 4-6 flowered .. *E. diarrhena*
1. Spikelets breaking up from below upwards :
 4. Spikelets 0.15-0.2 cm broad, greyish-green .. *E. gangetica*
 4. Spikelets more than 0.2 cm broad, not greyish-green :
 5. Leaf-sheaths glabrous; palea deciduous .. *E. unioloides*
 5. Leaf-sheaths hairy at mouth; palea persistent .. *E. tremula*

Eragrostis diarrhena (Schult.) Steud. Syn. Pl. Glum. 1 : 266. 1854; Bor, Grass. Burm. Ceyl. Ind. & Pak. 507. 1960; Sant. Fl. Khandala ed. 3, 311. 1967. *Poa diarrhena* Schult. Syst. Veg. 2, Mant. 616. 1827. *Eragrostis interrupta* Hook. f. var. *koenigii* Stapf in Hook. f. Fl. Brit. India 7 : 316. 1896; Cooke, Fl. Pres. Bombay 3 : 546. 1958 (Repr. ed.).

Perennials, 20-40 cm tall, culms decumbent-ascending or erect, tufted. Leaves 3-10 × 0.2-0.4 cm, linear, glabrous. Inflorescence 4-12 cm long; spikelets 0.2 cm long; lower glume 0.05 cm long, ovate, 1-nerved, upper glume 0.08 cm long, ovate, 1-nerved; lemmas 0.08-0.1 cm long, ovate, 1-nerved, keeled.

Fls. & Frts. : January-March.

Distrib. : Occasional on moist sandy soil on riverbed; Kudal-Ghotge.

E. gangetica (Roxb.) Steud. Syn. Pl. Glum. 1 : 266. 1854; Cooke, Fl. Pres. Bombay 3 : 547. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 508. 1960. *Poa gangetica* Roxb. Fl. Ind. 1 : 341. 1820. *Eragrostis stenophylla* Hochst. ex Miq. in Vern. Konink. Nederl. Inst. 3, 4 : 39. 1851, (p. p.); Hook. f. Fl. Brit. India 7 : 318. 1896, (p. p.).

Annuals or perennials, 30-100 cm tall, tufted. Leaves 6-20 $\times$ 0.1-0.2 cm, linear, minutely scabrous on the nerves above, glabrous beneath. Inflorescence 10-20 cm long, laxly branched; spikelets 0.5-0.7 cm long; lower glume 0.1-0.15 cm, ovate, purple tinged, keeled, upper glume 0.15-0.2 cm long, ovate, minutely scaberulous, sometimes purple tinged; lemmas 0.2 cm long, ovate, keel scaberulous.

Fls. & Frts. : August-June.

Distrib. : Frequent in open, moist situations along river banks, in fields and along road sides in plains; Kankavli-Osargaon, Phonda-Devichi Rai. Kudal-Varad. Malwan-Nandos. Sawantwadi-Akeri-Mangaon, Bhedshi, Dodamarg, Saloli.

E. japonica (Thunb.) Trin. in Mem. Acad. Petersb. Ser. 6, 1 : 405. 1831; Bor, Grass. Burm. Ceyl. Ind. & Pak. 509. 1960; Sant. Fl. Khandala ed. 3, 311. 1967. *Poa japonica* Thunb. Fl. Jap. 51. 1784. *E. interrupta* Hook. f. var. *tenuissima* Stapf ex Hook. f. Fl. Brit. India 7 : 316. 1896.

Tufted annuals or perennials, 20-30 cm tall. Leaves 4-10 $\times$ 0.2-0.3 cm, linear, glabrous, margins minutely scaberulous. Inflorescence 10-20 cm long, interrupted; spikelets 0.3-0.4 cm long; lower glume 0.05-0.08 cm long, elliptic, 1-nerved, margins ciliate, upper glume 0.1 cm long, ovate, keel scaberulous; lemmas 0.15 cm long, ovate, 3-nerved, appressed hairy.

Fls. & Frts. : February-March.

Distrib. : Occasional on wet sandy soil on river bed; Sawantwadi-Gavata near Bhedshi.

E. tenella (L.) P. Beauv. ex Roem. & Schult. Syst. Veg. 2 : 576. 1817; Bor, Grass. Burm. Ceyl. Ind. & Pak. 513. 1960; Sant. Fl. Khandala ed. 3, 311. 1967. *Poa tenella* L. Sp. Pl. 69. 1753. *Eragrostis tenella* (L.) Beauv. var. *plumosa* (Retz.) Stapf in Hook. f. Fl. Brit. India 7 : 315. 1896; Cooke, Fl. Pres. Bombay 3 : 545. 1958 (Repr. ed.).

Slender, tufted annuals, 10-30 cm tall. Leaves $3-6 \times 0.2-0.4$ cm, linear, minutely scabrous on nerves above, glabrous beneath. Inflorescence 4-10 cm long; spikelets 0.2-0.4 cm long; lower glume 0.1 cm long, ovate, keeled, upper glume 0.1 cm long, keels scaberulous; lemmas 0.15 cm long, ovate, appressed hairy in the upper half, 3-nerved.

Fls. & Frts. : February-March.

Illus. : Blatt. & McCann, Bombay Grass. t. 155. 1934.

Distrib. : Occasional in plains along road sides; Malwan-Achre.

E. tremula Hochst. ex Steud. Syn. Pl. Glum. 1 : 269. 1854; Hook. f. Fl. Brit. India 7 : 320. 1896; Cooke, Fl. Pres. Bombay 3 : 549. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 514. 1960.

Tufted annuals, 40-150 cm tall. Leaves $5-15 \times 0.2-0.35$ cm, linear, scaberulous on nerves above, glabrous beneath. Inflorescence 8-15 cm long; spikelets 0.5-2.4 cm long; lower glume 0.15-0.18 cm long, elliptic, 1-nerved, upper glum 0.2 cm long, ovate, 1-nerved; lemmas 0.2-0.25 cm, broadly ovate, 3-nerved.

Fls. & Frts. : October-February.

Illus. : Blatt. & McCann, Bombay Grass. t. 159. 1934.

Distrib. : Infrequent on coastal sandy soil; Malwan-Achre, Deobag.

E. unioloides (Retz.) Nees ex Steud. Syn. Pl. Glum. 1 : 264. 1854; Bor, Grass. Burm. Ceyl. Ind. & Pak. 515. 1960; Sant. Fl. Khandala. ed. 3, 312. 1967. *Poa unioloides* Retz. Obs. Bot. 5 : 19. 1789. *Eragrostis amabilis* Wight & Arn. ex Nees in Hook. & Arn. Bot. Buch. Voy. 251. 1841, (*non* Linn. 1753); Hook. f. Fl. Brit. India 7 : 317. 1896; Cooke, Fl. Pres. Bombay 3 : 546. 1958 (Repr. ed.).

Erect or decumbent-ascending annuals, 15-50 cm tall, tufted. Leaves $3-10 \times 0.2-0.5$ cm, linear-lanceolate, glabrous. Inflorescence 4-15 cm long; spikelets 0.4-0.7 cm long; lower glume 0.2 cm long, elliptic, purplish-tinged, keels scaberulous, upper glume 0.2-0.25 cm long, elliptic, purple tinged, keels scaberulous; lemmas 0.25 cm long, ovate, 3-nerved.

Fls. & Frts. : August-February.

Illus. : Blatt. & McCann, Bombay Grass. t. 156. 1934.

Distrib. : Common on river beds, along road sides and in open areas from ghats to plains; Kankavli-Osargaon, Ghonsari, Kudal-Bhadgaon. Sawantwadi-Akeri, Amboli-Rest House campus, Ambolighat, Chaukul-Soliya jungle. Vengurla-Vagiri forest.

EULALIA Kunth

1. Racemes more than 4; upper glume 1-nerved .. *E. trispicata*
 1. Racemes less than 4; upper glume nerveless .. *E. fimbriata*

Eulalia fimbriata (Hack.) Kuntze, Rev. Gen. Pl. 2 : 775. 1891; Bor, Grass. Burm. Ceyl. Ind. & Pak. 155. 1960. *Pollinia fimbriata* Hack. in DC. Mon. Phan. 6 : 164. 1889; Hook. f. Fl. Brit. India 7 : 112. 1896; Cooke, Fl. Pres. Bombay 3 : 468. 1958 (Repr. ed.).

Annuals, tufted, 15-40 cm tall. Leaves 4—8 × 0.15—0.25 cm, linear, pubescent above, white hairy beneath. Racemes 2-3, 3-6 cm long, white hairy, subdigitate; spikelets 0.2-0.3 cm long, awned; sessile spikelets 0.25-0.3 cm long; lower glume 0.2-0.3 cm long, elliptic-oblong, 2-keeled, hairy, margins incurved, upper glume 0.3 cm long, elliptic, keeled, hairy along margins; lower lemma narrowly oblong, upper lemma 2-lobed; pedicelled spikelets 0.2-0.25 cm long.

Fls. & Frts. : October-February.

Illus. : Blatt. & McCann, Bombay Grass.t. 36. 1934.

Distrib. : Scattered in open situations in plains; Kankavli-Humbrat Road, Phonda-Bhairy Pathar.

E. trispicata (Schult.) Henr. in Blumea 3 : 453. 1940; Bor, Grass. Burm. Ceyl. Ind. & Pak. 157. 1960; Sant. Fl. Khandala ed. 3, 212. 1967. *Andropogon trispicatus* Schult. Syst. Veg. 2, Mant. 452. 1824. *Pollinia argentea* Trin. in Bull. Acad. Sci. Petersb. 1 : 71. 1836; Hook. f. Fl. Brit. India 7 : 111. 1896; Cooke, Fl. Pres. Bombay 3 : 467. 1958 (Repr. ed.).

Perennials, 80-150 cm tall. Leaves 10—30 × 0.4—0.7 cm, linear-lanceolate, hairy above, pubescent or glabrous beneath. Racemes 4-10 (or more), 5-12 cm long, subdigitate, brownish hairy; sessile spikelets : lower glume 0.4 cm long, elliptic, brown, white hairy at base and along keels, margins incurved, upper glume 0.4 cm long, elliptic, brown, keeled, hairy along keels in upper half; lower lemma 0.35 cm long, hairy at tip; pedicelled spikelets 0.4 cm long.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass. t. 35. 1934.

Distrib. : Infrequent in moist, sandy areas along streams in plains; Kankavli-Phonda river side. Kudal-Kadaval. Sawant-wadi-Akeri.

GARNOTIA Brongn.

Garnotia tenella (Arn. ex Miq.) Janowsky in Fedde, Rep. Sp. Nov. 17 : 86. 1921; Gould in Kew Bull. 23 : 528. 1972. *Berghausia tenella* Arn. ex Miq. in Verh. Konink. Nederl. Inst. 3, 4 : 34. 1851. *Garnotia stricta* non Brongn. 1831; Hook. f. Fl. Brit. India 7 : 243. 1896; Cooke, Fl. Pres. Bombay 3 : 534. 1958 (Repr. ed.).

Annuals, tufted, 10-40 cm tall, culms terete, ribbed. Leaves 4-10 × 0.25-0.5 cm, linear-lanceolate, sparsely hairy on both sides, minutely scaberrulous along margins and on the nerves. Inflorescence 4-15 cm long, rachis and rachilla angled and narrowly winged in the upper part; spikelets 0.4-0.45 cm long, awned; lower glume 0.4 cm long, lanceolate, pubescent, 3-5 nerved, awned at tip, upper glume 0.35 cm long, elliptic-oblong, pubescent, 3-nerved, awned at tip.

Fls. & Frts. : August-September.

Illus. : Blatt. & McCann, Bombay Grass. t. 136. 1934.

Distrib. : Occasional, on roofs of houses in plains; Sawantwadi-Sherle near Banda

GLYPHIOCHLOA Clayton

1. Lower glume of sessile spikelet with 2-awns :

2. Rachis-joints and pedicels more or less equal in length, with tuft of hairs :

3. Rachis-joints and pedicels cylindrical; anthers 0.18-0.2 cm long ..

G. ratnagirica

3. Rachis-joints and pedicels broader at apex; anthers 0.07-0.1 cm long ..

G. forficulata

2. Rachis-joints and pedicels unequal in length, without tuft of hairs at apex ..

G. mysorensis

1. Lower glume of sessile spikelet with single awn :

4. Rachis-joints and pedicels fused to form a high heeled boot-like structure ..

G. santapauli

4. Rachis-joints and pedicels fused but not forming high heeled boot-like structure :

5. Rachis-joints and pedicels tumid below, 0.4-0.45 cm long ..

G. godensis

5. Rachis-joints and pedicels tumid at both ends, 0.2-0.35 cm long :

6. Pedicelled spikelets 0.3-0.4 cm long :

7. Sessile spikelets including awn 0.6-1.0 cm long ..

G. acuminata
var. *acuminata*

7. Sessile spikelets including awn 0.3-0.35 cm long .. *G. acuminata*
var. *woodrowii*
6. Pedicelled spikelets 0.45-0.5 cm long .. *G. acuminata*
var. *stocksii*

Glyphochloa acuminata var. *acuminata* (Hack.) Clayton in Kew Bull. 35 : 815. 1981. *Manisuris acuminata* var. *acuminata* (Hack.) Kuntze, Rev. Gen. Pl. 2 : 779. 1891; Bor, Grass. Burm. Ceyl. Ind. & Pak. 191. 1960; Jain in Bull. Bot. Surv. India 12 (1-4) : 9. 1970 (1972). *Rottboellia acuminata* in Hack. DC. Mon. Phan. 6 : 291. 1889; Hook. f. Fl. Brit. India 7 : 155. 1896; Cooke, Fl. Pres. Bombay 3 : 471. 1958 (Repr. ed.).

Erect annuals, tufted, 10-30 cm tall, nodes bearded. Leaves 2—4 × 0.2-0.25 cm, linear, glabrous. Racemes solitary, 3-5 cm long, peduncles hairy; sessile spikelets : lower glume ellipsoid, 0.25-0.3 cm long, with 2-5 horizontal ridges, furrowed in between ridges, with a wing and narrowed into awns, upper glume 0.25 cm long, ellipsoid, hyaline, 1-nerved; pedicelled spikelets 0.3 cm long; lower glume oblong-ovoid, smooth, winged on one side.

Fls. & Frts. : August-February.

Illus. : Blatt. & McCann, Bombay Grass. t. 24. 1934; Jain, *l. c.* 1. fig. 8.

Distrib. : Frequent in open grassy areas in plains; Deogad-Naringre. Malwan-Achre-Kaziwadasada, Adari. Sawantwadi-Bhedshi-Karnyachi Rai.

G. acuminata (Hack.) Clayton var. *stocksii* (Hook. f.) Clayton *l. c.* 815. *Manisuris acuminata* (Hack.) Kuntze var. *stocksii* (Hook. f.) Jain in Bull. Bot. Surv. India 12 (1-4) : 9. — 1970 (1972) *Rottboellia acuminata* Hack. var. *stocksii* Hook. f. Fl. Brit. India 7 : 155. 1896.

Annuals, 15-35 cm tall, branched from base, nodes glabrous. Leaves 5-10 cm long, linear, glabrous. Racemes 4-6 cm long, peduncles hairy; sessile spikelets 1.4 cm long, as in species; lower glume with 3-4 transverse ridges; pedicelled spikelets 0.8-0.9 cm long, ovoid, winged on one side and awned.

Fls. & Frts. : September-October.

Illus. : Jain, *l. c.* 11. fig. 12.

Distrib. : Infrequent in open areas in plains; Kankavli-Nandgaon. Phonda Rai. Malwan-Adari, Sindhudurg Fort.

G. acuminata (Hack.) Clayton var. *woodrowii* (Bor) Clayton *l. c.* 815. *Manisuris acuminata* (Hack.) Kuntze var. *woodrowii* Bor, Grass. Burm.

Ceyl. Ind. & Pak. 191. 1960; Jain in Bull. Bot. Surv. India 12 (1-4) : 10. 1970 (1972).

Tufted annuals, 25-40 cm tall, nodes hairy. Leaves 8-15 cm long, linear, glabrous. Racemes 5-7 cm long, peduncles hairy; lower glume of sessile spikelets 0.3-0.35 cm long with 5-6 transverse ridges, winged at tip, without awns, differing from the species.

Fls. & Frts. : October-November.

Illus. : Jain, *l. c.* 11. fig. 4.

Distrib. : Occasional in open, grassy areas in plains; Sawantwadi-Dodamarg.

G. lorficulata (Fischer) Clayton in Kew Bull. 35 : 815. 1981. *Manisuris lorficulata* Fischer in Kew Bull. 1933 : 353. 1933 et in Gamble, Fl. Pres. Madras 1761. 1934, *p. p.*; Bor, Grass. Burm. Ceyl. Ind. & Pak. 192. 1960, *p. p.*; *emend* Jain in Bull. Bot. Surv. India 9 : 293. 1967 (1968) et *ibid.* 12 (1-4) : 12. 1970 (1972). *Rottboellia divergens* auct. plur. non Hack. (1889); Hook. f. Fl. Brit. India 7 : 155. 1896, *p. p.*; Cooke, Fl. Pres. Bombay 3 : 470. 1958 (Repr. ed.).

Tufted annuals, 6-25 cm tall, nodes glabrous. Leaves 2.5-10 × 0.1-0.4 cm, linear, hairy on both sides. Racemes 2.5-4.0 cm long, peduncles hairy, broad at tip; sessile spikelets 0.6-0.7 cm long including awns; lower glume ovate, 3-4 transversely ridged, hooked along the margins, winged in the upper half, scabrous; pedicelled spikelets 0.6-0.7 cm long, elliptic-oblong, winged one one side in the upper half, smooth; upper glume boat shaped.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass. t. 23. 1934; Jain, *l. c.* 11, fig. 6.

Distrib. : Frequent in moist, open situations from ghats to plains; Kankavli-Phondaghat. Sawantwadi-Amboli-Hiranyakeshi and Mahadeogad, Chaukul-Soliya jungle, Ramghat.

G. goensis (Rao et Hemadri) Clayton in Kew Bull. 35 : 815. 1981. *Manisuris goensis* Rao et Hemadri in Bull. Bot. Surv. India 10 : 106-109. 1968 (1969); Jain, *ibid.* 12 (1-4) : 14. 1970 (1972).

Annual, tufted grass, 20-35 cm tall, nodes hairy. Leaves 5-10 × 0.25-0.35 cm, linear, glabrous. Racemes 3-6 cm long, peduncles glabrous; lower glume of sessile spikelet 2.6 cm long, including awn, ovate, 2-3 transversely

G. santapauli (Jain et Deshpande) Clayton in Kew Bull. 35 : 815. 1981. *Manisuris santapaulii* Jain et Deshpande in Bull. Bot. Surv. India 10 : 177-179. 1968 (1969); Jain, *ibid.* 12 (1-4) : 15. 1970 (1972).

Annuals tufted, 10-15 cm tall, nodes glabrous. Leaves 3—5 × 0.15—0.2 cm, linear, glabrous. Racemes 2-3 cm long, peduncles glabrous; sessile spikelet : lower glume 0.3-0.4 cm long (excluding awn), oblong-ovate, hairy in lower half, winged on either side at tip, awn 0.4-0.45 cm long; pedicelled spikelets 0.5 cm long (including awns); lower glume oblong-elliptic, obliquely winged, broad at tip, upper glume boat-shaped.

Fls. & Frts. : August-February.

Illus. : Jain et Deshpande, *l. c.* 278; Jain, *l. c.* 12 (1-4) : 11, fig. 11.

Distrib. : Infrequent in open situations in coastal areas; Deogad-Naringre. Malwan-Adari.

HACKELOCHLOA Kuntze

Hackelochloa granularis (L.) Kuntze, Rev. Gen. Pl. 2 : 776. 1891; Bor, Grass. Burm. Ceyl. Ind. & Pak. 159. 1960; Sant. Fl. Khandala ed. 3, 313. 1967. *Cenchrus granularis* L. Mant. Alt. 575. 1771. *Manisuris granularis* (L.) L. f. Nov. Gram. Gen. 40. 1779; Hook. f. Fl. Brit. India 7 : 159. 1896; Cooke, Fl. Pres. Bombay 3 : 473. 1958 (Repr. ed.).

Tufted annuals, 15-40 cm tall, branched from base. Leaves 4—10 × 0.3—0.5 cm, linear-lanceolate, hairy on both sides. Racemes 1.0-1.8 cm long; sessile spikelets 0.15-0.2 cm long, globose; lower glume hard, rounded and truncate at tip, sculptured with tubercles, upper glume oblong, 0.1 cm long, 1-nerved; pedicels of pedicelled spikelets completely fused with rachis; pedicelled spikelets different from sessile spikelets, 0.3 cm long.

Fls. & Frts. : August-September.

Illus. : Blatt. & McCann, Bombay Grass. t. 22. 1934.

Distrib. : Occasional on red gravel along coastal areas; Deogad-Naringre.

HETEROPOGON Pers.

Heteropogon contortus (L.) P. Beauv. ex Roem. & Schult. Syst. Veg. 2 : 836. 1817; Bor, Grass. Burm. Ceyl. Ind. & Pak. 163. 1960. *Andropogon contortus* L. Sp. Pl. 1045. 1753; Hook. f. Fl. Brit. India. 7 : 199. 1896; Cooke, Fl. Press. Bombay 3 : 510. 1958 (Repr. ed.).

Tufted annuals or perennials, 40-100 cm tall. Leaves 4—10 × 0.25—0.5 cm, linear, glabrous, margins minutely scaberrulous near the tips. Racemes spiciform, 4 cm long, solitary; spikelets in pairs or triads; lower glume of sessile spikelet 0.5 cm long, elliptic-oblong, hairy, apex rounded, 6-9 nerved, upper glume 0.7 cm long, ovate, 3-nerved, margins hyaline, hairy; lower lemma hairy along keel; pedicelled spikelets 0.8-0.9 cm long.

Fls. & Frts. : October-February.

Illus. : Blatt. & McCann, Bombay Grass. t. 71, 1934; Bor, *l. c.* 164, fig. 6.

Distrib. : Common in open situations along road sides, on river beds, from ghats to plains; Deogad-Tar-mumbri. Kankavli-Humbrat road, Nandgaon, Phonda-Bhairi Pathar, Phondaghat. Sawantwadi-Akeri-Mangaon, Ambolighat-Nanapani, Danoli, Kolgaon, Ramghat.

INDOPOA Bor

Indopoa paupercula (Stapf) Bor in Kew Bull. 12 : 225. 1958 et Grass. Burm. Ceyl. Ind. & Pak. 523. 1960; Sant. Fl. Khandala ed. 3, 314. 1967. *Tripogon pauperculus* Stapf in Hook. Icon. Pl. t. 2442. 1896; Hook. f. Fl. Brit. India 7 : 285. 1896; Cooke, Fl. Bombay 3 : 558. 1958 (Repr. ed.); Bor, *l. c.* 522.

Slender, tufted annuals, 10-15 cm tall. Leaves 3—5 × 0.15—0.2 cm, linear, minutely hairy on nerves above, glabrous below. Spikes 5-9 cm long, slender, lax; spikelets 2.5-2.7 cm long (including awns); lower glume 0.25 cm long, oblong, hyaline, 1-nerved, apex mucronate, upper glume elliptic, 0.3 cm long, hyaline, keeled, mucronate.

Fls. & Frts. : August-October.

Illus. : Blatt. & McCann, Bombay Grass. t. 178. 1934; Bor, *l. c.* 523, fig. 57.

Distrib. : Frequent on moist rocks and in crevices from ghats to plains; Kankavli-Osargeon, Phonda Rai. Sawantwadi-Amboli-Mahadeogad, Satarda.

ISACHNE R. Br.

Isachne globosa (Thunb.) Kuntze, Rev. Gen. Pl. 2 : 778. 1891; Bor, Grass. Burm. Ceyl. Ind. & Pak. 580. 1960; Sant. Fl. Khandala ed. 3, 314.

1967. *Milium globosum* Thunb. Fl. Jap. 49. 1784. *Isachne australis* R. Br. Prodr. 196. 1810; Hook. f. Fl. Brit. India. 7 : 24. 1896; Cooke, Fl. Pres. Bombay 3 : 439. 1958 (Repr. ed.).

Decumbent-ascending annuals, 10-20 cm tall, culms ribbed, glabrous. Leaves 3—6 × 0.3—0.6 cm, linear-lanceolate, minutely scabrous on nerves above, glabrous beneath, apex acute. Panicles terminal, 4-8 cm long; spikelets globose, 0.15-0.2 cm across, pedicelled; lower glume 0.2 cm long, ovate, nerved, glabrous or sparsely hairy, upper glume 0.15-0.2 cm long, ovate, nerved, scabrid in the upper half.

Fls. & Frts. : August-February.

Illus. : Blatt. & McCann, Bombay Grass. 1. 122. 1934.

Distrib. : Fairly common in open, water-logged areas and in fields from ghat-tops to plains; Deogad-Naringre, Kankavli-Nandgaon, Osargaon, Phondaghat, Kudal-Kadaval, Malwan-Adari, Kuperighati, Sawantwadi-Amboli-Nangartas, Banda, Khanale, Vengurla-Math forest.

ISCHAEMUM L.

1. Spikelets awnless ..	<i>I. bolai</i>
1. Spikelets awned :	
2. Margins of lower glume of sessile spikelets expanded below the middle :	
3. Lower glume of sessile spikelets broadly or narrowly winged in the upper half ..	<i>I. indicum</i>
3. Lower glume of sessile spikelets not winged ..	<i>I. timorensis</i>
2. Margins of lower glume of sessile spikelets not expanded below the middle, but narrow and evenly intumed from base to apex :	
4. Base of lower leaves acute, rounded or shallowly cordate, without distinct petioles :	
5. Pedicels of pedicelled spikelets more than 1/3 the length of sessile spikelets :	
6. Lower glume of sessile spikelets with 2 long aristae and 2 tufts of hairs along the margins about the middle ..	<i>I. rolandae</i>
6. Lower glume of sessile spikelets without aristae and tufts of hairs along margins ..	<i>I. impressum</i>
5. Pedicels of pedicelled spikelets less than 1/3 the length of sessile spikelets :	
7. Tips of lower glume of sessile spikelets winged on one side, wing auriculate ..	<i>I. mangaloreum</i>

7. Tips of lower glume of sessile spikelets narrowly winged, if winged at all :
8. Lower leaves tapering to base .. *I. santapauli*
8. Lower leaves not tapering :
9. Lower glume of pedicelled spikelets with very broad wing on one side .. *L. travancorensis*
9. Lower glume of pedicelled spikelets without wings .. *I. tumidum*
4. Base of lower leaves sagittate or deeply cordate, nearly with distinct petioles :
10. Pedicels of pedicelled spikelets less than 1/3 the length of sessile spikelets; upper glume of sessile spikelets without a hump in the middle :
11. Joints of racemes distinctly turbinate; petioles up to 2 cm long .. *I. semisagittatum*
11. Joints of racemes linear-clavate; petioles up to 6.5 cm long .. *I. dalzellii*
10. Pedicels of pedicelled spikelets longer than 1/3 the length of sessile spikelets; upper glume of sessile spikelets with hump in the middle .. *I. impressum*

Ischaemum holei Almeida in Indian For. 98 : 236. 1972.

Erect or decumbent annuals, up to 75 cm tall, culms branched from base. Leaves 3.5—10.0 × 1 cm, linear-lanceolate, lower leaves petiolate, upper sessile, hairy on both sides, base cordate or sagittate. Racemes ± 4 cm long; sessile spikelets 0.35-0.4 cm long; lower glume narrowly and evenly incurved with 2-4 nodules on the margins, upper glume boat-shaped, 1-nerved; pedicelled spikelets almost the same as the sessile spikelets.

Fls. & Frts. : October-November.

Illus. : Almeida, *I. c.* 237.

Distrib. : Occasional in open situations; Sawantwadi. Almeida 1535 A.

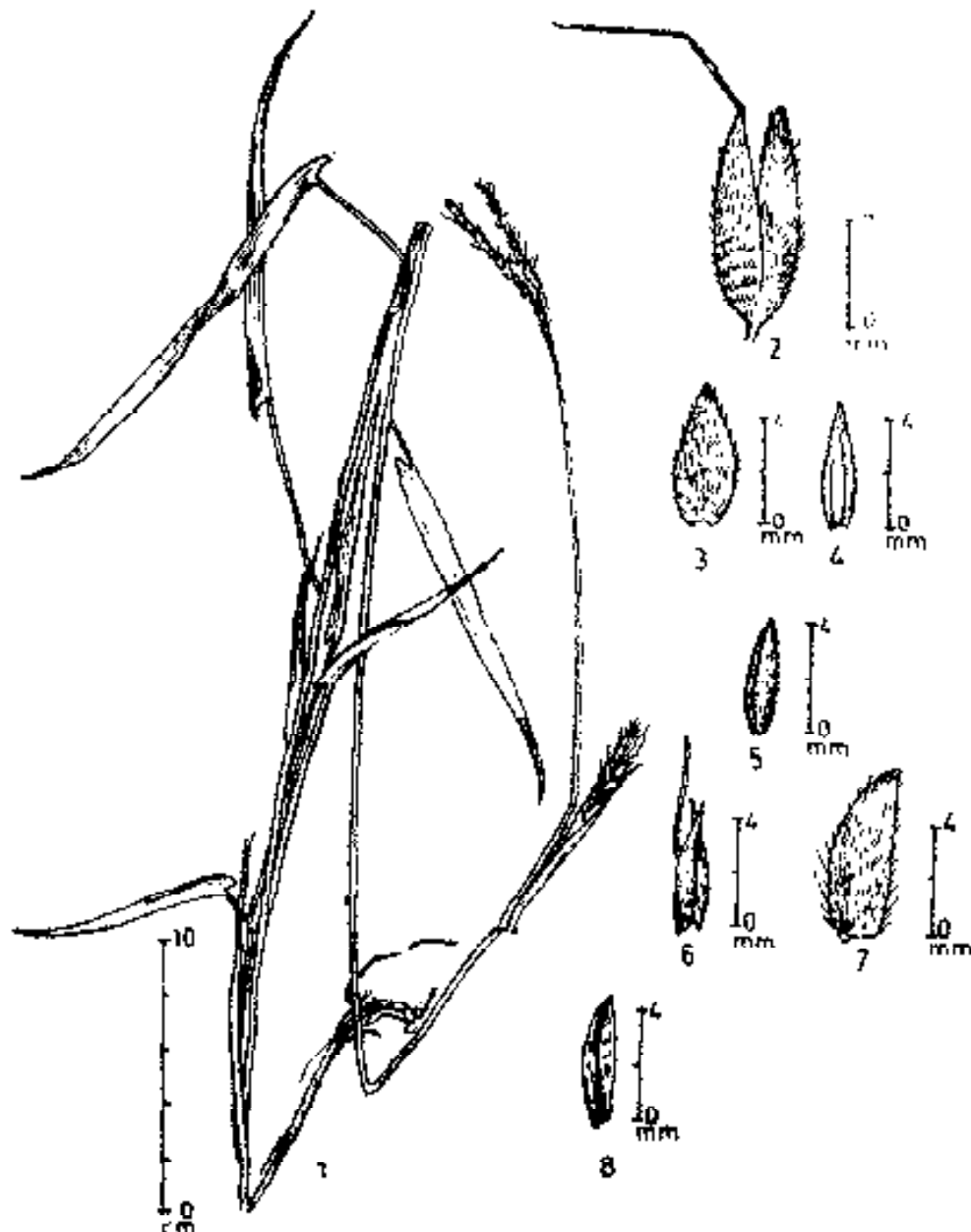
I. dalzellii Stapf ex Ber in Kew Bull. 1951 : 448. 1952 et Grass. Burm. Ceyl. Ind. & Pak. 178. 1960; Kulkarni et Wadhwa in J. Bombay nat. Hist. Soc. 70 : 237. 1973.

Annuals or perennials, tufted, 30-150 cm tall, nodes bearded or glabrous. Leaves 5—15 × 1—2 cm, linear-lanceolate, glabrous or sparsely bulbous-based hairy on both sides. Racemes 2-6 cm long; sessile spikelets 0.6-0.65 cm long, awns 0.8-0.9 cm long; lower glume obliquely ovate, uniformly incurved, transversely obscurely ridged, glabrous or hairy, upper glume 0.5-0.55 cm long, boat shaped, glabrous; pedicelled spikelets 0.8 cm long, unawned.

Fls. & Frts. : October-May.

Illus. : Kulkarni et Wadhwa, *l. c.* Pl. III.

Distrib. : Frequent in grassy patches in open areas from ghats to plains; Kankavli-Achre Road, Phonda-Bhairi Pathar, Phondaghat. Kudal-Shivapur paz. Sawantwadi-Amboli R. F. and Hiranyakeshi, Ramghat.



Ischaemum dalzellii Stapf ex Bor

1. whole plant; 2. a pair of spikelets. *sessile spikelet*; 3. lower glume (dorsal view); 4. upper glume; 5. lower lemma (ventral view); 6. upper lemma. *pedicelled spikelet*; 7. lower glume; 8. upper glume.

I. impressum Hack. in DC. Mon. Phan. 6 : 210. 1889; Hook. f. Fl. Brit. India 7 : 132. 1896; Bor, Grass. Burm. Ceyl. Ind. & Pak. 180. 1960; Sant. Fl. Khandala ed. 3. 315. 1967.

Erect annuals, 30-60 cm tall. Leaves 4—8 × 0.5—1.2 cm, linear-lanceolate, petiolate or sessile, scabrid hairy on both sides, glabrous when old, margins scaberulous, base tapering or cordate. Racemes 3-4 cm long; lower glume of sessile spikelet 0.5-0.6 cm long (awn 2.5 cm long), ovate, hairy, depressed and concave in the upper parts and with boss, winged on keels near tip and also scaberulous, upper glume 0.6 cm long, boat-shaped, keeled, winged on keels; pedicelled spikelet 0.5 cm long with male flowers.

Fls. & Frts. : October-November.

Distrib. : Occasional in open situations along the ghats; Sawantwadi-Amboli R. F.

I. indicum (Houtt.) Merr. in J. Arnold Arb. 19 : 320. 1938; Bor, Grass. Burm. Ceyl. Ind. & Pak. 180. 1960; Sant. Fl. Khandala ed. 3. 314. 1967. *Phleum indicum* Houtt. Nat. Hist. II, 13 : 198. t. 90. f. 2. 1782; Hook. f. Fl. Brit. India 7 : 133. 1896. *Ischaemum ciliare* Retz. Obs. Bot. 6 : 36. 1791; Cooke. Fl. Pres. Bombay 3 : 481. 1958 (Repr. ed.). *I. aristatum* auct. non L. 1753; Hook. f. l. c.; Cooke. l. c. 476.

Tufted annuals, 30-50 cm tall, culms erect or decumbent-ascending, nodes bearded. Leaves 3—15 × 0.2—0.6 cm, linear to linear-lanceolate, hairy on both sides, margins scaberulous. Racemes 2.5-6.0 cm long; sessile spikelet 0.4 cm long, awn 1.2 cm long; lower glume ovate, glabrous, notched at tip and winged, wings hairy, upper glume 0.45 cm long, boat shaped, keeled, hairy on keels; pedicelled spikelets awned.

Fls. & Frts. : October-February.

Illus. : Blatt. & McCann. Bombay Grass. t. 6. 1934.

Distrib. : Frequent in grassy areas along the ghats and at the base; Kankavli-Phonda-Bhairi pathar, Phondaghat-top. Sawantwadi-Akeri-Mangaon forest, Amboli-Hiranyakeshi, Ramghat, Tirali.

I. mangaluriense (Hack.) Stapf ex Fischer in Gamble, Fl. Pres. Madras 1723. 1934 et 3 : 1194. 1967 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 182. 1960. *I. aristatum* (non L. 1753) ssp. *imberbe* Retz. var. *mangaluriense* Hack. in DC. Mon. Phan. 6 : 204. 1889.

Robust, tufted annuals or perennials, 50-100 cm tall, nodes glabrous. Leaves 5—15 × 0.4—0.9 cm, linear-lanceolate, base narrow, cordate, deciduous.

hairy on both sides. Racemes 5-9 cm long; sessile spikelet 0.5 cm long, awn 0.6 cm long; lower glume ovate, oblique, 2/3 portion hard, nodules along the margins, tip-portion scarious, winged on one side, upper glume 0.5 cm long, elliptic, keeled, pubescent; pedicelled spikelet 0.45 cm long unawned.

Fls. & Frts. : October-May.

Distrib. : Infrequent in open areas from ghats to plains; Kudal-Sawantwadi Road. Sawantwadi-Akeri-Mangaon forest, Chaukul-Soliya jungle, Ramghat, Sawantwadi jungle.

L. raizadae Billore et Hemadri in Indian For. 96 : 318. 1970.

Annuals, tufted, erect or suberect, 15-50 cm tall. Leaves 3—8 × 0.3—1.2 cm, linear-lanceolate, thin, glabrous. Racemes 2-4 cm long; sessile spikelets 0.4-0.5 cm long, awns 3.5 cm long; lower glume oblong-ovate, small hump in lower half, glabrous, margins incurved, upper glume 0.4-0.5 cm long, boat-shaped, tufted hairs at the middle on either sides, and 1-long arista.

Fls. & Frts. : September-November.

Illus. : Billore et Hemadri, *l. c.* 320.

Distrib. : Infrequent on rocks in streams along ghats; Sawantwadi-Ambolighat-Nanapani.

L. santapauli Bor in J. Bombay nat. Hist. Soc. 49 : 167. 1950 et Grass. Burm. Ceyl. Ind. & Pak. 185. 1960; Sant. Fl. Khandala ed. 3, 315. 1967.

Perennials, tufted, 40-120 cm tall. Leaves 5—20 × 0.4—1.0 cm, linear-lanceolate, bulbous-based hairy on both sides, glabrous when old. Racemes 4-10 cm long; sessile spikelet 0.5 cm long; lower glume oblong-ovate, 2/3 portion rounded, hard, sometimes irregularly ridged, upper 1/3 portion scarious, reddish-green, acute, awn 1.5 cm long, upper glume 0.5 cm long, boat-shaped, keels humped or raised in the upper half; pedicelled spikelet 0.5 cm long, awned.

Fls. & Frts. : October-November.

Distrib. : Frequent in open situations and in fields in plains;

Kankavli-Digwal, Nandgaon, Phonda. Kudal-Kadaval, Varad.

L. semisagittatum Roxb. Fl. Ind. 1 : 322. 1820; Hook. f. Fl. Brit. India 7 : 130. 1896; Cooke, Fl. Pres. Bombay 3 : 481. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 185. 1960; Sant. Fl. Khandala ed. 3, 315. 1967.

Erect or decumbent-ascending annuals or perennials, 30-40 cm tall. Leaves 2.5—8.0 × 0.6—1.5 cm, ovate-lanceolate, deciduous hairy, base cordate. Racemes 2.5-4.0 cm long; sessile spikelet 0.45 cm long, awn 0.7 cm long; lower glume oblong, rounded, with 3-4 irregular ridges in the lower half, flat in upper half, upper glume 0.5 cm long; pedicelled spikelet 0.45 cm long.

Fls. & Frts. : October-November.

Distrib. : Infrequent in open areas along ghats; Kankavli-Phonda-ghat. Sawantwadi-Amboli R. F., Ramghat.

I. timorensis Kunth, Rev. Gram. 1 : 369. t. 98. 1830; Hook. f. Fl. Brit. India 7 : 136. 1896; Bor, Grass. Burm. Ceyl. Ind. & Pak. 185. 1960.

Tufted perennials, 60-120 cm tall, young nodes bearded. Leaves 9—25 × 0.8—1.5 cm, linear-lanceolate, deciduous hairy on both sides, base tapering. Racemes 6-8 cm long; sessile spikelet 0.5 cm long, awn 0.8 cm long; lower glume ovate, flat, 8-10 nerved, keels on either side scaberulous on nerves, upper glume 0.5 cm long, ovate, 5-nerved, keeled in upper half; pedicelled spikelet 0.5 cm long, laterally compressed.

Fls. & Frts. : October-November.

Distrib. : Infrequent in open areas along ghats; Kankavli-Phonda-ghat. Sawantwadi-Amboli R. F., Ramghat.

I. travancorensis Stapf ex Fischer in Kew Bull. 1933 : 353. 1933; Bor, Grass. Burm. Ceyl. Ind. & Pak. 186. 1960. *I. aristatum* (non L. 1753) *ssp. rotleri* Hook. f. Fl. Brit. India 7 : 127. 1896.

Perennials, 30-60 cm tall, nodes (upper) bearded. Leaves 4—20 × 0.6—1.5 cm, linear-lanceolate, hairy on both sides, base cordate or tapering. Racemes 5-7 cm long; sessile spikelets 0.45-0.5 cm long, awns 1.4 cm long; lower glume flat, oblong, obscurely 3-4 noduled at base, scarious at tip, keels on either side scaberulous, apex acute, upper glume 0.45 cm long, ovate, keeled; pedicelled spikelets 0.4 cm long.

Fls. & Frts. : October-February.

Distrib. : Occasional in open, moist situations along the ghats and in plains; Kudal-Bhadgaon. Sawantwadi-Ambolighat-Nanapani.

I. tumidum Stapf ex Bor in Kew Bull. 1951 : 450. 1952 et GRASS. Burm. Ceyl. Ind. & Pak. 186. 1960; Sant. Fl. Khandala ed. 3, 316, 1967.

Annuals, erect or decumbent-ascending, 15-30 cm tall. Leaves 2.5-4.0 × 0.5-1.0 cm, ovate or ovate-lanceolate, hairy on both sides, hairs deciduous, base cordate or sagittate, basal leaves petiolate. Racemes 2-4 cm long; sessile spikelets 0.45 cm long, awn 0.7 cm long; lower glume oblong-elliptic, rounded, hairy on back excepting tip portion, 2-3 nodules in the lower half, obscurely transversely ridged, upper glume 0.45 cm long, elliptic, boat shaped; pedicelled spikelets 0.4-0.45 cm long.

Fls. & Frts. : September-November.

Distrib. : Frequent in open, grassy areas from ghats to plains; Kankavli-Phonda-Bhairi-Pathar. Mulwan-Sindhudurg fort. Sawantwadi-Amboli-Hiranyakeshi and Mahadeogad, Ambolighat, Ramghat.

JANSENELLA Bor

Jansenella griffithiana (C. Muell.) Bor in Kew Bull. 1955 : 98. 1955 et Grass. Burm. Ceyl. Ind. & Pak. 426. 1960; Sant. Fl. Khandala ed. 3, 316. 1967. *Danthonia griffithiana* C. Muell. in Bot. Zeit. 14 : 347. 1856. *Arundinella avenacea* Munro ex Thw. Enum. Pl. Zeyl. 362. 1864; Hook. f. Fl. Brit. India 7 : 69. 1896; Cooke, Fl. Pres. Bombay 3 : 520. 1958 (Repr. ed.).

Tufted annuals, 15-40 cm tall, branched from base. Leaves 1.5-4.0 × 0.3-0.6 cm, linear-lanceolate, glabrous, raised nerves above, tubercle-based hairy at base. Inflorescence 2-5 cm long; spikelets pedicelled, 0.6-0.7 cm long; lower glume 0.4 cm long, ovate, 3-nerved, nerves pubescent, apex ending into an arista, upper glume 0.65 cm long, elliptic, 5-nerved, nerves pubescent, ending in an arista.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass. t. 124. 1934; Bor, l. c. 427. fig. 45.

Distrib. : Frequent in moist places and on rocks in streams along ghats; Kankavli-Phondaghat. Sawantwadi-Amboli R. F. and Rest House campus, Ramghat.

MANISURIS L.

Manisuris clarkii (Hack.) Bor *apud* Sant. Fl. Khandala ed. 1, 357. 1953; Bor, Grass. Burm. Ceyl. Ind. & Pak. 191. 1960; Jain in Bull. Bot. Surv. India 12 (1-4) : 10. 1970 (1972). *Rottboellia clarkii* Hack. in Ost. Bot. 2, 41 : 8. 1891; Hook. f. Fl. Brit. India 7 : 156. 1896; Cooke, Fl. Pres. Bombay 3 : 472. 1958 (Repr. ed.).

Annuals or perennials, 60-100 cm tall, nodes bearded. Leaves 5-15 × 0.6-1.2 cm, linear-lanceolate, hairy on both sides, margins hairy. Racemes axillary, 2 cm long; sessile spikelet 0.25 cm long; lower glume ovate, basal portion rounded and humped, hairy, with 2-3 hard projections on margins flat above, with hyaline wing, upper glume 0.2 cm long, ovate, 1-nerved; pedicelled spikelet 0.2 cm long.

Fls. & Frts. : September-October.

Illus. : Jain, l. c. 11. fig. 1.

Distrib. : Occasional along the ghats; Kankavli-Phondaghat.

OPISMENUS P. Beauv.

1. Awns capillary, barbellate	..	<i>O. burmannii</i>
1. Awns stiff, smooth, but viscid	..	<i>O. compositus</i>

Opismenus burmannii (Retz.) P. Beauv. Ess. Agrost. 54 : 168-169. 1812; Hook. f. Fl. Brit. India 7 : 68. 1896; Cooke, Fl. Pres. Bombay 3 : 443. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 317. 1960; Sant. Fl. Khandala ed. 3, 316. 1967. *Panicum burmannii* Retz. Obs. Bot. 3 : 10. 1783.

Annuals, decumbent-ascending, 15-30 cm tall, culms branching at basal nodes. Leaves 1.5-4.0 × 0.2-0.8 cm, elliptic-ovate, hairy on both sides. Spikes 3-4, 1.0-1.2 cm long, rachis flat, tubercle-based hairy on either side; spikelets 0.25-0.3 cm long, elliptic-aristate; lower glume 0.15 cm long, ovate, hyaline, margins ciliate, 1-nerved, upper glume 0.2 cm long, ovate.

Fls. & Frts. : September-October.

Illus. : Blatt. & McCann, Bombay Grass. 1. 97. 1934.

Distrib. : Infrequent in open, moist situations along road sides and along lower slopes of the ghats; Kankavli-Achre Road. Sawantwadi-Ramghat, Talkat Forest Nursery near Banda.

O. compositus (L.) P. Beauv. Ess. Agrost. 54 : 168-169. 1812; Hook. f. Fl. Brit. India 7 : 66. 1896; Cooke, Fl. Pres. Bomay 3 : 442. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 317. 1960; Sant. Fl. Khandala ed. 3, 317. 1967. *Panicum compositum* L. Sp. Pl. 57. 1753.

Erect or decumbent-ascending annuals or perennials, 30-50 cm tall, rooting at lower nodes. Leaves 4-10 × 0.8-1.8 cm, elliptic-lanceolate, hairy. Spikes 5-9 (or more), 2.5-5.0 cm long; spikelet 0.4 cm long, aristate; lower glume 0.15 cm long, ovate, hairy, upper glume 0.25 cm long, ovate, hairy.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass. t. 96. 1934.

Distrib. : Uncommon, in shady places along forest edges from ghats to plains; Kankavli-Achre Road, Phondaghat. Sawantwadi-Amboli R. F., Ambolighat.

OROPETHUM Trin.

Oropetium villosulum Stapf ex Bor in Kew Bull. 1949 : 571. 1950 et Grass. Burm. Ceyl. Ind. & Pak. 474. 1960; Jain in Bull. Bot. Surv. India 9 : 284. 1967 (1968).

Tiny annuals, tufted, 3-8 cm tall, culms branched from base. Leaves 0.5—2.4 × 0.05—0.1 cm, linear, hairy. Spikes solitary, 0.8-1.5 cm long; spikelet 0.2 cm long; lower glume scaly, ovate, awnless, upper glume linear-oblong, 3-nerved, apex acute, hyaline, extended in the lower half; upper lemma 0.15 cm long, boat-shaped, hairy at tip. Seeds horned.

Fls. & Frts. : October-February.

Illus. : Jain, l. c. 284. fig. 1.

Distrib. : Infrequent in open areas on rocky plain along coastal side; Deogad-Rest House campus. Malwan-Nandruk.

ORYZA L.

Oryza sativa L. Sp. Pl. 333. 1753; Hook. f. Fl. Brit. India 7 : 92. 1896; Cooke, Fl. Pres. Bombay 3 : 565. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 605. 1960; Sant. Fl. Khandala ed. 3, 317. 1967.

Annuals, erect, 60-100 cm tall, culms fistular, nodes glabrous. Leaves 10—20 × 0.6—1.2 cm, linear-lanceolate, minutely scaberulous on nerves above and along margins, glabrous below. Panicles 10-20 cm long; spikelets laterally compressed, 0.8 cm long, awns 3.5 cm long; lower glume 0.2 cm long, 1-nerved, mucronate, upper glume 0.2 cm long, ovate, 1-nerved, mucronate.

Fls. & Frts. : August-October.

Illus. : Blatt. & McCann, Bombay Grass. t. 187. 1934.

Distrib. : Cultivated, often found as an escape in plains; Kankavli-Achre Road, Osargaon. Sawantwadi-Koigaon.

PANICUM L.

- 1. Spikelets wide-gaping during anthesis .. *P. trypheron*
- 1. Spikelets not wide-gaping during anthesis :
 - 2. Lower glume distinctly less than 1/2 as long as spikelet :
 - 3. Lower glume suborbicular, apex rounded or truncate :
 - 4. Culms spongy, floating .. *P. poludosum*
 - 4. Culms tough, rhizomatous .. *P. repens*
 - 3. Lower glume broadly ovate, apex acute :
 - 5. Spikelets persistent; panicles contracted .. *P. sumatrense*
 - 5. Spikelets deciduous; panicles effuse .. *P. psilopodium*
 - 2. Lower glume more than 1/2 as long as or equal to spikelet .. *P. notatum*

Panicum notatum Retz. Obs. Bot. 4 : 18. 1786; Bor, Grass. Burm. Ceyl. Ind. & Pak. 701. 1960; Sant. Fl. Khandala ed. 3, 317. 1967. *P. mantanum* Roxb. Fl. Ind. 1 : 313. 1820; Hook. f. Fl. Brit. India 7 : 53. 1896; Cooke, Fl. Pres. Bombay 3 : 454. 1958 (Repr. ed.).

Robust perennials, 100-150 cm tall, rhizomes creeping. Leaves 8—16 × 0.9—3 cm, lanceolate, sparsely deciduous hairy on both sides. Panicles effuse, 10-25 cm long; spikelets 0.25 cm long, elliptic; lower glume 0.2 cm long, ovate, 5-nerved, ciliate, upper glume 0.25 cm long, ovate, 3-nerved, glabrous, mucronate.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass. t. 105. 1934.

Distrib. : Infrequent in open situations and on forest edges from ghats to plains; Kankavli-Phonda-Bhairi Pathar, Kudal-Chapheli. Sawantwadi-Ambolighat, Jungle on Vengurta Road.

P. paludosum Roxb. Fl. Ind. 1 : 310. 1820; Bor, Grass. Burm. Ceyl. Ind. & Pak. 329. 1960; Sant. Fl. Khandala ed. 3, 317. 1967. *P. proliferum sensu* Hook. f. Fl. Brit. India 7 : 50. 1896, (*non* Lamk. 1797). *P. proliferum* Hook. f. var. *paludosum* Stapf in Dyer, Fl. Cap. 7 : 407. 1899; Cooke, Fl. Pres. Bombay 3 : 454. 1958 (Repr. ed.).

Annuals or perennials, decumbent-ascending, rooting at basal nodes, 50-100 cm tall. Leaves 12-21 × 0.6—0.8 cm, linear, glabrous. Panicles 12-18 cm long; spikelets 0.4 cm long; lower glume 0.1 cm long, cuplike, 3-nerved, upper glume 0.35-0.4 cm long, lanceolate, 7-9 nerved.

Fls. & Frts. : August-September.

Distrib. : Infrequent in marshy places in plains; Deogad-Naringre. Sawantwadi-Satarda.

P. psilopodium Trin. Gram. Panic. 217. 1826; Hook. f. Fl. Brit. India 7 : 46. 1896; Bor, Grass. Burm. Ceyl. Ind. & Pak. 329. 1960; Sant. Fl. Khandala ed. 3, 317. 1967.

Annuals, erect, up to 100 cm tall, nodes glabrous. Leaves 6—15 × 0.5—0.7 cm, lanceolate, glabrous. Panicles 8-12 cm long; spikelets 0.3 cm long, elliptic; lower glume 0.1 cm long, ovate, glabrous, upper glume 0.25 cm long, ovate, 7-9 nerved, acute.

Fls. & Frts. : August-October.

Distrib. : Frequent in open areas and in fields in plains; Kankavli-Humbrat Road, Osargaon, Phonda-Bhaiy Pathar and Devichi Rai. Malwan-Kuperighati.

P. repens L. Sp. Pl. ed. 2, 87. 1762; Hook. f. Fl. Brit. India 7 : 49. 1896; Bor, Grass. Burm. Ceyl. Ind. & Pak. 320. 1960.

Rhizomatous, creeping perennials, culms rooted at basal nodes. Leaves 10—15 × 0.5—0.7 cm, linear, glabrous. Panicles 8-15 cm long; spikelets 0.3 cm long, lanceolate; lower glume 0.08 cm long, cupular, upper glume 0.25-0.3 cm long, elliptic, 5-7 nerved, apex acute.

Fls. & Frts. : October-November.

Distrib. : Occasional, on moist, sandy riverbed in plains; Kankavli-Kudal Road.

P. sunatrense Roth ex Roem. & Schult. Syst. Veg. 2 : 434. 1817; Bor, Grass. Burm. Ceyl. Ind. & Pak. 701. 1960; Sant. Fl. Khandala ed. 3, 317. 1967. *P. milare* auct. non Lamk. 1791; Hook. f. Fl. Brit. India. 7 : 46. 1896; Cooke, Fl. Press. Bombay 3 : 456. 1958 (Repr ed.).

Annuals, erect, up to 100 cm tall, nodes glabrous. Leaves 15—22 × 0.6—1.0 cm, linear-lanceolate, glabrous. Panicles 15-20 cm long; spikelets 0.25 cm long, elliptic; lower glume 0.1 cm long, upper glume 0.25 cm long, ovate, 7-9-nerved.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass. 1. 101. 1934.

Distrib. : Widely cultivated along the ghats and in hilly areas in plains, found as an escape; Sawantwadi-Amboli.

P. trypheron Schult. Syst. Veg. 2, Mant. 244. 1824; Hook. f. Fl. Brit. India 7 : 47. 1896; Cooke, Fl. Pres. Bombay 3 : 452. 1958 (Repr. ed.); Bor. Grass. Burm. Ceyl. Ind. & Pak. 331. 1960.

Slender annuals, 50-60 cm tall, nodes glabrous. Leaves 10—15 × 0.4—0.5 cm, linear, hairy on both sides, bulbous-based hairy along margins. Panicles 10-15 cm long; spikelets 0.3 cm long, ovate; lower glume 0.15 cm long, ovate, 3-5 nerved, scaberulous on median nerves at tip, upper glume 0.3 cm long, ovate, 7-9 cm nerved.

Fls. & Frts. : October-November.

Distrib. : Occasional in open places in plains; Sawantwadi-Akeri-Rest House campus.

PASPALIDIUM Stapf

Paspalidium geminatum (Forssk.) Stapf in Prain, Fl. Trop. Afr. 9 : 583. 1920; Bor, Grass. Burm. Ceyl. Ind. & Pak. 333. 1960. *Panicum geminatum* Forssk. Fl. Aegypt.-Arab. 18. 1778. *P. paspalodes* Pers. Syn. Pl. 1 : 81. 1805; Hook. f. Fl. Brit. India 7 : 30. 1896. *P. fluitans* Retz. Obs. Bot. 5 : 18. 1789; Cooke, Fl. Pres. Bombay 3 : 446. 1958 (Repr. ed.).

Tufted annuals or perennials, procumbent-ascending, 20-30 cm tall. Leaves 4—8 × 0.2—0.5 cm, linear, minutely scaberulous on nerves above, glabrous below. Inflorescence 10—15 cm long; racemes 1.5-2.5 cm long; spikelets 0.25 cm long, ovate; lower glume 0.15 cm long, ovate, 1-nerved, apex acute or rounded or truncate, upper glume 0.15-0.2 cm long, ovate, 3-5 nerved.

Fls. & Frts. : February-March.

Distrib. : Occasional in moist fields in plains; Deogad-Tar-mumbri.

PASPALUM L.

1. Leaf-sheaths and rachis glabrous :	
2. Upper glume hairy, apex acute	.. <i>P. paspalodes</i>
2. Upper glume glabrous, apex rounded	.. <i>P. scrobiculatum</i>
1. Leaf-sheaths and rachis tubercle-based hairy	.. <i>P. canariae</i>
3. Margins of upper glume glabrous	.. var. <i>canariae</i>
3. Margins of upper glume fimbriate	.. var. <i>fimbriatum</i>

Paspalum canarae var. *canarae* (Steud.) Veldk. in Blumea 21 : 72. 1973. *Panicum canarae* Steud. Syn. Pl. Glum. 1 : 58. 1853. *Paspalum compactum* var. *compactum* auct. non Roth, 1821; Hook. f. Fl. Brit. India 7 : 12. 1896; Cooke, Fl. Pres. Bombay 3 : 460. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 336. 1960; Sant. Fl. Khandala ed. 3, 318. 1967.

Erect or decumbent-ascending annuals, rooting at basal nodes. Leaves 1.5—3.5 (0.5—0.7 cm, ovate to lanceolate, hairy on both sides, nerves raised above, margins bulbous-based hairy. Inflorescence 3—6 cm long, spikes 1-2 cm long; spikelets 0.15-0.9 cm long, ovate; lower glume 0.1-0.12 cm long, elliptic-oblong, 3-nerved, hyaline winged in upper half, upper glume 0.15-0.2 cm long, ovate, 3-nerved.

Fls. & Frts. : September-October.

Illus. : Blatt. & McCann, Bombay Grass. t. 88. 1934.

Distrib. : Occasional in moist places on red gravel along ghats; Sawantwadi-Amboli-Rest House campus.

P. canarae (Steud.) Veldk. var. *fimbriatum* (Bor) Veldk. l. c. *P. compactum* auct. non Roth, 1821 var. *fimbriatum* Bor, Grass. Burm. Ceyl. Ind. & Pak. 336. 1960.

Annuals decumbent-ascending, nodes hairy. Leaves 1.5—4.0 × 0.5—1.2 cm, ovate-elliptic to lanceolate, tubercle-based hairy on both sides and along the margins, nerves raised above. Racemes 1-2 cm long; spikelets 0.2 cm long, ovate; lower glume 0.15 cm long, elliptic-oblong, hyaline winged in upper half, margins long ciliate, upper glume 0.2 cm long, ovate.

Fls. & Frts. : October-November.

Distrib. : Infrequent in open areas along the ghats; Sawantwadi-Amboli R. F., Chaukul-Soliya jungle, Ramghat.

P. paspalodes (Michx.) Scribner in Mem. Torr. Bot. Club 5: 29. 1894, (as *P. paspaloides*); Cope in Nasir & Ali, Fl. Pakistan 143 : 211. 1982. *Digitaria paspalodes* Michx. Fl. Bor. Amer. 1 : 46. 1803. *P. distichum* auct. non L. 1759; Hook. f. Fl. Brit. India 7 : 12. 1896; Cooke, Fl. Pres. Bombay 3 : 460. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 338. 1960.

Prostrate or decumbent-ascending annuals. Leaves 3—8 × 0.3 cm, linear, glabrous. Racemes 2-4 cm long, rachis 0.2 cm broad; spikelets 0.35 cm long, elliptic, accommodated in curved spaces; lower glume absent, upper glume 0.35 cm long, ovate, apex acute, 1-nerved; lower lemma 0.35 cm long, elliptic, 1-nerved.

Fls. & Frts. : October-November.

Distrib. : This species is reported by Cooke (*l. c.*) from 'Malwan', based on collection by Woodrow; hence it is included here.

P. scrobiculatum L. Mant. Pl. 1 : 29. 1767; Hook. f. Fl. Brit. India 7 : 10. 1896, *p. p.*; Cooke, Fl. Pres. Bombay 3 : 460. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 340. 1960; Sant. Fl. Khandala ed. 3, 318. 1967.

Decumbent-ascending annuals, rooting below. Leaves 3—7 × 0.5 cm, linear, deciduous hairy on both sides. Racemes 2.5-3.5 cm long, rachis 0.18 cm broad; spikelets 0.2 cm long, ovate; lower glume absent, upper glume 0.2 cm long, ovate-oblong, thin, nerved.

Fls. & Frts. : August-April.

Illus. : Blatt. & McCann, Bombay Grass. t. 87. 1934.

Distrib. : Frequent in open, moist situations along streams and roadside ditches in plains; Kankavli-Kudal Road, Osargaon. Kudal-Natal-Mali. Sawantwadi-Bhedshi, Talkat forest Nursery near Banda.

PENNISETUM Rich.

Pennisetum polystachyon (L.) Schult. Syst. Veg. 2, Mant. 146. 1824; Bor, Grass. Burm. Ceyl. Ind. & Pak. 346. 1960. *Panicum polystachyon*. L. Syst. Nat. ed. 10, 2 : 870. 1759.

Perennials, 100-175 cm tall, culms stout, nodes glabrous. Leaves 12—40 × 0.5-1.5 cm, linear-lanceolate, hairy on both sides, hairs tubercle-based, margins minutely scaberulous. Panicles cylindrical, 12-15 cm long, peduncles yellowish pubescent; spikelets 3 cm long, including bristles, involucre bristles many, yellowish—plumose; lower glume 0.3 cm long, hyaline, oblong, 1-nerved, hairy, upper glume absent.

Fls. & Frts. : February-March.

Illus. : Bor, *l. c.* 347. fig. 39.

Distrib. : Occasional in open areas, in fields in plains; Kudal-Dukanwad.

PEROTIS Ait.

Perotis indica (L.) Kuntze, Rev. Gen. Pl. 2 : 787. 1891; Bor, Grass. Burm. Ceyl. Ind. & Pak. 611. 1960. *Anthoxanthum indicum* L. Sp. Pl. 28. 1753

Perotis latifolia Ait. Hort. Kew 1 : 85. 1789; Hook. f. Fl. Brit. India 7 : 98. 1896; Cooke, Fl. Pres. Bombay 3 : 538. 1958. (Repr. ed.).

Decumbent-ascending annuals or perennials, nodes glabrous. Leaves 1.5—3.0 × 0.4—0.7 cm, ovate to lanceolate, greyish-green, glabrous, margins serrulate. Panicles cylindric, 8-15 cm long; spikelets 1.4-1.6 cm long, including awns, elliptic; lower glume 0.25 cm long (excluding awn), oblong, pubescent, 1-nerved, upper glume 0.2 cm long, (excluding awn), oblong-elliptic, keeled, keels minutely scaberulous.

Fls. & Frts. : October-February.

Illus. : Blatt. & McCann. Bombay Grass. 1, 147. 1934; Bor, l.c. 612. fig. 72.

Distrib. : Uncommon on coastal sandy soil; Malwan-Achre coast, Deobag.

POGONACHNE Bor

Pogonachne racemosa Bor in Kew Bull. 1949 : 146. 1949 et Grass. Burm. Ceyl. Ind. & Pak. 200. 1960; Sant, Fl. Khandala ed. 3, 318. 1967.

Erect annuals or perennials, culms tufted, 60-100 cm tall. Leaves 10—20 × 0.7—1.4 cm, linear-lanceolate, tubercle-based hairy on both sides, margins scaberulous. Racemes 4-6 cm long, in spathes; spikelets 0.8-0.9 cm long, (excluding awns), awns 2.4 cm long; lower glume 0.8 cm long, elliptic-ovate, coriaceous, glabrous on back, tip 1/3 portion 2-keeled, flat, scabrid also along sides, upper glume 0.9 cm long, coriaceous, rounded, scabrid along sides and at tip.

Fls. & Frts. : October-November.

Illus. : Bor, l. c. 201. fig. 11.

Distrib. : Occasional along the slopes of the ghats on gravel; Kankavli-Phondaghat.

PSEUDODICHANTHUM Bor

Pseudodichanthium serrafalcoides (Cooke et Stapf) Bor in Indian For. 66 : 272. 1940 et Grass. Burm. Ceyl. Ind. & Pak. 204. 1960. *Andropogon* (*Dichanthium*) *serrafalcoides* Cooke et Stapf in Kew Bull. 1908 : 450. 1908. *A. cookei* Stapf ex Woodr. in J. Bombay nat. Hist. Soc. 13 : 438. 1901 (*nom. tantum.*); Cooke, Fl. Pres. Bombay 3 : 506. 1958 (Repr. ed.).

Decumbent-ascending annuals, 20-30 cm tall. Leaves 4—9 × 0.3—0.4 cm, linear, sparsely bulbous-based hairy on both sides, margins scaberulous. Racemes 2-3 cm long, excluding awns; sessile spikelets 0.6 cm long, ovoid-elliptic, awns 2.4 cm long; lower glume 0.6 cm long, ovate, 7-9 nerved, winged along margins, tip forked, upper glume 0.55 cm long, elliptic, 3-nerved, apex acute; pedicelled spikelets 0.8 cm long, ellipsoid.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass. t. 63. 1934.

Distrib. : Infrequent along the higher slopes of the ghats in open places; Sawantwadi-Ambolighat-Nanapani.

PSEUDORAPHIS Griff.

Pseudoraphis spinescens (R. Br.) Vickery in Proc. Roy. Soc. Queensl. 9 : 495. 1919; Bor, Grass. Burm. Ceyl. Ind. & Pak. 353. 1960; Sant. Fl. Khandala ed. 3, 319. 1967. *Panicum spinescens* R. Br. Prodr. 193. 1810. *Chamaeraphis spinescens* (R. Br.) Poir. in Lamk. Encycl. Suppl. 2 : 189. 1811; Hook. f. Fl. Brit. India 7 : 62. 1896; Cooke, Fl. Pres. Bombay 3 : 437. 1958 (Repr. ed.).

Trailing annuals or perennials, shoots 15-30 cm long. Leaves 2—4 × 0.2—0.3 cm, linear, sparsely hairy above, glabrous below, margins scaberulous. Panicles 5-9 cm long; spikelets 0.7 cm long, ellipsoid; lower glume 0.05-0.08 cm long, ovate, glabrous, upper glume 0.6 cm long, lanceolate, 9-11 nerved, scabrid along the margins.

Fls. & Frts. : August-September.

Illus. : Blatt. & McCann, Bombay Grass. t. 109. 1934.

Distrib. : Occasional in water logged areas in plains; Deogad-Naringre.

SACCHARUM L.

Saccharum spontaneum L. Mant. Alt. 183. 1771; Hook. f. Fl. Brit. India 7 : 118. 1896; Cooke, Fl. Pres. Bombay 3 : 465. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 214. 1960.

Perennials, 80-150 cm tall. Leaves 10-25 cm long, linear-filiform, glaucous beneath. Panicles 20-30 cm long, silvery-white; joints and pedicels ciliate; sessile spikelets 0.45-0.5 cm long, oblong-elliptic; lower glume 0.4 cm long, flat, upper 1/2 reddish, margins ciliate in the narrow half, upper glume 0.4 cm long, oblong-elliptic, flat, margins ciliate in the upper 1/3 and also keeled; pedicelled spikelets 0.4 cm long.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass. t. 31. 1934.

Distrib. : Infrequent on riverbeds and along field edges in plains; Kankavli-Kudal Road. Kudal-Kerude. Sawantwadi-Bhedshi-Karanyachi Rai. Danoli.

SACCIOLEPIS Nash

1. Lower glume less than 1/3 the length of spikelet .. *S. interrupta*

1. Lower glumes 1/2 the length of spikelet .. *S. myosuroides*

Sacciolepis interrupta (Willd.) Stapf in Prain. Fl. Trop. Afr. 9 : 757. 1920; Bor, Grass. Burm. Ceyl. Ind. & Pak. 358. 1960. *Panicum interruptum* Willd. Sp. Pl. 1 : 341. 1798; Hook. f. Fl. Brit. India 7 : 40. 1896; Cooke, Fl. Pres. Bombay 3 : 450. 1958 (Repr. ed.).

Perennials, 30-100 cm tall, culms ascending from creeping and rooting base. Leaves 10—20 × 0.6—1.0 cm, linear-lanceolate, glabrous. Spikes 10—25 cm long; spikelets 0.35-0.4 cm long, oblong-elliptic; lower glume 0.15 cm long, ovate, 3-5 nerved, upper glume 0.4 cm long, oblong-ovate, 9-nerved, apex acute; lower lemma 0.4 cm long, ovate-oblong, 7-9 cm nerved, apex acute, upper lemma 0.3 cm long, elliptic, coriaceous, shining.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass. t. 108. 1934.

Distrib. : Infrequent in water-logged areas and in fields from ghats to plains; Sawantwadi-Amboli-Nangartas, Chaukul-Soliya jungle. Vengurla (Cooke, l.c.).

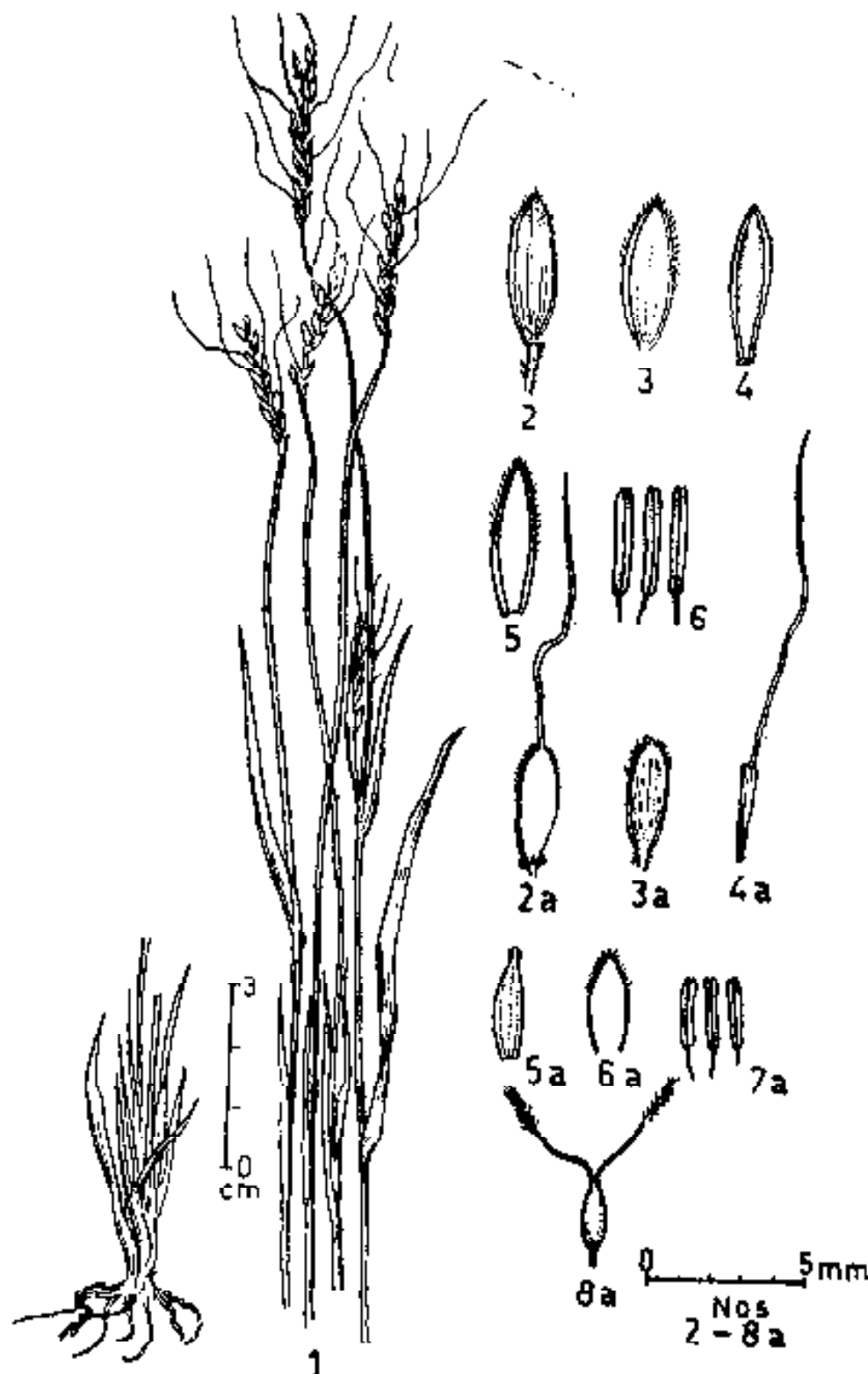
S. myosuroides (R. Br.) A. Camus in Lecompte, Fl. Gen. de l'Indo-Chine 7 : 460. 1922; Bor, Grass. Burm. Ceyl. Ind. & Pak. 358. 1960. *Panicum myosuroides* R. Br. Prodr. 189. 1810; Hook. f. Fl. Brit. India 7 : 43. 1896; Cooke, Fl. Pres. Bombay 3 : 451. 1958 (Repr. ed.).

Erect, annual grass, 20-100 cm tall. Leaves 10—20 × 0.15—0.3 cm, linear, sparsely hairy above, glabrous beneath. Spikes 2-8 cm long; spikelets 0.25 cm long, ovoid; lower glume 0.12 cm long, ovate, 5-nerved, upper glume 0.2 cm long, ovate, 9-nerved, apex acute; lower lemma 0.2 cm long, ovate, 7-nerved, upper lemma 0.15 cm long, elliptic.

Fls. & Frts. : November-February.

Illus. : Blatt. & McCann, Bombay Grass. t. 107. 1934.

Distrib. : Scattered, in moist, open situations in plains; Sawantwadi-Khanale, Sawantwadi jungle on Vengurla Road.



Schizachyrium parajpyeanum (Bhide) Raiz. et Jain

1. whole plant; 2. pedicelled spikelet; 3. lower glume (ventral view); 4. upper glume; 5. lower lemma; 6. stamens.

2a. sessile spikelet; 3a. lower glume; 4a. upper lemma; 5a. upper glume; 6a. lower lemma; 7a. stamens; 8a. ovary with style and stigma.

SCHIZACHYRIUM Nees

Schizachyrium paranjpyeanum (Bhide) Raiz. et Jain in Proc. Ind. Sci. Congr. Abstracts III, 130. 1953; Bor, Grass. Burm. Ceyl. Ind. & Pak. 216. 1960; Kulkarni et Wadhwa in J. Bombay nat. Hist. Soc. 70 : 238. 1973. *Andropogon paranjpyeanum* Bhide in J. Proc. As. Soc. Bengal (n. s.) 7 : 514. 1911.

Tufted annuals, 20-30 cm tall, nodes bearded. Leaves 4-8 x 0.2—0.3 cm, linear, hairy on both sides, margins bulbous based hairy or minutely scaberrulous. Racemes 2-3 cm long; sessile spikelets 0.35 cm long, awns 2-6 cm long; lower glume oblong-elliptic, 3-nerved, rounded on back and glabrous, tip rounded, hairy on either side of tip along margins, upper glume 0.4 cm long, elliptic, 1-nerved, apex acute; pedicelled spikelets 0.5 cm long, flat.

Fls. & Frts. : October-November.

Illus. : Kulkarni et Wadhwa l. c. Pl. IV.

Distrib. : Occasional on open, rocky plain along the ghats; Sawantwadi-Amboli R. F. and Hiranyakeshi.

SETARIA P. Beauv. (*nom. cons.*)

1. Upper lemma as long as upper glume, smooth	..	<i>S. italica</i>
1. Upper lemma shorter than upper glume, rugose	..	<i>S. pumila</i>

Setaria italica (L.) P. Beauv. Ess. Agrost. 51 : 170, 178. 1812; Hook. f. Fl. Brit. India 7 : 78. 1896; Cooke, Fl. Pres. Bombay 3 : 437. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 362. 1960. *Panicum itolicum* L. Sp. Pl. 56. 1753.

Erect annuals, 60-100 cm tall. Leaves 15-30 x 0.4—2.5 cm, linear-lanceolate, minutely scaberrulous on both sides and along margins. Panicles 8-12 cm long, compact; spikelets 0.25 cm long, ellipsoid; lower glume 0.05 cm long, ovate, 1-nerved, upper glume 0.15 cm long, ovate, rounded.

Fls. & Frts. : January-February.

Distrib. : Cultivated in plains for seeds used as cereals, found as an escape; Kudal-Chapheli river bank.

S. pumila (Poir.) Roem. & Schult. Syst. Veg. 2:891. 1817; Cope in Nasir & Ali, Fl. Pakistan 143:181. 1982. *Panicum pumilum* Poir. in Lamk. Encycl. Suppl. 4:273. 1816. *Setaria glauca* auct. non. (L.) P. Beauv. 1812; Hook. f. Fl. Brit. India 7 : 78. 1896; Cooke, Fl. Pres. Bombay 3 : 435. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 360. 1960; Sant. Fl. Khandala ed. 3, 319. 1967.

Erect annuals or perennials, 15-40 cm tall. Leaves 4—15 × 0.25—0.35 cm, linear, glabrous or sparsely hairy above. Panicles 2-6 cm long, cylindrical; spikelets 0.25 cm long, ellipsoid, with 0.5-0.7 cm long bristles; lower glume 0.1 cm long, ovate, 3-nerved, upper glume 0.15 cm long, ovate, 5-nerved, apex acute.

Fls. & Frts. : September-October.

Distrib. : Frequent in open, moist situations from ghats to plains; Kankavli-Nandgaon-Belachi Rai, Phondaghat. Sawantwadi-Ramghat. Vengurla-Vagiri forest.

SPINIFEX L.

Spinifex littoreus (Burm. f.) Merr. in Philipp. J. Sci. Bot. 7 : 229. 1912; Bor, Grass. Burm. Ceyl. Ind. & Pak. 366. 1960, *Stipa littorea* Burm. f. Fl. Ind. 29. 1768. *Spinifex squarrosus* L. Mant. 300. 1771; Hook. f. Fl. Brit. India 7 : 63. 1896; Cooke, Fl. Pres. Bombay 3 : 428. 1958 (Repr. ed.).

Trailing perennials, rooting at nodes. Leaves 7—15 × 0.4—0.7 cm, linear, coriaceous, involute, margins minutely scaberulous, glabrous, apex cuspidate. Spikelets in racemes, 4 cm long; male spikelets 0.8-1.0 cm long; lower glume 0.6 cm long, ovate, 7-9 nerved, nerves scabrid in the upper half, upper glume 0.7 cm long, elliptic, 9-11 nerved, glabrous; female spikelets in heads, 0.8 cm long; lower glume 0.8 cm long, ovate-elliptic, 7-9 nerved, nerves scabrid in upper half, apex acute, upper glume 0.7 cm long, similar to lower glume.

Fls. & Frts. : October-February.

Illus. : Blatt. & McCann, Bombay Grass. t. 76 a. 1934.

Distrib. : Infrequent on coastal sandy soil; Malwan-Achre creek, Deobag, Kolanib on road to Kalawli creek. Vengurla Chibber s. n.

SPODIPOGON Trin.

Spodiopogon rhizophorus (Steud.) Pilger in Engl. & Prantl, Pflanzenfam. 14c : 119. 1940; Bor, Grass. Burm. Ceyl. Ind. & Pak. 246. 1960. *Andropogon rhizophorus* Steud. Syn. Pl. Glum. 1 : 381. 1854. *Spodiopogon albidus* (Wall.) Benth. in J. Linn. Soc. (Bot.) 19 : 66. 1881; Hook. f. Fl. Brit. India 7 : 108. 1896; Cooke, Fl. Pres. Bombay 3 : 464. 1958 (Repr. ed.).

Erect annuals, nodes glabrous, basal nodes with stilt roots. Leaves 5-12 × 1.2—2.5 cm, elliptic-oblong, thin, hairy on both sides, margins scaberulous. Racemes 2-4 cm long; sessile spikelets 1.5 cm long, awns 0.9 cm long; lower glume elliptic, hairy in the lower half, 5-7 nerved, flat in upper half, upper

glume ovate, hairy, margins broad and hyaline; pedicelled spikelets 0.45 cm long, oblong, awns 0.9 cm long.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass, t. 34, 1934.

Distrib. : Infrequent along the ghats only; Kankavli-Phonda-Bhairy Pathar, Phondaghat, Sawantwadi-Anbodighat-top.

SPOROBOLUS R. Br.

1. Pedicels hairy; lower glume 2 cm long .. *S. virginicus*

1. Pedicels glabrous; lower glume 0.1-0.15 cm long .. *S. piliferus*

Sporobolus piliferus (Trin.) Kunth, Enum. 1 : 211, 1833; Hook. f. Fl. Brit. India 7 : 251, 1896; Cooke, Fl. Pres. Bombay 3 : 541, 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 632, 1960. *Vilfa pilifera* Trin. Diss. Bot. 157, 1824. *Sporobolus ciliatus* Munro ex Hook. f. l. c.

Tufted annuals, 15-20 cm tall. Leaves 2.5-5.0 × 0.2-0.3 cm, linear, hairy on both sides, deciduous hairy, margins bulbous-based hairy. Panicles cylindrical, 4-6 cm long; spikelets 0.2 cm long, ellipsoid; lower glume oblong-elliptic, upper glume 0.2 cm long, elliptic, hyaline, apex acute, 1-nerved.

Fls. & Frts. : August-September.

Illus. : Blatt. & McCann, Bombay Grass, t. 151, 1934.

Distrib. : Occasional in open situations on rocky plain in coastal areas; Sawantwadi-Ajgaon.

S. virginicus (L.) Kunth, Rev. Gram. 1 : 67, 1829; Hook. f. Fl. Brit. India 7 : 249, 1896; Bor, Grass. Burm. Ceyl. Ind. & Pak. 634, 1960. *Agrostis virginea* L. Sp. Pl. 63, 1753.

Decumbent-ascending perennials, rooting at nodes. Leaves 4-10 × 0.2-0.3 cm, linear, glabrous. Panicles 4-5 cm long; spikelets 0.3 cm long, narrowly ellipsoid; lower glume elliptic-oblong, glabrous, upper glume 0.25 cm long, ovate-elliptic, 1-nerved, apex acute.

Fls. & Frts. : August-September.

Illus. : Blatt. & McCann, Bombay Grass, t. 149, 1934.

Distrib. : Occasional on shore in rock crevices; Malwan-Shore opposite to Rest House.

THEMEDA FORSSK.

1. Involucral spikelets at different levels, often 2-bisexual spikelets in the same raceme	..	<i>T. tremula</i>
1. Involucral spikelets all at same levels, 1-bisexual spikelet in the same raceme		
2. Involucral spikelets less than 0.6 cm long	..	<i>T. quadrivalvis</i>
2. Involucral spikelets more than 0.6 cm long	..	<i>T. triandra</i>

Themeda quadrivalvis (L.) Kuntze, Rev. Gen. Pl. 2 : 794. 1891; Bor, Grass. Burm. Ceyl. Ind. & Pak. 252. 1960; Sant. Fl. Khandala ed. 3, 320. 1967. *Andropogon quadrivalvis* L. in Murr. Syst. Veg. ed. 13, 758. 1774. *Anthistiria ciliata* L. f. Suppl. 113. 1781; Hook. f. Fl. Brit. India. 7 : 213. 1896. *Themeda ciliata* (L. f.) Hack. in DC. Mon. Phan. 6 : 664. 1889; Cooke, Fl. Pres. Bombay 3 : 514. 1958 (Repr. ed.).

Annuals or perennials, 80-150 cm tall. Leaves 10—20 × 0.4—0.6 cm, linear, glabrous, margins minutely scaberulous. Panicles leafy; racemes 1 to 3-nate, spatheoles tubercle-based hairy on either side of throat; involucral spikelets elliptic-lanceolate, 0.5 cm long; lower glume lanceolate, acuminate, tubercle-based hairs in the upper part, margins scabrid in the upper 1/3, upper glume elliptic, margins ciliate, infolded, 1-nerved; sessile spikelets 0.45 cm long, ovoid-elliptic, awns 1 cm long; pedicelled spikelets 0.6 cm long, elliptic-lanceolate.

Fls. & Frts. : October-November.

Distrib. : Common in open, grassy patches from ghats to plains; Kankavli-Janoli riverbed, Nandgaon, Phondaghat, Kudal-Kadaval. Sawantwadi-Amboli R. F., Ambolighat-Nanapani, Ramghat.

T. tremula (Nees ex Steud.) Hack. in DC. Mon. Phan. 6 : 667. 1889; Cooke, Fl. Pres. Bombay 3 : 515. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 254. 1960. *Anthistiria tremula* Nees ex Steud. Syn. Pl. Glum. 1 : 401. 1854. *A. thwaitesii* Hook. f. Fl. Brit. India 7 : 215. 1896.

Erect annuals or perennials, 20-100 cm tall. Leaves 6—15 × 0.3—0.5 cm, linear, deciduous hairy on both sides, margins and nerves above minutely scaberulous. Racemes in distant fascicles, subglobose; involucral spikelets 4, 0.8 cm long, oblong-lanceolate; lower glume tubercle-based hairy, 9-11 nerved, upper glume 0.65 cm long, elliptic-oblong, hyaline, 3-nerved; sessile spikelets awned, 0.35 cm long, oblong, awns 2.6-2.8 cm long; pedicelled spikelets 0.65 cm long, elliptic-lanceolate.

Fls. & Frts. : October-February.

Illus. : Blatt. & Meehan, Bombay Grass. t. 75. 1934.

Distrib. : Frequent in open situations along roadsides from ghats to plains; Kankavli-Phonda-Devichi Rai. Phondaghat. Kudal-Chapheli-Pulas jungle. Malwan-Adari. Sawantwadi-Ambolighat-Nanapani.

T. triandra Forssk. Fl. Aegypt.-Arab. 178. 1775; Bor, Grass. Burm. Ceyl. Ind. & Pak. 254. 1960; Sant. Fl. Khandala ed. 3. 320. 1967. *Anthistiria imberbis* Retz. Obs. Bot. 3 : 11. 1783; Hook. f. Fl. Brit. India 7 : 211. 1896. *Themeda imberbis* (Retz.) Cooke. Fl. Pres. Bombay 2 : 993. 1908 et 3 : 513. 1958 (Repr. ed.).

Stout perennials, 80—150 cm tall. Leaves 10—25 × 0.3—0.7 cm, linear-lanceolate, sparsely hairy on both sides or glabrous, margins remotely tubercle based hairy. Racemes distant, fan-shaped fascicles; involucre spikelets 4, 0.9-0.95 cm long, elliptic-oblong, all male florets; sessile spikelets 0.65 cm long, ellipsoid, awns 5.0-5.5 cm long; lower glume glabrous, 7-9 nerved, apex rounded, upper glume 0.65 cm long, narrowly oblong, 2-vertical depressed-lines on either side of nerves, tip truncate; pedicelled spikelets neutral, 0.75-0.8 cm long, elliptic-lanceolate.

Fls. & Frts. : October-February.

Illus. : Blatt. & Meehan, Bombay Grass. t. 148. 1934; Bor, l. c. 253. fig. 27.

Distrib. : Frequent in open areas from ghats to plains; Kankavli-Phonda. Sawantwadi-Akeri-Rest. House campus, Ambolighat-Nanapani, Ramghat.

TRIPOGON Roem. & Schult.

1. Glumes membranous with awns *T. capillatus*

1. Glumes coriaceous, without or with short awns *T. lissox*

Tripogon capillatus Jaub. et Spach, Ill. Fl. Or. 4 : 47. t. 332. 1851; Hook. f. Fl. Brit. India 7 : 285. 1896; Cooke, Fl. Pres. Bombay 3 : 558. 1958 (Repr. ed.); Bor, Grass. Burm. Ceyl. Ind. & Pak. 521. 1960; Sant. Fl. Khandala ed. 3, 321. 1967.

Slender annuals, tufted, 15-25 cm tall, nodes glabrous. Leaves 6—18 × 0.15—0.2 cm, linear, sparsely scaberulous on nerves above, glabrous beneath. Spikes contracted, 10-15 cm long; spikelets 1.4 cm long (including awns);

lower glume 0.25 cm long, lanceolate, upper glume 1 cm long, awned, linear-lanceolate, glabrous.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass. t. 179. 1934.

Distrib. : Occasional on moist rocks along the ghats; Sawantwadi-Ambolighat-top.

T. Hsboae Stapf in Kew Bull. 1892 : 34. 1892; Hook. f. Fl. Brit. India 7 : 286. 1896; Cooke, Fl. Pres. Bombay 3 : 558. 1958 (Repr. ed.) ; Bor, Grass. Burm. Ceyl. Ind. & Pak. 522. 1960; Sant. Fl. Khandala ed. 3, 321. 1967.

Perennials, tufted, 45-60 cm tall. Leaves 12-35 × 0.4-0.6 cm, linear-lanceolate, scabrous on nerves above and along margins, glabrous below. Spikes 15-25 cm long; spikelets 0.5-0.75 cm long; lower glume 0.2 cm long, ovate, 1-nerved, nerves scaberulous in the upper half, upper glume 0.3 cm long, lanceolate, 1-nerved.

Fls. & Frts. : October-November.

Illus. : Blatt. & McCann, Bombay Grass. t. 180. 1934.

Distrib. : Frequent along higher slopes of the ghats on damp rocks and near falls; Kankavli-Phondaghat. Sawantwadi-Amboli-Mahadeogad, Ambolighat-Nanapani.

ZOYSIA Willd.

Zoysia matrella (L.) Merr. in Philipp. J. Sci. Bot. 7 : 230. 1912; Bor, Grass. Burm. Ceyl. Ind. & Pak. 684. 1960. *Agrostis matrella* L. Mant. Pl. 185. 1771. *Zoysia pungens* Willd. in Ges. Naturf. Freunde Berlin, Neue Schr. 3 : 441. 1801; Hook. f. Fl. Brit. India 7 : 99. 1896; Cooke, Fl. Pres. Bombay 3 : 537. 1958 (Repr. ed.).

Rhizomatous perennials, 10-15 cm tall, leafy shoots given out from root-stock. Leaves 2-4 × 0.2 cm, linear, glabrous on both sides, margins inrolled. Racemes solitary, 2.5-3.0 cm long; spikelets 0.28-0.3 cm long, ovate, pedicelled; lower glume coriaceous, biconvex, 1-nerved, membranous at tips, upper glume absent; lemmas 0.22 cm long, boat-shaped, 1-nerved.

Fls. & Frts. : August-September.

Distrib. : Occasional in the crevices of rocks along the shore; Malwan-Seashore opposite Rest House.

ERRATA

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37	<i>Mesua lerea</i>	<i>Mesua ferrea</i>
56	<i>Banisteria</i>	<i>Banisteria</i>
147	<i>A. sinuata</i> (Lamk.) Merr.	<i>A. sinuata</i> (Lour.) Merr.
150	<i>Mimosa Xylocarpa</i>	<i>Mimosa xylocarpa</i>
342	<i>T. fragrans auct. plur.</i>	<i>T. fragrans auct. plur.</i>
343	<i>Avicennia martina</i>	<i>Avicennia marina</i>
360	<i>Orthosiphon tomentosum</i>	<i>Orthosiphon tomentosus</i>
413	<i>Lecanthus pedunculata</i>	<i>Lecanthus peduncularis</i>
532	<i>Glyphochtoa acuminata</i> var. <i>acuminata</i>	
	description	
	Sessile spikelets : lowerglume	Sessile spikelets : lowerglume
	ellipsoid	elliptic
	upperglume ellipsoid	upperglume elliptic
	Pedicelled spikelets :	Pedicelled spikelets
	lowerglume oblong-ovoid	lowerglume oblong-ovate

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<i>inermis</i> L.	344	<i>indica</i> L.	184
<i>serrata</i> L.	345	<i>Zanthoxylum</i> L.	67
<i>Wagatea</i> Dalz.	145	<i>connaroides</i> Wight & Arn.	71
<i>spicata</i> Dalz.	145	<i>rhetsa</i> (Roxb.) DC.	67
<i>Walsura</i> Roxb.	71	<i>Zchneria</i> Endl.	185
<i>piscida</i> Roxb.	71	<i>heterophylla</i> Thw.	183
<i>trifolia</i> (A. Juss.) Harms	71	<i>hookeriana</i> (Wight & Arn.) Arn.	185
<i>Waltheria</i> L.	49	<i>scabra</i> (L.f.) Sond.	185
<i>indica</i> L.	49	<i>thwaitesii</i> (Schweinf.) Jeffrey	185
<i>Wallakaka</i> Hassk.	264	<i>umbellata</i> Thw.	183
<i>volubilis</i> (L.f.) Stapf	264	<i>Zerumbet</i>	442
<i>Wedelia</i> Jacq.	231	<i>speciosum</i> Wendl.	442
<i>biflora</i> (L.) DC.	231	<i>Zingiber</i> Boehm.	445
<i>Wendlandia</i> Benth. ex DC.	212	<i>cernuum</i> Dalz.	445
<i>thyrsoides</i> (Roem. & Schult.) Steud.	212	<i>macrostachyum</i> Dalz.	445
<i>notuniana</i> Wall. ex Wight & Arn.	212	<i>neesatum</i> (Grah.) Ratham.	445
<i>Wiesneria</i> Micheli	471	ZINGIBERACEAE	441
<i>triandra</i> (Dulz.) Micheli	471	<i>Zizania</i>	497
<i>Woodfordia</i> Salisb.	175	<i>terrestris</i> L.	497
<i>floribunda</i> Salisb.	175	<i>Ziziphus</i> Mill.	82
<i>fruticosa</i> (L.) Kurz	175	<i>oenoplia</i> (L.) Mill.	83
<i>Wrightia</i> R. Br.	253	<i>rugosa</i> Lamk.	83
<i>arbores</i> (Dennst.) Mabber.	253	<i>xytopyrus</i> (Retz.) Willd.	83
<i>tinctoria</i> R. Br.	254	<i>Zornia</i> Gmel.	139
<i>tomentosa</i> (Roxb.) Roem. & Schult.	254	<i>diphylla</i> Bak.	139
<i>Wulferia</i>	311	<i>gibbosa</i> Span.	139
<i>notuniana</i> Wall.	311	<i>Zoysia</i> Willd.	561
<i>Xantolis</i> Raf.	238	<i>mairella</i> (L.) Merr.	561
<i>tomentosa</i> (Roxb.) Raf.	238	<i>pungens</i> Willd.	561
<i>Xenoslegia</i> Austin & Staples	291		
<i>tridentata</i> (L.) Austin			
& Staples	291		
<i>Xeromphis</i> Raf.	213		