

Flora of India
Series 3

FLORA OF BULDHANA DISTRICT

P. G. Diwakar
&
B. D. Sharma



BOTANICAL SURVEY OF INDIA

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FLORA OF BULDHANA DISTRICT MAHARASHTRA STATE

P. G. DIWAKAR
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BOTANICAL SURVEY OF INDIA

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Cover Photo : A flowering twig of *Barleria gibsonii* Dalz.

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P. G. Diwakar
B. D. Sharma

Botanical Survey of India
Western Circle, Pune - 411 001.

FOREWORD

The Botanical Survey of India is a pioneer institution of our country in the study of the Floral Wealth of our country. With the current awareness and emphasis on biodiversity and conservation, it has become imperative to have correctly identified and current list of plants of our country. Our country being vast and with varied climatic zones, the difficulties can be surmounted by identifying smaller areas, preferably districts, for collecting and collating our knowledge on floral wealth. It is towards such endeavour that this flora of Buldhana, a district in Maharashtra is attempted by the authors who strived for it from the Western Circle of our Survey at Pune. It is to be noted that the district falls under "Vidharbha" region which has not received much attention earlier.

Though Cooke's Flora of the Presidency of Bombay (1901-1908), a fine work of its kind is available for reference, the areas under Marathwada and Vidharbha do not find place in this flora as they were not in the political boundary of the then Bombay Presidency. This work on Buldhana District may supplement to the knowledge of the floristic account of the area. As a part of Floristic survey and inventory of plant wealth at the national, regional and district levels, the Botanical Survey of India has been publishing the Flora of India under four series. The printing of District Floras under series 3 would ultimately form the base work for State Floras. In this context "The Flora of Buldhana District" is one of the unexplored districts that has been intensively explored during the years 1982-1987 and first-hand data of the plants collected.

The District of Buldhana is the western most district of the Vidharbha of the Maharashtra State, situated in the Tapi and Godavari river basins. The northern half of the district is broadly called 'Payanghat' and the southern half known as the 'Balaghat'.

The introductory chapter gives topography, special features of the district, general vegetation types, plants of medicinal, economical and horticultural importance. The systematic treatment deals with 567 species, 3 subspecies and 11 varieties, spread under 378 genera and 102 families, besides 3 species of Gymnosperms and Pteridophytes. Two interesting species constitute new records for Maharashtra State. A total of sixteen rare and endangered species

with restricted distribution have been listed, besides two endemic species to Maharashtra State. All these specimens are housed in the regional herbarium of Western Circle, Botanical Survey of India at Pune (BSI).

I trust this flora will be useful to the students and teachers of Botany, Officials of the forest and agricultural departments and environmentalists interested in the protection and conservation of threatened species and natural plant wealth. This flora provides comprehensive coverage of floristics of the district and the authors would welcome any useful suggestions from the users of this flora for its improvement and incorporation in future editions.

N. P. Singh
Director

Botanical Survey of India
Calcutta.
January, 2000.

INTRODUCTION

Buldhana district is the western most district of the Vidharbha, of the Maharashtra State. The district has been named after Buldhana town, which is the district headquarters since 1867. The name of town is derived from the corrupt form of Bhil-Thana i.e. the place of Bhils. The district is situated partly in Tapi basin and partly in the Godavari basin. The northern half of the district is broadly called 'Payanghat' and is drained by the Purna river which is a tributary of the Tapi. The southern half known as the 'Balaghat' is drained by the Penganga and the Katepurna rivers which are tributaries of the Godavari. The Payanghat and the Balaghat occupy the vast fertile plain of the entire district between hill ranges of Satpuda towards the north and Ajantha-Satmala ranges towards the south.

The district Buldhana is situated between 19°.51' and 21°.17' North latitudes and 75°.57' and 76°.49' East longitudes. It is bounded on the north by Nimar district of Madhya Pradesh, on east by the Akola and Amaravati districts, on the west by the Jalgaon and Aurangabad districts and on the south by the Jalna and Parbhani districts.

The district is administratively divided into five Revenue Sub-divisions namely Buldhana, Mehkar, Khamgaon, Jalgaon-Jamod and Malkapur. From 1st May, 1981, Panchayat Samities are converted into eight new tehsils. Thus, Buldhana sub-division comprises Buldhana, Chikhli and Deulgaon Raja tehsils while Mehkar sub-division comprises Mehkar, Lonar and Sindkhed Raja tehsils, Khamgaon sub-division comprises Khamagaon and Shegaon tehsils while Malkapur sub-division comprises Malkapur, Nandura and Motala tehsils and Jalgaon-Jamod sub-division comprises Jalgaon-Jamod and Sangrampur tehsils. The district is a part of Amaravati Division and is administrated by the Collector.

The district extends over an area of 9,745 square kilometers of which 1,558 sq. km. (1984-85) are constituted of forests which comes to less than 16% (1984-85) of the total area of the district.

Out of a total population of 16,45,000 for the district in 1985, 82.4 per cent reside in rural areas and 17.6 per cent in urban areas. The climate of the district is dry and hot in general and considered to be healthy. Average rainfall of the district is 754 mm (1984-85).

The northern part of the district is well connected by railways and trunk roads. The Bombay-Calcutta line of the Central Railway and the Bombay-Calcutta National Highway pass through this district. The southern part of the district is connected only by State Highway to Aurangabad and Akola Districts. Malkapur, Khamgaon and Nandura are important railway and roadway stations.

Special Features of the District

1. The Rajmata Jijabai's father Lakhuji Jadhav's native place is located at Sindkhed Raja which is important historical place in the district.
2. The richest temple of Balaji in Maharashtra is at Deulgaon-Raja.
3. The religious place of Shegaon is famous for Gajanan Maharaj Temple.
4. Shri. Kshetra Nagzari of Gomaji Maharaj is also situated in the district which attracts the attention of religious minded people. It is very near to Shegaon.
5. The first co-operative sugar factory in Vidharbha region started in 1969 as 'Jijamata Sugar Factory' at Dusarbid, in this district only.
6. Ambabarwa and Bhinagara are the forest hill stations situated in the Jalgaon-Jamod tehsil of this district.
7. Lonar salt water lake, the only hyper velocity natural impact crater basaltic rock in the world is situated in this district.
8. Buldhana district head quarters is having a big T.B. Sanatorium.
9. Two medium projects Nalganga and Dyanganga were completed in this district and work of Koradi-Paldhag, Mas and Mandhwa projects are in progress.
10. Cotton, groundnut and jawar are the major crops of this district.
11. Sawargaon Dukre was the first village which was not observing untouchability even before independence.
12. Vivekanand Ashram at Hiware village is famous for open school and for treatment on various diseases.

13. Gardgaon village is famous in Vidharbha for its 'Budha Vihar'.
14. The northern part of the district is famous for Banana crops.
15. Industrially, the district is one of the most backward districts of Maharashtra State.

Historical Note

The District Buldhana formed part of erstwhile Berar. It was assigned along with the rest of Berar to the British Government by the Nizam of Hyderabad following the treaty of 1853. In 1905 the treaties of assignment were superseded by an agreement under which the Nizam leased Berar to the British in perpetuity. In August, 1905, subsequent to the amalgamation of Berar with Central Provinces, the Buldhana district consisted of Chikhli (formerly known as Deulghat), Mehkar, Khamgaon, Buldhana and Jalgaon-Jamod talukas. In 1956, the district was transferred from Madhya Pradesh to Bombay State and since May, 1960 the district forms part of the State of Maharashtra.

Reasons for undertaking the present work and its importance

The Botanical Survey of India felt the need for revising the "Flora of India", incorporating up-to-date data, following either Statewise or District-wise pattern. It was also realised that such work is possible only after an extensive and intensive explorations of various districts of the States of the country, which were either partly explored or totally unexplored.

The Western Circle of the Botanical Survey of India, situated at Pune, while planning for the botanical exploration of the Maharashtra State, found that a few interesting districts along the "Satpuda Ranges" with their rich vegetation, need a special detailed study which was not carried out by the earlier workers.

The basic data of a floristic account was not available for Buldhana district as also for the whole of Vidharbha. Hence, it was important to intensively explore and identify the vegetation and important plants in these areas. Further, the knowledge about the plants in any region is essential with increasing consciousness of people about the environment and its impact on living organisms in general.

The Government of Maharashtra has a number of irrigation projects in this district. Some of them like Nalganga, Dyanganga, Koradi, Mas etc. have been completed and the major projects like Wan Project in "Satpuda Range" has already been initiated, which will result in depletion or destruction of forest areas. It is, therefore, evident that the study of the vegetation of Buldhana district is of immense importance.

The existing Cooke's Flora of the Presidency of Bombay (1901-1908), though a very fine work of its kind, the areas under Marathwada and Vidharbha have not found place in this flora as they were not in the political boundary of the then Bombay Presidency. Hence, studying the Flora of Buldhana district has gained importance and the same has been done to fill up the gap and to properly assess the natural wealth of the district. Such contribution will add up to the Flora of Maharashtra State covering 33 districts as planned by the Western Circle of the Botanical Survey of India. The information presented here will help nature lovers, teachers, students, foresters and professionals alike who are concerned with the botany of the area.

Past work

The area of the Buldhana district, from Botanical exploration point of view is almost virgin. Witt (1908) published a list of Trees, Shrubs and Climbers and other plants of economic importance found in the Berar Forest Circle of the Central Provinces. The list contains a total of 333 species of which most of the plants are from Akola, Yawatmal and Amaravati districts and a few plants are from Buldhana district. No other floristic work, other than this, has been published covering the forests of this area excepting for a list of plants which has been included in the working plans of forest department published for the divisions from time to time. The first author has collected almost all plant species reported by Witt (1908) from this area and about 500 species which were not collected earlier.

Present exploration of Buldhana district

Methods : The present flora is based on the results obtained from the intensive study of the vegetation and the floristics of the area for the period of 5 years (1982-1987). The methods employed for the present study are presented under three heads i.e., (a) Field work, (b) Herbarium Work and (c) Plan of the Flora.

a) Field Work

In order to carry out field work more efficiently the district was divided into small areas, each with either a district or tehsil headquarters. It was thus convenient to camp at such headquarters and cover the surrounding areas for plant exploration. Certain areas covered with forests and joined by means of temporary roads, however, were found to be inaccessible, particularly during rainy season, when most of these roads get washed away. In spite of these difficulties, efforts have been made to visit important forest areas frequently during all the seasons and sample collections have been made satisfactorily.

While visiting the different places, every attempt was made to collect cultigens and also weeds in cultivated fields, fallow fields, waste lands, roadsides etc. Sufficient attention was also given for gathering information on plants of medicinal and fodder value and also of other economic importance. Every care was taken to collect data on detailed fields observations of each plant on the spot, by way of preparing notes on habitat, habit, condition whether vegetative or in flowers or in fruits, floral colour and scent, distribution, frequency in different localities, local names, local uses, association with other plants etc. The repeated examination and study of the same plants, during the frequent visits added further to the knowledge of their frequency and relative abundance in the district, their phenology and life-cycle etc.

b) Herbarium Work

The plant specimens were tentatively identified in the field. After drying, poisoning, mounting and after following conventional methods, they were critically studied and their identification confirmed by reference to the Flora of British India (J.D. Hooker *et al.* 1872-1897), Flora of Presidency of Bombay T. Cooke, 1958 (Repr. ed.) etc., besides many other recent and relevant monographs and revisions. These specimens were then matched with authentic specimens available in (BSI).

The total collection from the district amounts to about 1312 field numbers comprising *ca* 8000 specimens, which have been deposited in the regional herbarium of the Botanical Survey of India, at Pune (BSI).

c) **Plan of the Flora**

The arrangement of the families followed in the present work, is based primarily on Bentham & Hooker's (1862-1883) system of classification in general as is followed in most of the major floras published in India. However, in a number of cases, the circumscription of the families was followed after Hutchinson (1959) and Airy Shaw in Willis Dictionary (1973). The genera under each family and species under each genus have been arranged in alphabetical order for the sake of convenience.

Dichotomous keys have been provided for the families, genera and species. These keys are artificial and are largely based on exomorphic characters. Cultivated species have been included separately in the last, after each genus of the family.

The nomenclature of plants has been brought up-to-date as far as possible.

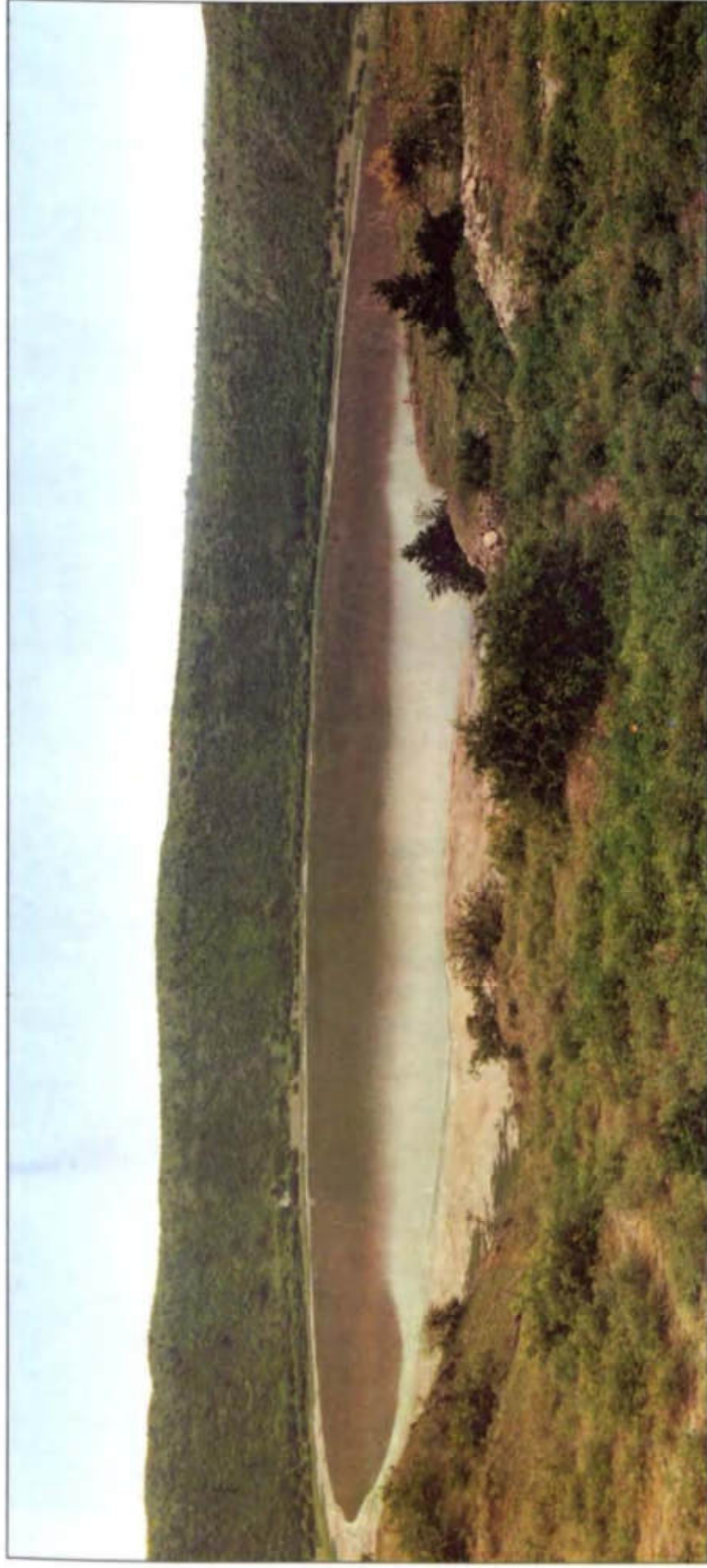
The latest botanical name and basionym, if any, have been provided for each species with full citations. Synonyms, wherever found necessary to connect the name with Cooke's Flora of Presidency of Bombay and Hooker's Flora of British India have also been given. All local Marathi names are given in inverted commas after citation.

The species have been provided with short but diagnostic description. It is followed by a note on its distribution, available illustration, the relevant data on flowering and fruiting and the specific locality.

The plant specimens collected and studied during the course of present study have been cited under distribution for each species. The exact locality of the collection has been given in alphabetical order. Under the uses, the following details have been given viz., which part of the plant is used, whether used as medicinal or economical etc. Whether used by local people or tribes and the procedure of the use. Under the notes, the first author has tried to reflect his own special observations, wherever available and nomenclatural notes if any.

Throughout the present work the metric system has been used for showing the measurements.

An exhaustive bibliography of essential references consulted during the course of the present study, is appended at the end. Indexes to the names of the taxa dealt within the present work inclusive of both botanical and local names have been provided.



The most important landmark in the district is the Lonar lake



Deforestation due to illegal expansion of farming lands.



Kydia calycina Roxb.



Hardywickia binata Roxb. forest with
Maytenus emarginata (Willd.) Ding Hou in foreground



Maytenus emarginata (Willd.) Ding Hou



***Tectona grandis* L.f.**



***Terminalia bellirica* (Gaertn.) Roxb.**



Helicteres isora L.



Martynia annua L.

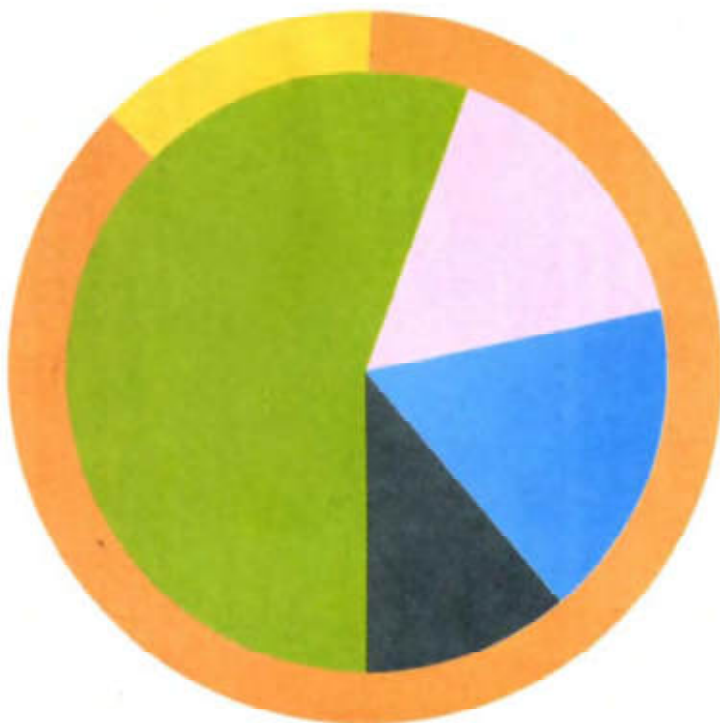


***Evolvulus alisnoides* (L.) L.**



***Barleria gibsonii* Dalz.**

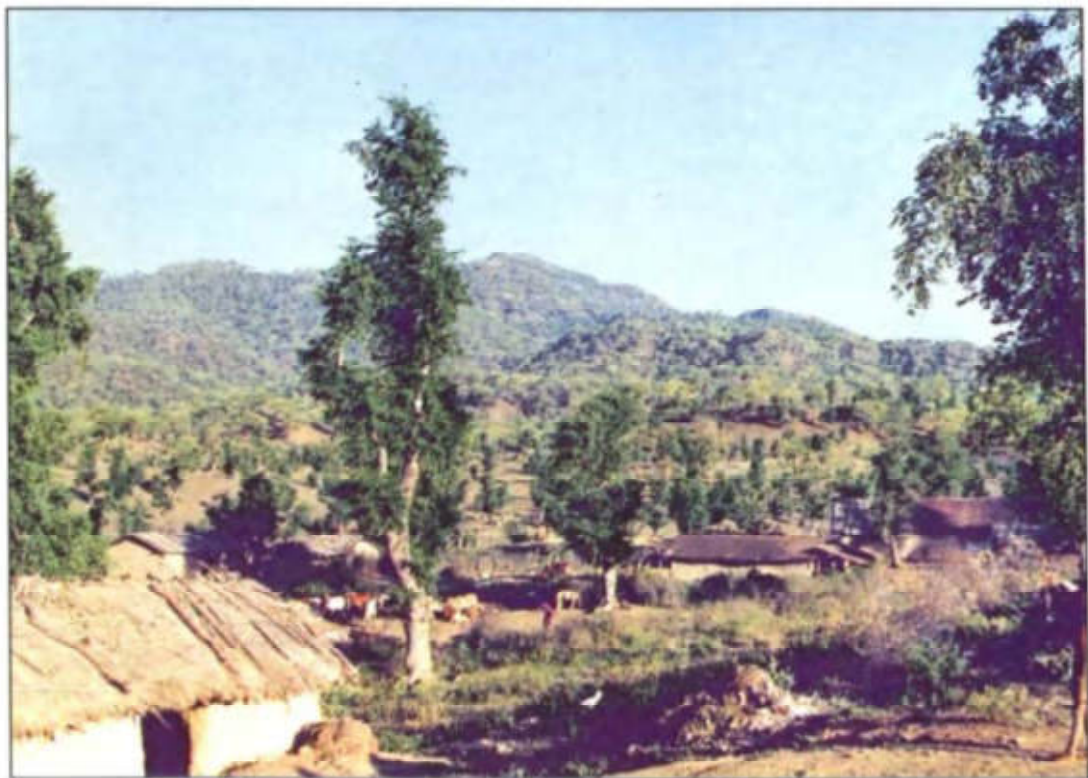
SPECTRUM



- Dicots - 87.3%
- Monocots - 12.7%
- Herbs (erect) - 55.60%
- Herbaceous climbers, Twiners - 11.15%
- Shrubs - 17.15%
- Trees - 16.10%



A dried stream with a pure patch of **Tamarix ericoides** Rottl.



A tribal village of Wasali forests with **Hardwickia binata** Roxb. trees

Appropriate maps and tables representing various data in connection with the present work are given. A few line drawings have also been included. Some photographs depicting the vegetation and interesting species are also presented.

TOPOGRAPHY

Most part of the district is an elevated land separated from plains to the north by the Ajantha Range. The average elevation of the plateau is 550 m above M.S.L. Out of the old five tehsils, now forming the entire district, the tehsils of Chikhli and Mekhar lie on the Balaghat Plateau while rest of the three tehsils of Malkapur, Khamgaon and Jalgaon-Jamod are in the great plain below known as the Payanghat. These are two natural sub-divisions, which correspond closely to the administrative sub-divisions of the district.

The main system of hills in the Ajantha Range which has formed plateau is called Balaghat. It covers the southern portion of the district, comprising Chikhli and Mehkar tehsils. A ridge of low hills running from north-west to south-east through the Balaghat forms the water shed between the valley of the Penganga and the Katepurna. The main Ajantha Range forms the northern wall of the Deccan table land and the water shed between the Godavari and Tapi valleys.

There is also a branch of Satpuda in the north of Jalgaon-Jamod tehsil, which separates the district from the State of Madhya Pradesh.

GEOLOGY AND SOIL

The district is almost wholly occupied by the lava flows of the Deccan Trap. The flows are generally of the $\alpha\alpha$ type i.e., these are compact, massive fine grained with clinkery surfaces, irregular vesicles and fragmentary tops. They all are jointed and weather into hard, rounded to sub-rounded blocks. Some of the flows are also *porphyritic* i.e., they contain coarse crystals of feldspar in a fine grained ground-mass. The flows are generally horizontal and their thickness ranges from 15 to 73 m.

The most important landmark in the district is the Lonar lake, which is a circular depression 1.83 km in diameter and 137 m deep from the highest point on the rim crest to water level and about 1.2 km in diameter at water level. The 20 m high crater rim gently slopes away and is of irregular surface. Earlier this was thought to be a volcanic crater, but recent extensive work done by Geological Survey of India has conclusively established the origin of this crater due to impact of a meteorite.

The soils are derived from trap rock of volcanic origin. There are three main categories of soils in the district viz.,

- i) Bhurkati, which is deep black soil of very fine texture and very rentative of moisture.
- ii) Morand, which is black cotton soil containing lime and less fertile than pure black cotton soil.
- iii) Barad, which is the shallow soil of the higher lands of the plateau and black, brown or reddish in colour.

LONAR LAKE

The curious crateriform Lonar lake lies (19°59' N.-76°33' E.) close to the southern boundary of the Buldhana district. It is situated at a distance of *ca.* 25 km from Mehkar, the tehsil headquarters and is hemmed in by an amphitheatre of well wooded cliffs. The lake area has semitropical climate.

The Lonar lake area forms a rolling upland of average elevations of 600 m with a few dome-shaped residual hills ranging to heights of 700 m or more. Geologically, the lake lies in a region, which consists of bedded flow basalts of Deccan trap. The lake lies in a nearly circular depression surrounded on all sides by a steeply rising escarpment to an even height of *ca.* 137 m above the water level. The circumference of the lake basin along its outer rim is nearly 6 km and along its inner rim is *ca.* 3.5 km.

Three water springs exist along the scarp slope of the lake. The biggest of these springs, occurs at the head of the ravine on north-eastern slope at a height of 630 m, locally known as 'Dhar'. It meets the domestic water requirement of Lonar village. Along the

FLORA OF BULDHANA DISTRICT

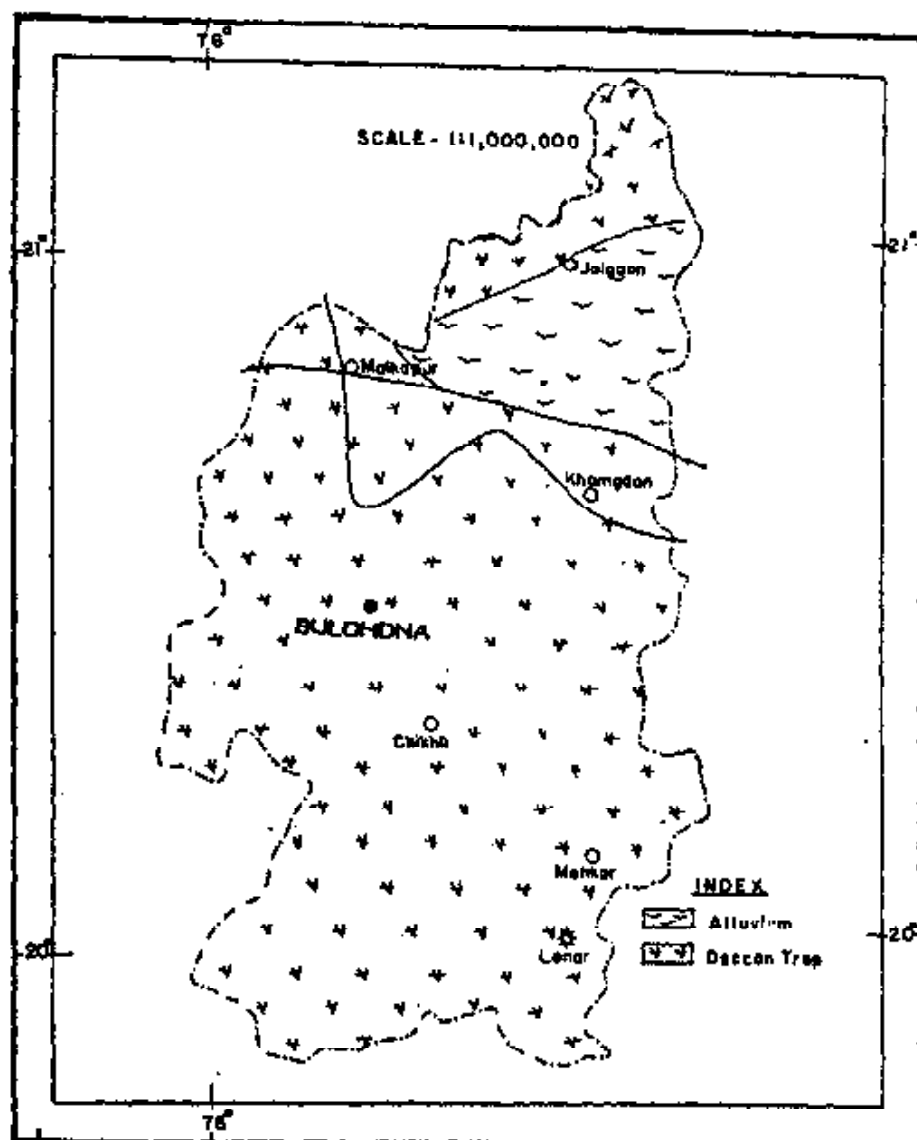


Fig. 1 : Geological Map of Buldhana District

same ravine at a lower level, occurs another spring known as 'Sitanahani'. The third spring occurs on the south-eastern face, close to the water level in the lake and is called as 'Ramgaya'. These natural springs and the temples besides them attract pilgrims from far and near to the Lonar lake.

The water of this lake has been scientifically investigated since the beginning of this century and has been found to be brackish. The water contains high concentration of chlorides, carbonates of Sodium with SiO₂, R₄, S₂, SO₄, Ca. Mg. and K in small amounts besides traces of Boron. The percentages of various elements present in the water of this lake on investigation by different workers are as follows:

Christrie, 1910		Jhingran & Rao, 1958		Tata Iron & Steel Co. Ltd., 1960.	
Percentage		Percentage		Percentage	
Cl.	40.78		31.52		30.87
CO ₃	15.03		22.26		7.52
HCO ₃	2.61		2.06		11.65
SO ₄	1.48		0.30		0.67
Na	39.61		41.74		15.15
K	0.11		1.58		2.05
Ca	0.01		0.01		0.18
Mg	trace		0.01		0.14
RO	—		—		1.46
SO	0.41		0.61		0.13
B	trace		trace		—

The foot of the steep slopes facing the lake is utilised by forest department for teak (*Tectona grandis* L. f.) plantation. Along the north-eastern face near the edge of the lake, there is a belt of *Annona squamosa* L. followed by a natural patch of *Acacia nilotica* (L.) Del. ssp. *indica* (Bth.) Brenan and on its facing slopes a circular strip of grassland is seen.

Most of the geologists believe that the lake was formed during the closing phases of the Deccan trap eruptions. Earlier this was thought to be a volcanic crater, but recent extensive work done by the Geological Survey of India, involving 1500 m of drilling carried out in five drill holes in the main crater, has conclusively established the origin of this crater is due to impact of a meteorite. This is the only instance of its kind in the World where meteoric crater lies in volcanic terrain. For this reason 'Lake' is being declared as '**National monument**'.

CLIMATE

Temperature : The climate of the district is dry and hot in general and considered to be generally healthy. The maximum and the minimum temperatures of the district in 1983 was 47°C and 9°C respectively. Generally, after the month of May, the temperatures rapidly fall down. Then after the month of June, with the arrival of Monsoon, starts the rainy season and lasts upto the end of September. It is followed by winter season which is quite pleasant.

The rainy season is pleasant and the winter is invigorating. Buldhana town itself is the coolest and the most pleasant district headquarters in Amaravati division. The climate of Payanghat affords a great contrast. There, the heat is intense, especially in the months of March, April and May, it is perhaps as intense as the hottest part of the country. The strong western winds which then prevail become intensely heated and exercise their influence.

Rainfall : The rainfall is not uniform in all parts of the district. It is highest at Chikhli with an average of about 808 mm in the year 1981 as against the average of 754 mm. If it rains in time and spreads over equitably during the entire monsoon period properly, the average rainfall in the district proves to be adequate for good crops. The district receives rain from the south-west monsoon during the period from June to September. (Fig. 2).

FOREST BIOTA

The district is reported to have had abundant wild life and birds a score of years ago. Their disappearance from the area could be attributed mainly to the opening of these forests, felling of forests for cultivation, hunting activities of the tribals and scanty rainfall.

FLORA OF BULDHANA DISTRICT

RAINFALL (MM) AT SELECTED IN BULDHANA DISTRICT (JUNE-OCTOBER, 1982-84)

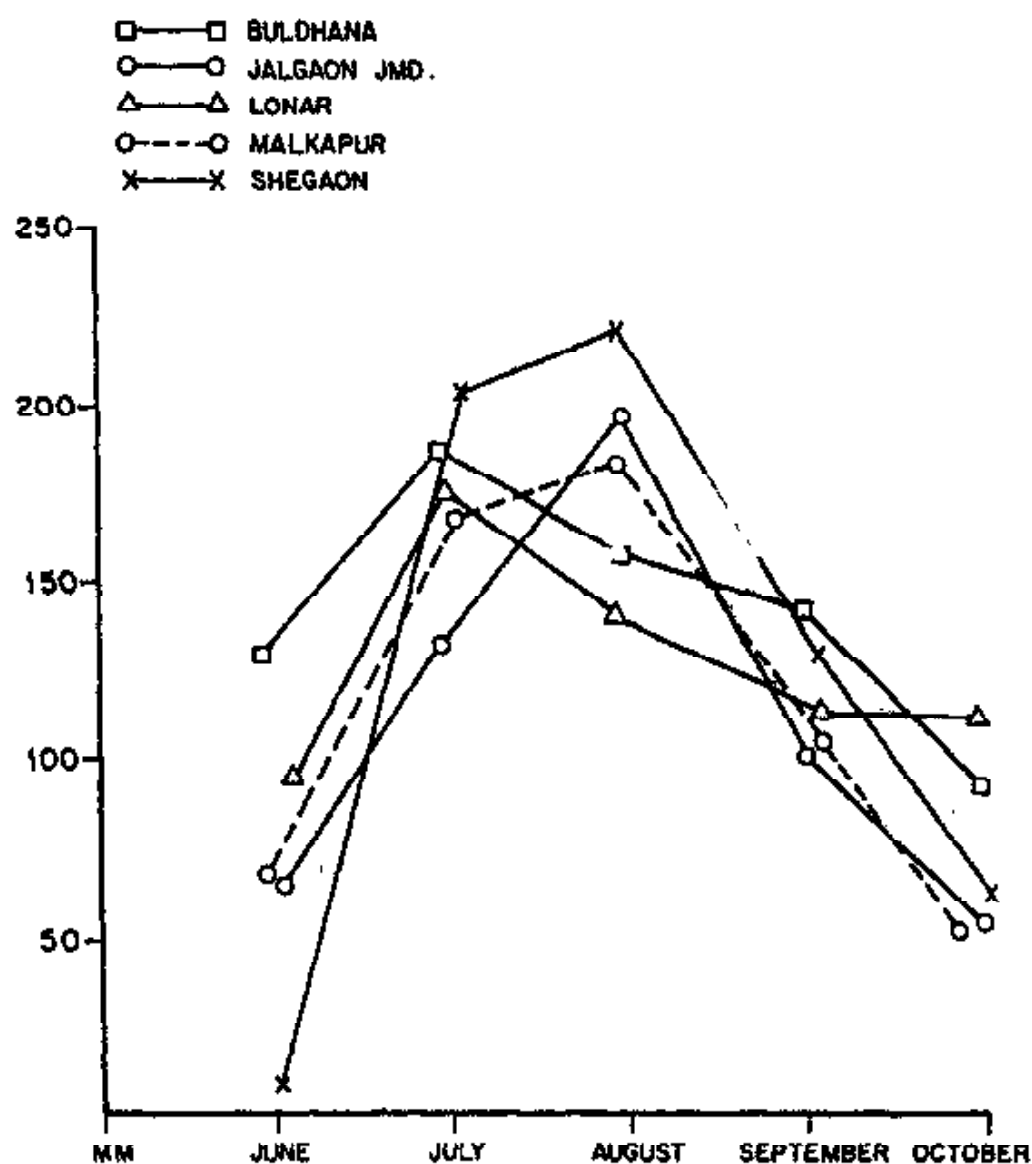


Fig. 2 : Rainfall (MM) at selected centres in Buldhana District
(June-October, 1982-84)

Among the wild animals, *Panthera tigris* (Tiger; 'Wagh') is common in Ambarbarwa and Bhingara forests of Satpuda Ranges. *Acinonyx jubatus* (Hunting Leopard; 'Chitta') is seen in Buldhana and Ghatbori forests as well as in Satpuda Ranges. *Axis* (Deer; 'Chittal') is locally abundant in Buldhana forest range, especially in Chinchphata and Warwand forest areas and frequent in other forests of the district. *Boselaphus tragocamelus* (Blue Bull; 'Nilgai') is confined to Botha and Chinchphata forest areas only. *Melursus ursinus* (Indian Black Bear; 'Aswal') is one of the very common wild animals throughout the district.

The following are some animals which can be seen frequently in the forests of the districts: *Cervus unicolor* ('Sambar'), *Hystrix indica* ('Salu'), *Lepus nigricollis* (Common Hare; 'Sasa'), *Panthera pardus* (Panther; 'Biblya'), *Sus scrofa* (Wild Boar; 'Ran-Dukkar'), *Vulpes benghalensis* (Grey Fox; 'Khokad') etc.

Among the birds, species such as *Columba livia* (Kabutar), *Coturnix corosandelica* (Rain Quails), *Coturnix coturnix* (Grey Quails), *Francolinus francolinus* ('Kala-Teetar'), *Francolinus pictus* (Painted Partridge), *Francolinus pondicerianus* (Grey Partridge), *Pavo cristatus* (Pea Fowl) etc. are common.

GENERAL VEGETATION TYPES

The forests of Buldhana district belong to Champion's (1968) type 'Southern Tropical Dry Deciduous Forests and are generally confined to the hilly regions. These forests lie on soils derived from trap and characterised by presence of teak of varying quality. Teak (*Tectona grandis* L.f.) is the principal species of all forests of the district. Superior quality teak forests occur in Ambabarwa reserve of Sonala forest range. The main associates of the teak are *Acacia catechu*, *Anogeissus latifolia*, *Butea monosperma*, *Diospyros melanoxylon*, *Emblica officinalis*, *Lagerstroemia parviflora* etc. Natural regeneration of teak is fairly satisfactory (Working Plan, Amaravati Division, 1980-81) and teak is spreading into the mixed forests. The less important forests such as 'Babul bans' (*Acacia nilotica* ssp. *indica*) reserves and fodder reserves always occur in small patches, spread all over the district. Areas under 'Anjan' (*Hardwickia binata*) are quite extensive where in 'Anjan' occurs in pure patches or mixed with teak and is representative of the E3-Hardwickia forests of Champion's classification. Bamboos (*Dendrocalamus strictus*) mainly occur in Ambabarwa reserve of the Sonala forest range and in Geru-Matergaon forests in small patches.

The forests are particularly liable to heavy grazing almost all over and to fires, especially, in Ambabarwa and Bhingara forests which retain plenty of inflammable material. Besides during the last 6-7 years, drought has been a common feature in the district.

The forests in the district can be broadly classified into the following types :-

- I **Teak Forests:-**
 - a) *SUPERIOR TEAK FORESTS*
 - b) *INFERIOR TEAK FORESTS*
- II **Hardwickia Forests**
- III **Acacia Nilotica Sep. Indica Forests**
- IV **Open Mixed Forests**
- V **Boswellia Forests**
- VI **Grass Lands with Brush Wood**
- VII **Bamboo Forests**
- VIII **Santalum Forests**

Teak Forest

SUPERIOR TEAK FORESTS

The superior teak (*Tectona grandis*) forests are confined to the better rainfall regions, mainly in the valleys and gently sloping areas with northern aspect and on plateau surrounding the forest villages of Ambabarwa and Chunkhedhi continuing upto village Mangeri, all in Ambabarwa reserves.

The forests are generally well-stocked, except for a few patches mixed with *Boswellia serrata* which are open. The over-wood consists of *Albizia lebbeck*, *Anogeissus latifolia*, *Bombax ceiba*, *Boswellia serrata*, *Dalbergia sissoo*, *Diospyros melanoxylon*, *Mitragyna parvifolia*, *Pterocarpus marsupium*, *Schleichera oleosa* etc.

The undergrowth mainly consists of *Maytenus emarginata*, *Mimosa hamata*, *Nyctanthes arbor-tristis*, *Woodfordia fruticosa*, *Vitex negundo* etc. The common twiners are *Acacia pennata*,

Celastrus paniculatus, *Combretum decandrum*, *Cryptolepis buchanani* etc. Important grasses occurring in these forests are *Cymbopogon martinii*, *Sehima nervosum*, *Sorghum halepense* etc.

INFERIOR TEAK FORESTS

These forests form most important common type and include the remaining teak forests. They are found in dry, exposed localities, where the layer of soil is superficial, soil moisture is low, grazing is heavy and fires are frequent. These forest patches occur mostly in sheltered pockets and along nallah banks or frequently on the gentle sloping plateau, which have retained black soil to a considerable depth. Teak occurs in gregarious patches. It is mixed with miscellaneous under-stocked patches and comes up well under *Boswellia serrata*. Where teak finally disappears and *Boswellia serrata* dominates. On the exposed spurs *Anogeissus latifolia* follows next to *Boswellia serrata* and in less exposed places teak. On many sites of old cultivation *Butea monosperma*, *Lagerstroemia parviflora* and *Terminalia bellirica* and some thorny species are associates of teak. The other common associates are *Acacia chundra*, *A. leucophloea*, *Anogeissus latifolia*, *Butea monosperma*, *Buchanania lanzan*, *Cassia fistula*, *Cassine glauca*, *Diospyros melanoxylon*, *Emblia officinalis*, *Madhuca longifolia*, *Mitragyna parvifolia*, *Morinda pubescens*, *Terminalia arjuna*, *T. bellirica*, *Ziziphus mauritiana*, *Z. xylopyrus* which are common along larger forest-streams.

The less common associates are *Grewia tiliifolia*, *Helicteres isora*, *Maytenus emarginata*, *Pterocarpus marsupium*, *Schleichera oleosa*, *Vitex negundo* etc. In dry localities *Acacia chundra*, *Lantana camara*, *Mimosa hamata* and *Nyctanthes arbor-tristis* are found. The principal grasses are *Cymbopogon martinii*, *Eragrostis tenella*, *Heteropogon contortus* and *Sehima nervosum*. Twiners are not very common except along nallahs and streams. The more common twiners are *Acacia pennata*, *Celastrus paniculatus*, *Combretum decandrum*, *Cryptolepis buchanani*, *Hemidesmus indicus*, *Ventilago cuneiculata*, *Ziziphus xylopyrus*.

Hardwick Forests

These forests occur extensively in portions of Amdari, Geru-Matergaon and Ghatbori on Balaghat, the southern fringes of Ambabarwa reserve and the entire Buldhana range of Ajantha hills. The area covered by *Hardwickia* forests are mostly open, along with scattered bushes of *Maytenus emarginata*.

Hardwickia being a very good fodder species, is always hacked and pollarded throughout the year. Mature trees are mostly malformed while young trees are stunted.

The main associates of *Hardwickia* are *Acacia chundra*, *Anogeissus latifolia*, *Boswellia serrata*, *Diospyros melanoxylon*, *Lagerstroemia parviflora*, *Sterculia urens* etc.

The undergrowth is composed of *Maytenus emarginata*, *Mimosa hamata* and *Vitex negundo* while *Eragrostis tenella*, *Heteropogon contortus* and *Sehima nervosum* are main grasses. Climbers are rare in *Hardwickia* forests.

Acacia Nilotica Forests

The majority of these forests are situated in the Payanghat, though some scattered blocks are found on the northern parts of the Balaghat plateau and are known as 'Babul-bans', in Marathi.

Acacia nilotica ssp. *indica* forests occur almost pure. However, at places following species are found scattered among these forests: *Bauhinia racemosa*, *Cordia dichotoma*, *Cassia fistula*, *Ficus racemosa*, *Morinda pubescens*, *Santalum album*, *Syzygium cumini*, *Tamarindus indica*, *Ziziphus xylopyrus*, *Ailanthus excelsa*, *Annona squamosa*, *Butea monosperma*, *Canthium parviflora*, *Limonia acidissima*, *Mitragyna parvifolia*, *Terminalia arjuna* etc.

The undergrowth generally consists of *Capparis grandis*, *Cassia auriculata*, *C. tora*, *Clerodendrum multiflorum*, *Dichrostachys cinerea*, *Maytenus emarginata*, *Mimosa hamata* and a few herbs. The twiners are *Abrus precatorius*, *Acacia pennata*, *Cocculus hirsutus*, *Combretum decandrum*, *Mucuna pruriens*, *Ziziphus oenopia*. The common grasses are *Apluda mutica*, *Aristida setacea*, *Brachiaria eruciformis*, *Cymbopogon martinii*, *Cynodon dactylon*, *Eragrostis tenella*, *Ischaemum pilosum*, *Iseilema laxum*, *Sehima nervosum* etc.

FLORA OF BULDHANA DISTRICT

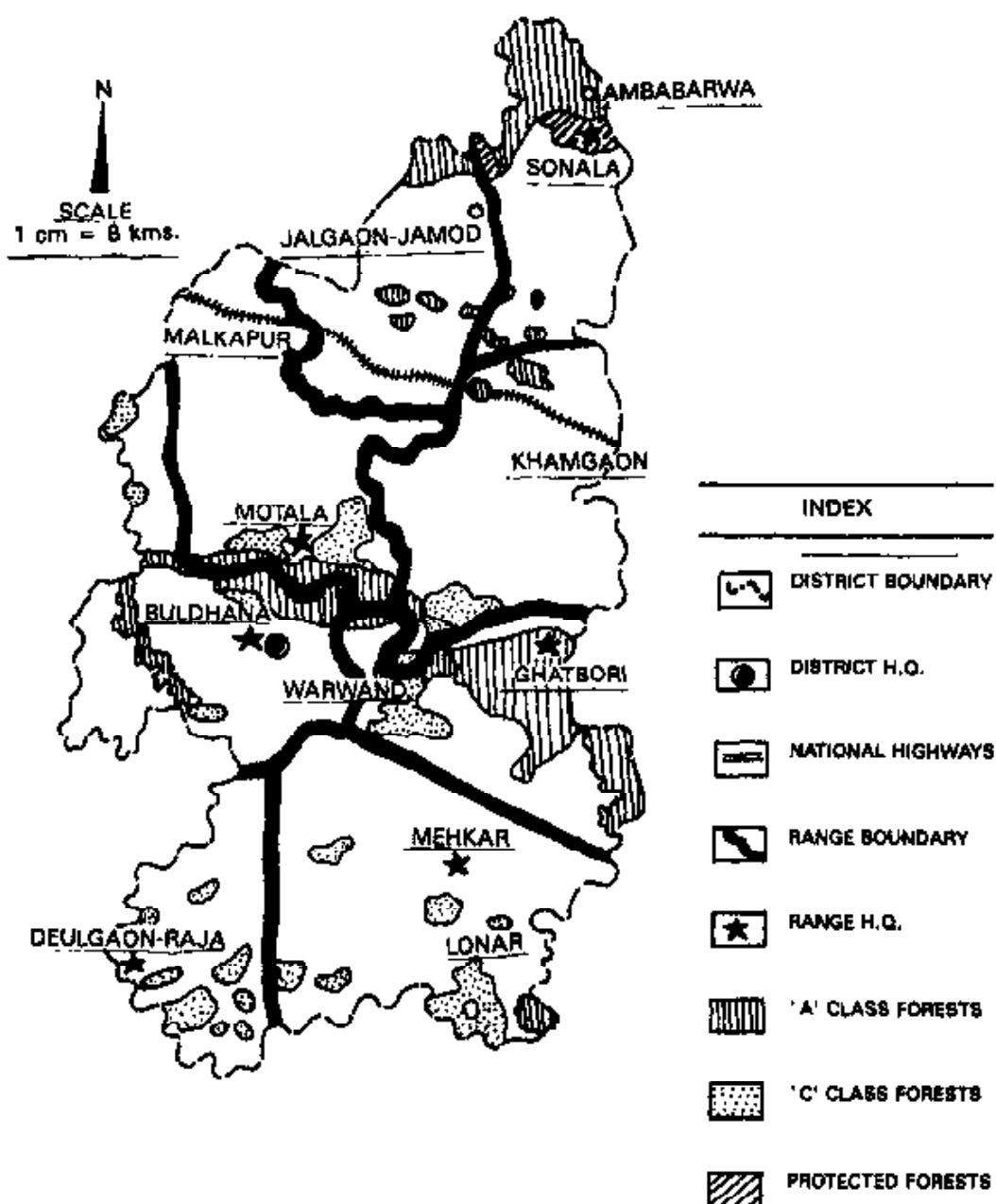


Fig. 3 : Map of Buldhana District Showing Forest Ranges

Open Mixed Forests

These forests occur intermixed with *Tectona* and *Hardwickia* forest types. The species commonly found in the mixed type of forests are as follows : *Acacia chundra*, *Albizia lebbeck*, *Anogeissus latifolia*, *Bauhinia racemosa*, *Bombax ceiba*, *Boswellia serrata*, *Bridelia retusa*, *Buchanania lanzan*, *Butea monosperma*, *Cassia fistula*, *Cassine glauca*, *Dalbergia sissoo*, *Diospyros melanoxylon*, *Emblia officinalis*, *Erythrina variegata*, *Gmelina arborea*, *Grewia tiliifolia*, *Lagerstroemia parviflora*, *Madhuca longifolia*, *Mitragyna parvifolia*, *Pterocarpus marsupium*, *Schleichera oleosa*, *Soymida febrifuga*, *Sterculia urens*, *Terminalia arjuna*, *Wrightia tinctoria*, *Ziziphus xylopyrus* etc. Bamboo patches also occur in moist localities.

The undergrowth consists of *Cassia tora*, *Maytenus emarginata*, *Vitex negundo*. The twiners noticed are *Celastrus paniculatus*, *Combretum decandrum*, *Mucuna pruriens*. Some of the main grass species found are *Cymbopogon martinii*, *Eragrostis tenella*, *Heteropogon contortus*, *Ischaemum laxum*, *Sorghum halepense* etc.

Boswellia Forests

This type of forest covers extensive areas in many reserves like Ambabarwa, Amdari, Gumi, Pathardi, Sonala etc. It occurs as an almost pure crop of *Boswellia serrata* in interior, dry and exposed sites with a few scattered *Acacia chundra*, *Acacia pennata*, *Soymida febrifuga*, *Ziziphus xylopyrus*. Good quality crop is in Ambabarwa reserve. *Tectona grandis* and occasionally *Garuga pinnata* and Bamboo patches also occur in this type in Ambabarwa reserves. Shrubs and climbers are practically absent in this type of forests.

Grass Lands with Brush Wood

This type comprises grass ramnas or fodder reserves. The woody species in this type occur scattered and principally like *Maytenus emarginata* and stunted bushy *Acacia chundra* and *Balanites roxburghii*.

The common grasses are *Andropogon pumilus*, *Apluda mutica*, *Aristida setacea*, *Brachiaria eruciformis*, *Chloris virgata*, *Coix lacryma-jobi* in marshy places, *Cymbopogon martinii*, *Cynodon dactylon*, *Dichanthium annulatum*, *Dinebra retroflexa*, *Eragrostis tenella*, *Heteropogon contortus*, *Ischaemum laxum*, *Ischaemum pilosum*, *Iseilema laxum* etc.

Bamboo Forests

Dendrocalamus strictus (Bamboo) occurs in considerable quantities in the Ambabarwa reserves and to a small extent in Warwand and Geru-Matergaon forest areas. Elsewhere, it occurs over very small areas.

Santalum Forests

Santalum album (Chandan) is found in this district in small patches or as scattered trees in mixed miscellaneous as well as *Tectona* forests, mainly in Geru-matergaon and Amdari reserves. It occurs under shady trees in patches, especially along nallah banks and water courses. It is largely the result of sowing done by the then Forest Department, during the period from 1911 to 1921.

Floristic Analysis

Analysis of the flora deals with the records of plants collected by the first author, from the area under study and various other values which give a clear picture of the floristic composition. Here attempts are made to analyse the values of various components. The flora of Buldhana district consists of 102 families, 378 genera, 567 species, 3 subspecies and 11 varieties, besides 3 species of Gymnosperms and Pteridophytes.

In order to have the precise picture of the flora, the available data may be presented in the following table. The relevant statistical analysis is also appended for ready reference :

	Dicots	%	Monocots	%	Total
Families	89	87.3	13	12.7	102
Genera	311	82.2	67	17.6	378
Species	460	82.9	107	17.1	567

Families	%	Genera	%	Species	%
Polypetalae 46	45.2	136	35.5	228	40.1
Gamopetalae 27	26.5	130	34.4	173	30.6
Monochlamydeae 16	15.6	45	12.3	69	12.2
Monocots 13	12.7	67	17.8	107	17.1

Ten dominant families in their order of dominance in the area under study are as follows:

Sr. No.	Name of the family	No. of genera	No. of Species
1	Poaceae	44	61
2	Fabaceae	28	57
3	Asteraceae	30	35
4	Euphorbiaceae	10	24
5	Acanthaceae	16	20
6	Caesalpiniaceae	8	16
7	Cyperaceae	5	16
8	Lamiaceae	11	15
9	Cucurbitaceae	10	15
10	Convolvulaceae	6	15

Ten dominant families of the present area are compared with those of allied provinces of India (after Hooker, 1907) in the following para:

	Buldhana District	Indus plain province	Gangetic plain province
1	Poaceae	Poaceae	Poaceae
2	Fabaceae	Leguminosae	Leguminosae
3	Asteraceae	Asteraceae	Cyperaceae
4	Euphorbiaceae	Cyperaceae	Asteraceae
5	Acanthaceae	Scrophulariaceae	Scrophulariaceae
6	Caesalpinaceae	Lamiaceae	Malvaceae
7	Cyperaceae	Boraginaceae	Acanthaceae
8	Lamiaceae	Malvaceae	Euphorbiaceae
9	Cucurbitaceae	Euphorbiaceae	Convolvulaceae
10	Convolvulaceae	Convolvulaceae	Lamiaceae

The above comparison reveals that the ten dominant families are almost common in 3 provinces. It is however, interesting to note the replacement of Malvaceae in the Indus and Gangetic plains provinces by Cucurbitaceae in Buldhana district. This is probably due

to large scale cultivation of members of this family in the recent years for vegetable purposes and their subsequent establishment in the present area, replacing some of the indigenous herbs belonging to Malvaceae. It is also interesting to note that in spite of the splitting of Leguminosae into its component subfamilies, the Fabaceae stands second and Caesalpiniaceae stands 5th in the dominant families of Buldhana district. The absence of Scrophulariaceae from the list of dominant families in Buldhana district can be correlated to the smaller area of the district.

The relation between species population and area can be understood in a more satisfactory manner by using generic coefficient explained by Jaccard (1941). This is the number of genera proportional to every 100 species or in other words it is ratio of genera to species. According to Jaccard this coefficient is higher in ecologically uniform areas or islands as well as smaller areas. It diminishes with the increase in area due to ecological diversity. The higher coefficient in the island floras is mainly due to large incidence of monotypic genera. The generic coefficient, as can be seen, is higher (1: 1.5) for the area under study and can be explained satisfactorily on the basis of its relatively small size together with very large number of genera represented by only one species. Incidentally it may be compared with that for India (1:7; Hooker, 1907) and for the world (1: 24; Good, 1974).

Detailed analysis of life forms of indigenous species is as follows:

1.	Herbs (Erect)	315	55.60%
2.	Herbaceous Climbers, Twiners	64	11.15%
3.	Shrubs	97	17.15%
4.	Trees	91	16.10%
Total :		567	

Analysis of life forms (herbs, climbers etc.) reveals high percentage (66.75%) of herbaceous members in contrast to 33.25% woody members. The ratio of woody to herbaceous components approximately is 1:2. This relatively higher proportion of herbaceous members clearly indicates very limited forests in the area under study.

The ratio of monocots to dicots is 1: 4.05 which is in conformity with that of other areas in the region.

Considering a total or about 12,500 genera in the whole world only 3.2% are found in the area under study. Most prominent genera are about 9 represented by 5 or more species as shown in the following table :

Sr. No.	Name of the genus	No. of species
1	<i>Cyperus</i>	10
2	<i>Indigofera</i>	10
3	<i>Crotalaria</i>	8
4	<i>Ipomoea</i>	8
5	<i>Alysicarpus</i>	7
6	<i>Euphorbia</i>	6
7	<i>Capparis</i>	5
8	<i>Leucas</i>	5
9	<i>Ziziphus</i>	5

It will be clear from the above list that 3 genera out of 9 belonging to one family only namely Fabaceae which estimates to ca 33% of the total dominant genera sharing 39% of the species. Excepting the one family the prominence of the genera is shared by 6 other families. Thus exhibiting a more or less uniform distribution and representation of these families. It may be stated here that this situation is in contrast with that observed with regard to other areas of Vidharbha region, especially in hilly areas of Amarawati district (Dhore & Joshi, 1988), Akola district (Kamble & Pradhan, 1988). In contrast to these prominent genera (represented by 5 or more species), which are relatively few in number (only about 9 or 2.4%), there are large number of genera (281 or 23.2%) are in between these two extremes.

About 567 species distributed over 9,745 Sq.km. area reveal a high species density (0.05) when compared with figure given for the entire Deccan peninsula (0.005) by Wulf (1943). These calculations, however, do not appear to be reliable figures as much more remains to be explored in the Deccan peninsula and the area under study is relatively very small for such a calculation.

MEDICINAL PLANTS

It is often said that every alternate plant in Indian flora is medicinal in some way. Though Buldhana district also abounds in medicinal plants, many of these cannot be exploited economically as they are occasionally found. However, some of the common medicinal plants are listed below with their specific medicinal property indicated under individual taxa under the systematic enumeration.

Acalypha ciliata, *Achyranthes aspera*, *Adhatoda zeylanica*, *Agele marmelos*, *Ailanthus excelsa*, *Albizia lebbeck*, *Argemone mexicana*, *Aristolochia bracteolata*, *Azadirachta indica*, *Balanites aegyptiaca*, *Baliospermum montanum*, *Boswellia serrata*, *Calotropis gigantea*, *Cassia fistula*, *Celastrus paniculatus*, *Cleome viscosa*, *Clitoria ternatea*, *Cocculus hirsutus*, *Corchorus fascicularis*, *Cryptolepis buechanani*, *Emblica officinalis*, *Evolvulus alsinoides*, *Ficus benghalensis*, *Gossypium herbaceum*, *Helicteres isora*, *Hygrophila auriculata*, *Lepidagathis trinervia*, *Madhuca longifolia*, *Maerua oblongifolia*, *Malvastrum coromandelianum*, *Mucuna pruriens*, *Plumbago zeylanica*, *Polygala arvensis*, *Psidium guajava*, *Ruta graveolens*, *Syzygium cumini*, *Terminalia bellirica*, *Thespesia populnea*, *Tinospora cordifolia*, *Tribulus terrestris*, *Tridax procumbens*, *Tylophora indica*, *Withania somnifera*, *Zornia gibbosa*.

ECONOMICALLY IMPORTANT PLANTS

In addition to the natural flora of the district, there are large number of plants found in cultivation or introduced for various purposes. They are categorised as follows:

Cereals and millets : *Eleusine coracana* (Nagli), *Pennisetum americanum* (Bajri), *Sorghum bicolor* (Jwari) etc. are the main cereals and millets cultivated in this district.

Pulses : The main pulses that are grown in the district are : *Cajanus cajan* (Tur), *Cicer arietinum* (Harbhara), *Vigna mungo* (Udid), *Vigna radiata* (Mug), *Lablab purpureus* (Wal) etc.

Condiments and spices : *Allium sativum* (Lasun), *Capsicum annuum* (mirchi), *Coriandrum sativum* (Kothambir) etc.

Sugarcane : *Saccharum officinarum* (Uus) is cultivated in the southern parts of the district.

Fibres : *Gossypium herbaceum* (Kapus) is one of the most important cash crops, cultivated on a large scale in the district. The other fibre crops grown in the district are *Crotalaria juncea* (Tag), *Hibiscus cannabinus* (Ambadi) etc.

Oil seeds : *Arachis hypogaea* (Bhuimug) is grown extensively for extracting oil and oil products, other crops of oilseeds are *Brassica nigra* (Mohari), *Guizotia abyssinica* (Kale-til) etc.

Fruits : *Musa paradisiaca* (Keli) is another most important cash crop of the district. Banana is grown extensively in the northern parts of the district. The other fruit yielding plants which are planted in the district are *Carica papaya* (Papai), *Mangifera indica* (Amba), *Psidium guajava* (Peru) etc. Wild fruits have been mentioned in the enumeration part.

Vegetables : The main vegetables grown in the district are *Abelmoschus esculentus* (Bhendi), *Allium cepa* (Kanda), *Cucumis sativus* (Kakdi), *Daucus carota* (Gajar), *Ipomoea batatas* (Ratali), *Luffa acutangula* (Dodka), *L. cylindrica* (Ghosali), *Lycopersicon lycopersicum* (Tamata), *Momordica charantia* (Karli), *Moringa oleifera* (Shewga), *Solanum melongena* (Wangi), *Solanum tuberosum* (Batata), *Trigonella foenum-graecum* (Methi).

Timber and poles : *Acacia chundra* (Khair), *Mitragyna parvifolia* (Kalamb), *Pterocarpus marsupium* (Biwla), *Tectona grandis* (Sag), *Terminalia crenulata* (Sadada) etc. are the major trees yielding timber and poles.

The following some more plants are economically important, uses of which are given in the enumeration portion for each species and which are of natural flora:

Abelmoschus manihot, *Abrus precatorius*, *Acacia leucophloea*, *A. nilotica* ssp. *indica*, *Agave vera-cruz*, *Bombax ceiba*, *Boswellia serrata*, *Brassica juncea*, *Buchanania lanzan*, *Butea monosperma*, *Caesalpinia decapetala*, *Capparis sepiaria*, *Carissa congesta*, *Corchorus olitorius*, *Dalbergia sissoo*, *Diospyros melanoxylon*, *Erythrina variegata*, *Garuga pinnata*, *Goniocaulon indicum*, *Grewia tiliifolia*, *G. villosa*, *Hardwickia binata*, *Lagerstroemia parviflora*, *Limonia acidissima*, *Portulaca oleracea*, *Pterocarpus marsupium*, *Santalum album*, *Sapindus laurifolius*, *Schleichera oleosa*, *Semecarpus anacardium*, *Sesbania sesban*, *Sterculia urens*, *Tamarindus indica*, *Tamarix ericoides*, *Terminalia bellirica*, *T. crenulata*, *Ziziphus horrida*, *Z. mauritiana*, *Z. nummularia*, *Z. oenoplia*.

ENDEMIC AND RARE PLANTS

Endemic floristic elements of a country of a geographical region throw light on the biogeography of the area and adaptive evolution of the flora (Ahmedullah et Nayar, 1987). It has been roughly estimated that more than 20,000 plants are in danger of extinction throughout the world.

Besides three new records to Maharashtra State viz., *Indigofera constricta* (Thw.) Trim., *Phyllanthus amarus* Schum. & Thonn. and *Trema politoria* Planch. and total of 16 endemic plants are collected from Buldhana district, of which *Crotalaria filipes* Benth. is rare and threatened plant of Maharashtra and Karnataka States; *Dichanthium tuberculatum* Cope was considered to be endemic to Madhya Pradesh, but the first author has collected the same taxon from Satpuda ranges of the area under study.

The following species collected from the area under study are supposed to be endemic to peninsular India only :

Alysicarpus vasavadae Hem., *Asparagus laevisissimus* Steud., *Cucumis setosus* Cogn., *Curcuma inodora* Blatt., *Ensete superbum* (Roxb.) Cheesman, *Eranthemum roseum* (Vahl) R. Br., *Gantelbua urens* (Heyne ex Roth) Bremek., *Haplanthodes verticellatus* (Roxb.) Majum., *Indigofera glandulosa* var. *sykesii* Griff. ex Bak., *Ixora brachiata* Roxb., *Neanotis foetida* (Dalz.) Lewis, *Pseudanthistiria hispida* Hook. f., *Swertia minor* (Griseb.) Knobl., *Tricholepis radicans* DC. and *Ziziphus horrida* Roth.

ABBREVIATIONS

BSI	:	Herbarium of Botanical Survey of India, Western Circle, Pune.
Distrib.	:	Distribution of species within the area.
Fls. & Frts.	:	Flowering and fruiting period.
ICBN	:	International Code of Botanical Nomenclature, 1978, Utrecht.
Illus.	:	Illustrations.
l.c.	:	loco citate = as cited above.
nom. cons.	:	nomina conservanda = conserved name.
p.p.	:	pro parte = partly.

KEY TO THE FAMILIES

1. Leaves usually reticulately veined; flowers 4–5 merous or if 3–merous, then plants woody or aquatic; cotyledons 2 ... DICOTYLEDONS
2. Perianth spirally arranged or in two or more whorls :
 3. Perianth differentiated into calyx and corolla:
 4. Corolla of separate petals :
 5. Stamens numerous more than 15 :
 6. Gynoecium apocarpus; carpels many ... ANNONACEAE
 6. Gynoecium syncarpus; monocarpellary or 2–many carpellary :
 7. Stamens monadelphous or connate, at least at the base :
 8. Ovary monocarpellary; stigma one, placentation marginal; fruit a legume or lomentum; seeds never hairy ... MIMOSACEAE
 8. Ovary 3–many carpellary; stigma usually 3–10 lobed, placentation axile; fruits capsular or schizocarpic; seeds cottony or hairy :
 9. Anthers one loculed; staminodes absent ... MALVACEAE
 9. Anthers two loculed; staminodes present ... STERCULIACEAE
 7. Stamens not monadelphous :
 10. Sap yellow–coloured; leaves spinous margined; sepals 2–3 ... PAPAVERACEAE
 10. Sap not as above; leaves not spinous margined; sepals 4–5 :
 11. Ovary superior :
 12. Leaves gland dotted... RUTACEAE
 12. Leaves not gland dotted :

- | | | |
|--|-----|---------------|
| 13. Flowers unisexual | ... | EUPHORBIACEAE |
| 13. Flowers bisexual : | | |
| 14. Placentation axile : | | |
| 15. Leaves alternate; petals not clawed; stamens hypogynous; seeds few : | | |
| 16. Herbs or shrubs; stamens distinct; anthers 2-loculed | ... | TILIACEAE |
| 16. Large trees; stamens polyadelphous; anthers 1-loculed | ... | BOMBACACEAE |
| 15. Leaves opposite; petals clawed; stamens perigynous; seeds many | ... | LYTHRACEAE |
| 14. Placentation parietal : | | |
| 17. Plants herbaceous; fruit a silique | ... | CLEOMACEAE |
| 17. Plants woody; fruit not a silique | ... | CAPPARACEAE |
| 11. Ovary inferior | ... | MYRTACEAE |
| 5. Stamens few, less than 15, usually 4-10 : | | |
| 18. Leaves scale like; seeds plumose or winged | ... | TAMARICACEAE |
| 18. Leaves well-developed; seeds not as above : | | |
| 19. Ovary inferior : | | |
| 20. Flowers bisexual : | | |
| 21. Flowers in spikes or panicles | ... | COMBRETACEAE |
| 21. Flowers in simple or compound umbels : | | |
| 22. Plants woody; leaves entire; fruits fleshy | ... | ALANIOACEAE |
| 22. Plants herbaceous; leaves more often dissected; fruits schizocarpic | ... | APIACEAE |
| 20. Flowers unisexual : | | |
| 23. Tendrilar climbers; flowers not in compound umbels; fruits many seeded, often fleshy ... | | CUCURBITACEAE |
| 23. Erect herbs; flowers in compound umbels, fruits 2-seeded, dry | ... | APIACEAE |

19. Ovary superior :

24. Plants climbing, twining or scandents :

25. Tendrilar climbers :

26. Petals not hooded at apex; stamens twice
as many sepals; fruits inflated ... SAPINDACEAE
(CARDIOSPERMUM)

26. Petals hooded or thickened at apex;
stamens as many as sepals; styles
minute or none; fruits not inflated ... VITACEAE

25. Twiners without tendrils :

27. Flowers unisexual, often 3-merous;
gynoecium of distinct carpels ... MENISPERMACEAE

27. Flowers bisexual, 4-5 merous,
gynoecium of united carpels :

28. Leaves alternate; stamens 3-5 :

29. Stamens opposite to the petals;
ovule one per locule ... RHAMNACEAE

29. Stamens alternating with the
petals; ovules 2 per locule ... CELASTRACEAE

28. Leaves opposie; stamens 10 ... MALPIGHIACEAE

24. Plants erect, diffuse or prostrate :

30. Stamens perigynous ... LYTHRACEAE

30. Stamens hypogynous :

31. Flowers regular :

32. Herbs or undershrubs :

33. Leaves compound :

34. Leaves opposite, stipulate;
fruits of 5 spiny-cocci ... ZYGOPHYLLACEAE

34. Leaves alternate; fruits capsular,
ellipsoid or linear, unarmed ... OXALIDACEAE

33. Leaves simple :

- | | | |
|---|-----|-----------------|
| 35. Leaves often fleshy; sepals 2; fruits usually circumscissile | ... | PORTULACACEAE |
| 35. Leaves not fleshy; sepals 4-5; fruits not circumscissile : | | |
| 36. Leaves exstipulate; stamens 6, placentation parietal | ... | BRASSICACEAE |
| 36. Leaves usually stipulate; stamens 5-10, placentation various but not parietal : | | |
| 37. Leaves opposite or whorled; fruits many seeded | ... | CARYOPHYLLACEAE |
| 37. Leaves alternate; fruits upto 10-seeded : | | |
| 38. Calyx cupular; petals hooded at apex, placentation basal | ... | VITACEAE |
| 38. Calyx never cupular; petals flat at apex, placentation axile | ... | STERCULIACEAE |
| 32. Plants woody, trees or shrubs : | | |
| 39. Leaves compound : | | |
| 40. Plants armed; leaves 2-foliolate | ... | BALANITACEAE |
| 40. Plants unarmed; leaves not 2-foliolate : | | |
| 41. Flowers unisexual; carpels 2-6 more or less distinct; fruits samaras | ... | SIMAROUBACEAE |
| 41. Flowers bisexual or unisexual; carpels connate; fruits not as above : | | |
| 42. Stamens connate into a tube | ... | MELIACEAE |
| 42. Stamens free or not connate into a tube | ... | BURSERACEAE |
| 39. Leaves simple : | | |
| 43. Fruits 3-seeded, often winged | ... | SAPINDACEAE |
| 43. Fruits 1-seeded, not winged | ... | ANACARDIACEAE |

31. Flowers zygomorphic :

44. Fruits pods :

- | | | |
|--|-----|-----------------|
| 45. Corolla papilionaceous; stamens monadelphous
or diadelphous | ... | FABACEAE |
| 45. Corolla not papilionaceous; stamens free | ... | CAESALPINIACEAE |

44. Fruits not as above :

46. Stamens monadelphous or diadelphous :

47. Placentas axile or ovules pendulous :

- | | | |
|---|-----|---------------|
| 48. Sepals unequal, the inner two large and
petaloid; anthers opening by pores | ... | POLYGALACEAE |
| 48. Sepals equal or sub-equal, none petaloid;
anthers 10, opening lengthwise | ... | STERCULIACEAE |

- | | | |
|--|-----|-------------|
| 47. Placentas parietal; ovules not pendulous | ... | CAPPARACEAE |
|--|-----|-------------|

46. Stamens free or nearly so :

- | | | |
|---|-----|----------|
| 49. Flowers in simple or compound umbels;
ovary inferior | ... | APIACEAE |
|---|-----|----------|

49. Flowers not in umbels; ovary superior :

- | | | |
|--|-----|---------------|
| 50. Trees; leaves tripinnate; placentas
parietal; fruits elongated capsules | ... | MORINGACEAE |
| 50. Herbs; leaves simple; placentas axile;
fruits short capsules | ... | BALSAMINACEAE |

4. Corolla of united petals :

- | | | |
|--------------------------------|-----|-----------|
| 51. Flowers strictly unisexual | ... | EBENACEAE |
|--------------------------------|-----|-----------|

51. Flowers bisexual or mixed :

- | | | |
|--------------------------------|-----|------------|
| 52. Fruit a legume or lomentum | ... | MIMOSACEAE |
|--------------------------------|-----|------------|

52. Fruit not a legume or lomentum :

53. Ovary inferior ;

- | | | |
|---|-----|--------------|
| 54. Plants semi-parasitic; calyx reduced
to a ring | ... | LORANTHACEAE |
|---|-----|--------------|

54. -Plants autotrophic; calyx various :

- | | | |
|--|-----|------------------|
| 55. Flowers in involucrate heads; ovary 1-loculed | ... | ASTERACEAE |
| 55. Flowers not in involucrate heads; ovary 2-10 locular : | | |
| 56. Leaves opposite or whorled, stipulate | ... | RUBIACEAE |
| 56. Leaves opposite or rarely alternate, exstipulate | ... | MYRTACEAE |
| 53. Ovary superior : | | |
| 57. Plants parasitic; leaves often modified, reduced or absent : | | |
| 58. Flowers zygomorphic; corolla without fimbriate scales within; ovules many | ... | SCROPHULARIACEAE |
| 58. Flowers regular; corolla with fimbriate scales at the base; ovules 2-4 | ... | CUSCUTACEAE |
| 57. Plants non parasitic; leaves usually well developed : | | |
| 59. Ovaries more than one, almost separate at maturity : | | |
| 60. Pollinia present : | | |
| 61. Filaments distinct; anthers not united with stigma | ... | PERIPLOCACEAE |
| 61. Filaments united into a tube; anthers united with stigma | ... | ASCLEPIADACEAE |
| 60. Pollinia absent | ... | APOCYNACEAE |
| 59. Ovary one or 2; united carpels : | | |
| 62. Stamens as many as corolla lobes and opposite to them or more : | | |
| 63. Small shrubs; calyx with stalked glands; corolla tubular; styles 5; ovule solitary | ... | PLUMBAGINACEAE |
| 63. Herbs or trees; calyx eglandular; corolla rotate, style one; ovules 2-many : | | |

- 64. Herbs; juice not milky; ovary one loculed; ovules many; fruits circumscissile ... PRIMULACEAE
- 64. Trees; juice often milky; ovaries 2-many loculed; ovules one per locule; fruits not circumscissile ... SAPOTACEAE
- 62. Stamens as many as the petals and alternating with them or fewer :
- 65. Corolla zygomorphic :
- 66. Fruits often elastically dehiscent ... ACANTHACEAE
- 66. Fruits not as above :
- 67. Ovules and seeds numerous :
- 68. Plants woody; leaves compound; seeds usually winged ... BIGNONIACEAE
- 68. Plants herbaceous; leaves simple or almost lobed; seeds wingless :
- 69. Plants usually glabrous; leaves always opposite and 3-nerved ... GENTIANACEAE
- 69. Plants pubescent or if glabrous then leaves not 3-nerved, opposite or alternate :
- 70. Plants with yellow glands in the axils of leaves or at the base of pedicels; calyx 5-partite; fruits usually angular ... PEDALIACEAE
- 70. Plants without glands as above; sepals connate or calyx 5-lobed; fruits not angular ... SCROPHULARIACEAE
- 67. Ovules and seeds few; usually upto 10 :
- 71. Ovary one loculed; placentation parietal; fruits with 2-hooked-spines ... MARTYNIACEAE
- 71. Ovary 2-loculed; placentation axile, fruits never with hooked spines :
- 72. Plants twining; calyx ring like, 12-14 toothed; fruits long beaked ... ACANTHACEAE
- 72. Plants erect or scandent; calyx 4-5 lobed :

- 73. Ovary often entire with terminal style, if 4-lobed then plants not aromatic ... VERBENACEAE
- 73. Ovary deeply 4-lobed with gynobasic style ... LAMIACEAE
- 65. Corolla regular or slightly zygomorphic :
 - 74. Leaves alternate and/or basal :
 - 75. Ovules and seeds few, usually upto 10 :
 - 76. Plants often twining; ovary entire; styles terminal; fruits indehiscent or capsular ... CONVOLVULACEAE
 - 76. Plants erect or prostrate; ovary 4-lobed; styles gynobasic; fruits schizocarpic ... BORAGINACEAE
 - 75. Ovules and seeds numerous more than 10 :
 - 77. All leaves alternate and cauline; fertile stamens 5 ... SOLANACEAE
 - 77. Leaves usually basal or lower opposite and upper alternate or all opposite; fertile stamens 4 to 2, if 5 then plants with dendroid hairs ... SCROPHULARIACEAE
 - 74. All leaves opposited or whorled; if alternate, then stamens 2 :
 - 78. Flowers 4-merous ... LOGANIACEAE
 - 78. Flowers 5-merous or with more petals :
 - 79. Fertile stamens 2 :
 - 80. Leaves simple, scabrid; fruits schizocarpic ... NYCTAGINACEAE
 - 80. Leaves pinnate; if simple then not scabrid; fruits fleshy or dehiscent ... OLEACEAE
 - 79. Fertile stamens 4-5 ... APOCYNACEAE
- 3. Perianth undifferentiated, often petaloid ... CACTACEAE
- 2. Perianth in one whorl or absent; sometimes petaloid, if in two whorls then plants parasitic or flowers unisexual :
 - 81. Plants submerged aquatic; leaves dichotomously divided; fruits with 2-divaricate spines at base ... CERATOPHYLLIACEAE
 - 81. Plants terrestrial; leaves and fruits not as above :

82. Flowers bisexual :

83. Ovary inferior or semi-inferior :

84. Twining herbs; flowers zygomorphic with
3-lobes, half inflated and produced above,
ventricose below; ovary 4-6 locular;
ovules many, placentation axile ... ARISTOLOCHIACEAE

84. Trees; flowers regular; ovary unilocular;
ovules few, placentation not axile ... SANTALACEAE

83. Ovary superior :

85. Trees; leaves pinnate or palmately 3-5 lobed :

86. Leaves even pinnate; fruits
drupaceous, 1-3 seeded ... SAPINDACEAE

86. Leaves palmately, 3-5 lobed;
fruits capsules, many seeded ... STERCULIACEAE

85. Herbs; leaves neither pinnate,
nor palmately lobed :

87. Ovary 2-5-loculed, 2-many ovuled :

88. Sepals often awned from the back; ovules
2 per locule; fruits circumscissile;
capsules (pyxidates) often sunk
in the axils ... AIZOACEAE

88. Sepals unawned; ovules many per locule;
fruits irregularly or loculicidally
dehiscent; capsules never sunk
in the axils :

89. Stamens perigynous, style one;
stigma capitate; seeds smooth
or nearly so ... LYTHRACEAE

89. Stamens hypogynous; styles
3-5; stigma slender; seeds
usually verrucose ... MOLLUGINACEAE

87. Ovary 1-loculed, 1-ovuled :

- | | | |
|---|-----|----------------|
| 90. Leaves with ochreate stipules | ... | POLYGONACEAE |
| 90. Leaves exstipulate or atleast without ochreate stipules : | | |
| 91. Perianth petaloid, segments united; stamens often 8 anthocarpas | ... | NYCTAGINACEAE |
| 91. Perianth scarious, green or petaloid, segments distinct; stamens 3-5 or numerous : | | |
| 92. Plants twining or climbing | ... | RANUNCULACEAE |
| 92. Plants erect : | | |
| 93. Flowers ebracteate; perianth green, segments obtuse or acute or acute but never aristate | ... | CHENOPODIACEAE |
| 93. Flowers bracteate; perianth scarious or coloured, segments aristate | ... | AMARANTHACEAE |
| 82. Flowers unisexual or polygamous : | | |
| 94. Ovary superior : | | |
| 95. Plants woody : | | |
| 96. Inflorescence hypanthodium with often 3 kind of flowers or catkin; ovules apical | ... | MORACEAE |
| 96. Inflorescence not as above; flowers in open cymes or racemes or in axillary clusters; ovules not apical : | | |
| 97. Ovary 1-locular, placentas parietal or basal : | | |
| 98. Plants unarmed; stamens 3-5; placentas basal | ... | ULMACEAE |
| 98. Plants armed with thorns; stamens many; placenta as parietal | ... | FLACOURTIACEAE |
| 97. Ovary 3-locular, placentas axile | ... | EUPHORBIACEAE |
| 95. Plants herbaceous : | | |
| 99. Leaves exstipulate; ovary 1-loculed, 1-ovuled, placentation basal : | | |

- 100. Twiners; leaves peltate; anthers
connate into a disc ... MENISPERMACEAE
- 100. Erect herbs; leaves various but not
peltate; anthers not connate :
 - 101. Bracts and perianth scarious;
flowers all similar ... AMARANTHACEAE
 - 101. Bracts and perianth herbaceous;
flowers dimorphic :
 - 102. Perianth petaloid ... BASELLACEAE
 - 102. Perianth not petaloid if petaloid
bracts and bracteoles
herbaceous ... CHENOPODIACEAE
- 99. Leaves stipulate; ovary 3-loculed,
3 or more ovuled; placentation axile ... EUPHORBIACEAE
- 94. Ovary inferior :
 - 103. Plant stems parasitic; perianth tubular;
stamens epipetalous :
 - 104. Flowers bisexual ... LORANTHACEAE
 - 104. Flowers unisexual ... VISCACEAE
 - 103. Plants autotrophic; perianth not as above;
stamens inserted on disc or free ... COMBRETACEAE
- 1. Leaves usually parallel-veined or if reticulate then
vascular bundles scattered; flowers 3-merous or
with reduced perianth; cotyledon 1 ... MONOCOTYLEDONS
- 105. Perianth well developed, usually 2-seriate,
at least the inner series petaloid :
 - 106. Ovary inferior :
 - 107. Flowers unisexual; plants dioecious ... DIOSCOREACEAE
 - 107. Flowers bisexual :

108. Flowers zygomorphic; fertile stamen 1,
staminodes present or absent ... ZINZIBERACEAE
108. Flowers actinomorphic; fertile
stamens 6; staminodes absent :
109. Scapes woody, often gigantic; leaves fibrous
and thick or fleshy; flowers bracteate in
large panicles ... AGAVACEAE
109. Scapes if present herbaceous; leaves
not as above; flowers in racemes ... HYPOXIDACEAE
106. Ovary superior :
110. Perianth undifferentiated, both series petaloid :
111. Scandent woody plants; leaves reduced
to spines and bearing fascicles
of cladodes in their axils ... ASPARAGACEAE
111. Plants and leaves not as above ... LILIACEAE
110. Perianth differentiated into outer calyx and
inner corolla ... COMMELINACEAE
106. Perianth uniseriate, reduced, scale like or absent :
112. Flowers in the axils of dry or chaffy bracts (glumes):
113. Stems usually cylindrical; leaves often with
closed sheaths; fruit a caryopsis ... POACEAE
113. Stems usually triangular; leaves often with closed
sheaths; fruits 2-3 angled, fruit a nut or achene ... CYPERACEAE
112. Flowers not subtended by dry or chaffy bracts :
114. Flowers arranged in spadix, subtended by foliar spathe :
115. Flowers always unisexual; male and female spadix
although on the same scape, spathe absent ... TYPHACEAE
115. Flowers bisexual or unisexual arranged in a
spadix subtended by a common spathe ... ARACEAE
114. Flowers not arranged in spatheaceous spadix ... POTAMOGETONACEAE

RANUNCULACEAE

CLEMATIS L.

Clematis triloba Heyne ex Roth, Nov. Pl. Sp. 251. 1821; Hook, f. & Thoms. in Hook. f. Fl. Brit. India 1: 3. 1872; Cooke, Fl. Pres. Bombay 1: 2. 1958 (Repr. ed.); M.A. Rau in Sharma *et al.* Fl. India 1: 67. 1993. '*Ran-jai*', '*Ran-jui*'.

Large climbers; branches 3–5 m long. Leaves opposite; leaflets 3, ovate, 2–5 x 1.5–3 cm. Flowers white, 2.5–3 cm across, in terminal corymbose-panicles; bracts foliaceous. Carpels many, each with 1-ovule; ovoid, compressed with long persistent feathery styles.

Fls. & Frts. : September–March.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 3, t. 2. 1909; Gupta in Bull. Natn. Bot. Gard. Lucknow, No 54, t. 18. 1961.

Distrib. : Ambabarwa, Hingan kheda, Lonar lake.

Notes : Common spreading on bushes in forest areas.

ANNONACEAE

ANNONA L.

- | | | |
|---|-----|----------------------|
| 1. Fruits tubercled, greenish, globose | ... | <i>A. squamosa</i> |
| 1. Fruits smooth, light pink, sub-globose | ... | <i>A. reticulata</i> |

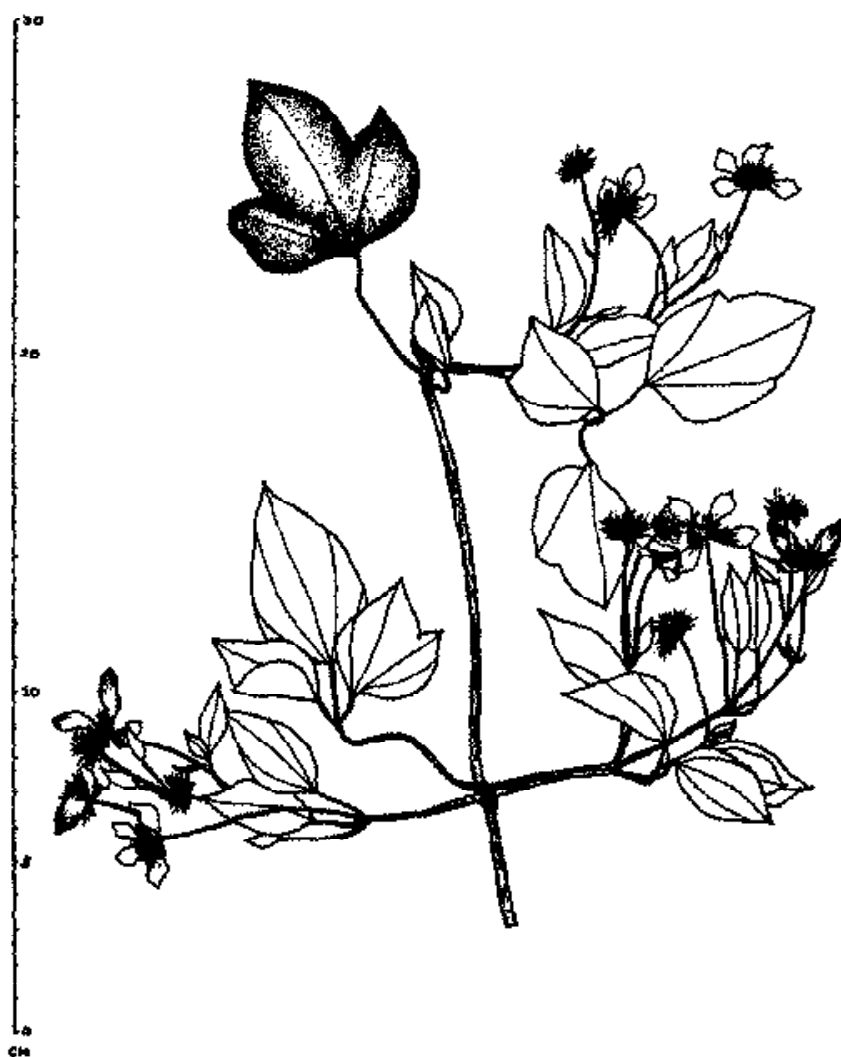
Annona reticulata L. Sp. Pl. 537. 1753; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 78. 1872; Cooke, Fl. Pres. Bombay 1: 15. 1958 (Repr. ed.); D. Mitra in Sharma *et al.* Fl. India 2: 207. 1993. '*Ramphal*'.

Trees with spreading branches. Leaves ovate-lanceolate, 6–16 x 2–3.5 cm. Flowers green, 2–4 on lateral pedicels; sepals minute. Fruits heart shaped, 10–15 cm across, pinkish.

Fls. & Frts. : September–May.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 28, t. 18. 1909; Matthew, Illus. Fl. Tamilnadu Carnatic t. 5. 1982.

Distrib. : Lonar lake valley.



Clematis triloba Heyne ex Roth
The species having horticultural value.

Notes : Commonly cultivated trees for sweet, edible fruits, at some places naturalised.

A. 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.); D. Mitra in Sharma *et al.* Fl. India 1: 207. 1993. '*Sitaphal*'.

Small trees or large shrubs, deciduous. Leaves elliptic or oblong-lanceolate, 4-9 x 2-5 cm, obtuse or acuminate at apex, nearly glabrous. Flowers solitary or 2-3 fascicled, axillary or leaf-opposed, green. Fruits tubercled, globose, 5-12 cm across, fleshy.

Fls. & Frts. : April-August.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 25, t. 17. 1909.

Distrib. : Bibi near Sultanpur, Lonar lake, Motala.

Notes : Cultivated extensively in some places by forest department in the districts; also naturalised.

CULTIVATED SPECIES

POLYALTHIA Bl.

Polyalthia longifolia (Sonner.) Thw. Enum. 398. 1864; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 62. 1872; Cooke, Fl. Pres. Bombay 1: 13. 1958 (Repr. ed.); D. Mitra in Sharma *et al.* Fl. India 1: 274. 1993. *Uvaria longifolia* Sonner. Voy. Ind. Orient. 2: 233, t. 131. 1782. '*Panacha Ashok*'.

Tall, evergreen trees with pendulous branches. Leaves oblong-lanceolate, 9-13 x 3-4 cm, shining with wavy margins, petiolate, glabrous. Flowers greenish-white, fascicled on older branches. Carpels globose or ovate-oblong, 1.2-1.8 cm long, glabrous, black at maturity.

Fls. & Frts. : January-June.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 22, t. 14. 1909.

Distrib. : Buldhana.

Notes : Ornamental trees, planted along the avenues and in gardens.

MENISPERMACEAE

- | | | | |
|----|---|-----|-------------|
| 1. | Large climbing shrubs; stems lenticellate | ... | TINOSPORA |
| 1. | Herbaceous twiners; stems smooth : | | |
| 2. | Leaves peltate; stamens connate; ovary solitary | ... | CISSAMPELOS |
| 2. | Leaves non-peltate; stamens free; ovaries 3 or more | ... | COCCULUS |

CISSAMPELOS L.

Cissampelos pareira L. var. **hirsuta** (Buch.-Ham. ex DC.)
 Forman in Kew Bull. 22: 356. 1968. *C. hirsuta* Buch.-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.); Pram. & Gang. in Sharma *et al.* Fl.
 India 1: 317. 1993.

Weak twiners, somewhat woody at base; branches 3–5 cm long.
 Leaves broadly ovate to orbicular, 4–8 cm across; bracts leafy,
 pubescent. Flowers minute, greenish-yellow, males in cymes; females
 in racemes. Drupes sub-globose, orange-red.

Fls. & Frts. : July–November.

Illus. : Gandhi in Sald. & Nicols. Fl. Hassan Dt. 65: 12. B. 1978;
 Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 12. 1982.

Distrib. : Wasali forests.

Notes. : Common, spreading on small trees.

COCCULUS DC. *nom. cons.*

Cocculus hirsutus (L.) Diels in Engler, Pflanzenr. 46: 236.
 1910. *Menispermum hirsutum* L. Sp. 341. 1753. *Cocculus villosus*
 (Lamk.) 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.); Pram. & Gang. in Sharma *et al.* Fl. India 1: 318. 1993.
 'Vasan-vel'.

Herbaceous twiners, young parts densely villous. Leaves 3-5 nerved, variable in shape and size, generally ovate, 2-6 x 2-5 cm. Flowers greenish, minute; males in short axillary panicles; females in axillary clusters or in racemes. Drupes 3 together, purple, 0.8-1.6 cm across.

Fls. & Frts. : September-December.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 41, t. 26. 1909; Matthew. Illus. Fl. Tamilnadu Carnatic t. 13. 1982.

Distrib. : Bhingara forests, Deulgaon Sakharsa, Ghatbori forest range, Dongar Shewli, Rohinked forests.

Notes. : Very common, spreading on bushes, on hill slopes and in plains.

Uses : Roots are useful in chronic rheumatism.

TINOSPORA Miers.

Tinospora cordifolia (Willd.) Miers ex Hook. f. & Thoms. Fl. Ind. 184. 1855 & 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. 1969; Forman in Kew Bull. 36: 403. 1981; Pram. & Gang. in Sharma *et al.* Fl. India 1: 347. 1993. *Menispermum cordifolium* Willd. Sp. Pl. 4: 826. 1806. 'Gulvel'.

Large twining shrubs, glabrous. Leaves broadly ovate, 5-10 x 5-8.5 cm, cordate at base, acute or acuminate at apex, glabrous. Flowers greenish-yellow; males in fascicles; females solitary, in long racemes. Drupes 1-3, globose, orange-red, smooth.

Fls. & Frts. : February-May.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 19. 1982.

Distrib. : Lonar lake valley.

Notes. : Common on hedges, along road sides and also in hilly areas.

Uses : Roots are used as antidote in snake bite.

PAPAVERACEAE

ARGEMONE L.

Argemone mexicana L. Sp. Pl. 508. 1753; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 117. 1872; Cooke, Fl. Pres. Bombay 1: 29. 1958 (Repr. ed.); Debnath & Nayar in Sharma *et al.* Fl. India 2: 2. 1993. '*Pivla dhotra*'.

Herbs or undershrubs, prickly, divaricately branching from below. Leaves sinuate-pinnatifid, 10–15 x 4–4.5 cm, spiny on margins and on veins beneath, base sub-amplexicaule. Flowers solitary, terminal, bright yellow. Capsules 5-locular, prickly.

Fls. & Frts. : Throughout the year.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 23. 1982.

Distrib. : Buldhana, Gaumal forest village, Gondan Kheda, Purna river bank near Nandura, Rajura lake near Jalgaon Jamod., Toradi village.

Notes : Common weed of waste land.

Uses : Yellow juice is used in dropsy and jaundice.

CULTIVATED SPECIES

BRASSICACEAE

BRASSICA L.

Brassica juncea (L.) Czern. & Coss. in Bull. Soc. Bot. France 6: 609. 1859; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 157. 1872; Cooke, Fl. Pres. Bombay 1: 37. 1958 (Repr. ed.); Hajra *et al.* in Sharma *et al.* Fl. India 2: 134. 1993. *Sinapis juncea* L. Sp. Pl. 668. 1753. '*Mohari*'.

Hispid herbs, variable in size, usually 25–95 cm tall, much branched. Leaves lyrate-divided, radical and cauline, oblong-lanceolate, 6.5–14.5 x 2–7 cm, glabrous. Flowers bright yellow, 0.6–0.9 cm across, in terminal and axillary racemes, 10–12 cm long. Siliqua subterete, 3–6 cm long, glabrous.

Fls. & Frts. : November–February.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 25. 1982.

Distrib. : Shegaon.

Notes. : Rare in cultivation.

Uses : Seeds are used in condiments.

B. nigra (L.) Koch. in *Rochl. Deutschl. Fl.* ed. 3, 4: 713. 1833; Hook. f. & T. Anders. in *Hook. f. Fl. Brit. India* 1: 156. 1872; Cooke, *Fl. Pres. Bombay* 1: 36. 1958 (Repr. ed.); Hajra *et al.* in *Sharma et al. Fl. India* 2: 136. 1993. *Sinapis nigra* L. Sp. Pl. 668. 1753. *Mohari*'.

Rigid, branching herbs, 1–2 m tall. Leaves radical and cauline, radical ones 5–10 cm long and cauline ones bristly, lyrate-pinnatifid, or ovate, entire. Flowers bright yellow in naked racemes. Siliqua linear, quadrangular, 3–4 cm long.

Fls. & Frts. : September–January.

Illus. : Wight, *Ic. t.* 33. 1840.

Distrib. : Buldhana, Gondan Kehda.

Notes. : Cultivated as a subsidiary crop, also an escaped weed of wet lands.

Uses : Seeds are used in spice and condiment. Ground seeds are used as a plaster to relieve pain.

CLEOMACEAE

CLEOME L.

- | | | |
|---|-----|----------------------|
| 1. Leaflets 3–5; flowers yellow; seeds smooth | ... | <i>C. viscosa</i> |
| 1. Leaflets 5–7; flowers rosy or purple; seeds echinate | ... | <i>C. chelidonii</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.); M. Jacobs in *Steenis, Fl. Males. Ser.* 1, 6: 102. 1960; Raghvan in *Sharma et al. Fl. India* 2: 306. 1993.

Erect, much branched, annual herbs; branchlets glandular-pubescent. Leaves 5-7 foliolate, passing into simple linear bracts above; leaflets obovate-lanceolate, 2-3 x 0.5-1.5 cm. Flowers rosy, 2.0-2.5 cm across, in terminal and axillary racemes. Siliqua cylindric, slender, tapering at both the ends.

Fls. & Frts. : June-October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* 1: 142, t. 2b. 1981.

Distrib. : Dattapur, Pathardi forest range, Nalgangapur.

Notes : Common weed in moist places.

C. viscosa L. Sp. Pl. 672. 1753; Hook. f. & Thoms. in Hook. f. *Fl. Brit. India* 1: 170. 1872; Cooke, *Fl. Pres. Bombay* 1: 411. 1958 (Repr. ed.); Itlis in *Brittonia* 12: 281. 1960; Jacobs in *Steenis Fl. Males. Ser.* 1, 6: 103. 1960; Raghavan in *Sharma et al. Fl. India* 2: 316 1993. 'Tilwan'.

Annual herbs, glandular pubescent, 50-90 cm tall. Leaves 3-5 foliolate; leaflets sessile, ovate or obovate, 1-4 x 1-2 cm, glabrous above, pubescent beneath. Flowers yellow, 1-1.5 cm across, axillary solitary or passing into lax racemes. Siliquas cylindrical 4-9 cm long, minutely beaked, compressed.

Fls. & Frts. : June-December.

Illus. : Maheshwari, *Illus. Fl. Delhi* t: 9. 1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* 1: 142, t. 2f. 1981.

Distrib. : Buldhana.

Notes. : Common weed in waste lands and along roadsides. *Cleomaceae* (Pax) Airy Shaw is intermediate family between *Brassicaceae* and *Capparaceae* since it shares characters of both. The plants are characterised by the presence of glandular hairs.

Uses : Juice of leaves is put into ears to cure tooth-ache.

CAPPARACEAE

1. Plants armed with stipular spines

...

CAPPARIS

1. Plants unarmed :

- | | | | |
|----|--|-----|--------|
| 2. | Receptacles with a posterior, elongated gland;
fruits cylindric | ... | CADABA |
| 2. | Receptacles without outgrowths; fruits moniliform | ... | MAERUA |

CADABA Forssk.

Cadaba fruticosa (L.) Druce in Rep. Bot. Exch. Cl. Brit. Isles 3: 415. 1914; Raghavan in Sharma *et al.* Fl. India 2: 250. 1993. *Cleome fruticosa* L. Sp. Pl. 671. 1753. *Cadaba indica* Lamk. Encycl. 1: 544. 1785; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 172. 1872; Cooke, Fl. Pres. Bombay 1: 45. 1958 (Repr. ed.). *C. farinosa* Forssk. Fl. Aegypt.-Arab. 68. 1775; Hook. f. & Thoms. in Hook. f. *l.c.*; Cooke, *l.c.*

Shrubs about 2–4 m tall. Leaves elliptic-oblong, 0.2–2 x 3–5 cm, glabrous with mucro at the apex, petiolate. Flowers yellowish, 2–4.5 cm across in terminal racemes. Fruits 0.5–2.8 cm long, pendulous brownish, torulose.

Fls. & Frts. : November–June.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 50, t. 31. 1909.

Distrib. : Lonar lake, Nalgangapur, Rohinkheda.

Notes : Common in the plains but occasional in the forests.

CAPPARIS Tourn. ex L.

- | | | | |
|----|--|-----|---------------------|
| 1. | Leaves caducous; flowers red or scarlet | ... | <i>C. decidua</i> |
| 1. | Leaves persistent; flowers white, yellow or with purple tinge : | | |
| 2. | Plants climbing or straggling : | | |
| 3. | Branchlets glabrous; flowers in terminal umbels | ... | <i>C. separia</i> |
| 3. | Branchlets dense tomentose; flowers supra-axillary, solitary or 2–4 in a vertical line | ... | <i>C. zeylanica</i> |
| 2. | Plants erect or prostrate : | | |
| 4. | Plants prostrate; flowers axillary, 2–3 fascicled | ... | <i>C. spinosa</i> |
| 4. | Plants erect; flowers in racemes | ... | <i>C. grandis</i> |

Capparis decidua (Forssk.) Edgew. in Journ. Linn. Soc. 6: 184. 1826; Raghavan in Sharma *et al.* Fl. India 2: 265. 1993. *Sodada decidua* Forssk. Fl. Aegypt.-Arab. 81. 1775. *Capparis aphylla* Roth, Nov. Pl. Sp. 238. 1821; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 174. 1872; Cooke, Fl. Pres. Bombay 1: 49. 1958 (Repr. ed.).

Bushy shrubs to small trees, 2-5 m tall; stipular spines ca 0.4 cm long. Leaves only on young shoots, linear-oblong, 1 x 0.2 cm, spinous tipped, soon deciduous. Flowers 1.5-2 cm across, in fascicles of 2-4. Fruits globose, 1.2-1.8 cm in diam., red, fleshy.

Fls. & Frts. : March-November.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 57, t. 36. 1909; Maheshwari, Illus. Fl. Delhi t. 12. 1966.

Distrib. : Khamgaon, Nalgangapur, Nandura.

Notes : Common, along roadsides and along Purna river bed.

C. grandis L. f. Suppl. 263. 1781; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 176. 1872; Cooke, Fl. Pres. Bombay 1: 50. 1958 (Repr. ed.); Jacobs in Blumea 12: 456. 1965; Raghavan in Sharma *et al.* Fl. India 2: 273. 1993. '*Pachora*'.

Small trees, ca 6-8 m tall. Leaves elliptic-obovate, 1-2 x 1.5-3 cm, petiolate, velvety pubescent. Flowers white, 1.5-2 cm across in terminal corymbose-racemes. Berries globose, 2-3 cm in diam., orange-red, fleshy.

Fls. & Frts. : September-July.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 60, t. 38. 1909; Matthew, Illus. Fl. Tamilnadu Carnatic t. 962. d. 1982.

Distrib. : Bibi near Sultanpur, Toradi village, Lonar lake valley, Nandura, Purna river bank after Jalgaon Jamod.

Notes : Common along roadsides.

C. sepiaria L. Syst. Nat. ed. 10. 2: 1071. 1759; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 177. 1872; Cooke, Fl. Pres. Bombay 1: 51. 1958 (Repr. ed.); Jacobs in Blumea 12: 489. 1965; Raghavan in Sharma *et al.* Fl. India 2: 287. 1993. '*Pilukathar*'.

Bushy shrubs or small trees, 2–4 m tall; stipular spines hooked. Leaves ovate–elliptic or ovate–oblong, 1–2 x 1.5–2.5 cm, often emarginate, coriaceous, glabrous. Flowers white, in terminal and axillary umbels, 0.5–0.8 cm across. Berries ovoid, 1.5–2.5 cm in diam., green.

Fls. & Frts. : February–June.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 60, t. 40. 1909; Maheshwari, *Illus. Fl. Delhi* t. 13. 1966.

Distrib. : Jalgaon Jamod road, along Purna river bank, Toradi near Shegaon, Warwat Bakal, Sonala range.

Notes : Occasional around fields and along Purna river bank.

Uses : Fruits are locally used as vegetable.

C. spinosa L. Sp. Pl. 503. 1753; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 173. 1872; Cooke, Fl. Pres. Bombay 1: 47. 1958 (Repr. ed.); Jacobs in Blumea 12: 4126. 1965; Raghavan in Sharma *et al.* Fl. India 2: 294. 1993.

Shrubs or small trees with strong stipular spines, nearly glabrous. Leaves distichous, orbicular, ovate or obovate, 1.2–3 cm across. Flowers white. Berries elliptic–obovoid, 2.8–4.5 cm long, reddish, veined.

Fls. & Frts. : October–July.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 53, t. 32. 1909.

Distrib. : Khamgaon, Bombay–Nagpur Road.

Notes : Rare along roadsides.

C. zeylanica L. Sp. Pl. ed. 2: 720. 1762; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 174. 1872; Cooke, Fl. Pres. Bombay 1: 47. 1958 (Repr. ed.); Jacobs in Blumea 12: 505. 1965; Raghavan in Sharma *et al.* Fl. India 2: 294. 1993. *C. horrida* L. Fl. Suppl. 264. 1781; Hook. f. & Thoms. *l.c.* 178; Cooke, *l.c.* 51.

Straggling or climbing shrubs; branches terete with hooked spines and reddish-brown tomentum in younger parts. Leaves narrow to broadly ovate, 2.4–4.8 x 2.0–3.5 cm, mucronate, shining above, grey tomentose beneath, shortly petiolate. Flowers creamy, solitary or 2–3 pedunculate, 2.0–2.5 cm across. Berries globose or ellipsoid, 3.0–4.5 cm in diam., deep red or bright scarlet.

Fls. & Frts. : April–June.

Illus. : Talbot. For. Fl. Bombay Pres. & Sind 1: 63, t. 41, 1909; Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 32. 1982.

Distrib. : Changephal.

Notes : Occasional, in association with *Carissa* sp. on the edges of the forests.

MAERUA Forssk.

Maerua oblongifolia (Forssk.) A. Rich. Tent. Fl. Abyss. 1: 32, t. 5. 1831; Raghavan in Sharma *et al.* Fl. India 2: 331. 1993. *Capparis oblongifolia* Forssk. Fl. Aegypt.–Arab. 99. 1775. *Maerua arenaria* (DC.) Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 171. 1872. *M. ovalifolia* (DC.) Camb. in Jacq. Voy. Bot. 23. t. 24. 1844; Cooke, Fl. Pres. Bombay 1: 43. 1958 (Repr. ed.). 'Arani'.

Unarmed, glabrous shrubs, bushy. Leaves ovate or lanceolate, 3.5–5.0 x 2.0–4.5 cm, entire, glabrous, leathery, petiolate, acute with the mucro at the apex. Flowers greenish-white, 1.3–2.4 cm across, in axillary and terminal corymbose–racemes. Berries moniliform, 1.0–1.5 cm long, glabrous, twisted.

Fls. & Frts. : December–March.

Illus. : Talbot. For. Fl. Bombay & Sind 1: 49, t. 30. 1909; Maheshwari, *Illus. Fl. Delhi* t. 11. 1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 36. 1982.

Distrib. : Common on the forest edges.

Uses : Juice of the leaves is used as preventive in dysentery.

FLACOURTIACEAE

FLACOURTIA Comm.

Flacourtia indica (Burm. f.) Merr. Interpr. Ramph. Herb. Amb. 377. 1917; Sleumer in van Steenis, Fl. Males. Ser. 1, 5(1): 76, f. 30 h-i. 1954; Mitra in Sharma *et al.* Fl. India 2: 387. 1993. *Gmelina indica* Burm. f. Fl. Indica 132, t. 39, f. 5. 1768. *Flacourtia ramontchi* L'Herit. Strip. Nov. 3: 59. 1785; Hook. f. & Thoms. in Hook. f. Fl. Brit. India 1: 93. 1872; incl. var. *occidentalis*, *hispida* et *latifolia* Hook. f. & Thoms. *L.c.*; Cooke, Fl. Pres. Bombay 1: 59. 1958. (Repr. ed.). *F. sepiaria* Roxb. Pl. Corr. 1: 48. 1795; Hook. f. & Thoms. *L.c.*; Cooke *L.c.* 59.

Much branched shrubs or small trees, thorny, deciduous. Leaves variable in shape and size, usually elliptic, obovate or broadly ovate-orbicular, 2-9 x 1-5 cm., margins serrate or crenate, glabrous, petiolate. Flowers dioecious, greenish-yellow, fascicled in axils or on leafless wood, 1-1.5 cm across. Drupes globose, slightly furrowed, 0.6-1.2 cm in diam., 5-celled, fleshy, purple.

Fls. & Frts. : January-May.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 76-78, t. 49-52. 1909; Matthew, Illus. Fl. Tamilnadu Carnatic t. 41. 1982.

Distrib. : Jalgaon Jamod.

Notes : Common around cultivated fields and along hill tracts.

POLYGALACEAE

POLYGALA L.

- | | | |
|--|-----|---------------------|
| 1. Wings acute or sub-acute; strophioles with appendages | ... | <i>P. arvensis</i> |
| 1. Wings obtuse; strophioles without appendages | ... | <i>P. erioptera</i> |

Polygala arvensis Wild. Sp. Pl. 3(2): 876. 1802; Burt in Notes Roy. Bot. Gdn. Edinburgh 32: 404. 1973; Banerjee in Sharma *et al.* Fl. India 2: 460. 1993. *P. chinensis auct. non L.* Sp. Pl. 704. 1753; Bennett in Hook. f. Fl. Brit. India 1: 264. 1872; Cooke, Fl. Pres. Bombay 1: 64. 1958 (Repr. ed.).

Erect or diffuse, appressed hairy herbs. Leaves linear-oblong, obovate-oblong, 0.4–4 x 0.2–1.2 cm, coriaceous, ciliate, apex mucronate at tip; petiolate. Flowers yellow, 0.4–0.5 x 0.2–0.4 cm, in axillary racemes; wing sepals green. Capsules didymous 0.2–0.5 x 0.1–0.4 cm, oblong, glabrous with ciliate margins.

Fls. & Frts. : August–January.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 16. 1966.

Distrib. : Nalgangapur, Sultanpur near Bibi.

Notes : Common weed, in moist places.

Uses : Roots are given in fever and dizyness.

P. erioptera DC. Prodr. 1: 326. 1824; Bennett in Hook. f. *Fl. Brit. India* 1: 203. 1872; Cooke, *Fl. Pres. Bombay* 1: 63. 1958 (Repr. ed.); Mukerjee in *Bull. Bot. Soc. Bengal* 12: 47. 1960; Banerjee in *Sharma et al.* 2: 466. 1993.

Erect, woody annuals, appressed hairy. Leaves oblong-obovate or narrowly linear, 0.5–2.8 x 0.2–0.5 cm, glabrous, apex rounded or sub-acute. Flowers pinkish, in axillary or extra-axillary, condensed racemes. Capsules oblong, 0.2–0.4 x 0.2 cm, emarginate, hairy, ciliate on margins.

Fls. & Frts. : August–October.

Illus. : Matthew, *Mat. Fl. Tamilnadu Carnatic* 1: 145. t. 3c & 5c. 1981.

Distrib. : Botha forests.

Notes : Common weed of cultivated fields extending upto lower hill slopes. Cooke, (*l.c.*) describes the colour of the flower as yellow but in this area it is always found to be pink or pinkish.

CARYOPHYLLACEAE

POLYCARPAEA Lamk. *nom. cons.*

Polycarphaea corymbosa (L.) Lamk. *Encycl.* 2: 129. 1797; Edgew. & Hook. f. in Hook, f. *Fl. Brit. India* 1: 245. 1874; Cooke, *Fl. Pres. Bombay* 1: 70. 1958 (Repr. ed.); Majumdar in *Sharma et al. Fl. India* 2: 549. 1993. *Achyranthes corymbosa* L. *Sp. Pl.* 205. 1753.

Dichotomously much branched herbs. Leaves narrowly linear, 1–2.5 x 0.3–1 cm, sub-fleshy, sessile, mucronate at apex, decussate or in false whorls. Flowers white, in dichotomous-false helicoid-cymes, 0.8–1 cm across. Capsules minute, oblong-ovoid, shining brown.

Fls. & Frts. : October–November.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 46. 1982.

Distrib. : Waghadi village.

Notes : Common along roadsides and in grasslands.

PORTULACACEAE

PORTULACA L.

Portulaca oleracea L. Sp. Pl. 445. 1753; Thiselton Dyer in Hook. f. *Fl. Brit. India* 1: 246. 1874; Cooke, *Fl. Pres. Bombay* 1: 72. 1958 (Repr. ed.); Geesink in *Blumea* 17: 292. 1969; Sivarajan in *J. Bombay Nat. Hist. Soc.* 78: 257. 1981; Rao in Sharma *et al.* *Fl. India* 3: 4. 1993. '*Gholuchi Bhaji*'.

Annual herbs, succulent, prostrate or ascending. Leaves obovate, 0.4–4.8 x 0.2–1.4 cm, alternate or sub-opposite or whorled, sessile. Flowers yellow, in sessile heads, solitary or fascicled. Capsules ovoid, 0.5–0.8 cm long, circumscissile.

Fls. & Frts. : Throughout the year.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 49. 1982.

Distrib. : Ghatbori forests, near river, Lonar lake, Rajura lake.

Notes : Common weed in cultivated fields, drying ditches and beds of rivers and streams.

Uses : The leaves and tender branches are used as vegetable.

TAMARICACEAE

TAMARIX L.

Tamarix ericoides Rottl. in Gesel. Naturf. Fr. Berl. 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.); Shetty and Pandey in Sharma *et al.* Fl. India 3: 25. 1993. '*Sherni*'.

Erect, perennial shrubs in clumps. Leaves minute, ovate-lanceolate, 0.1–0.4 cm long, scaly, clasping the stems. Flowers pinkish-rosy, in dense, terminal racemes, 1–1.5 cm across. Capsules long beaked, conical, 1–1.5 cm long, glabrous, 3-valved.

Fls. & Frts. : September–January.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 87, t. 56. 1909.

Distrib. : Changephal, Deulgaon Raja, 3rd km stone, Sangrampur.

Notes : Common in sandy river beds and the rocky stream banks.

Uses : The clumps are used as broom-sticks in cultivated fields.

MALVACEAE

1. Carpels separating from the axis at maturity; fruits schizocarpic :
 2. Epicalyx present; carpels indehiscent ... MALVASTRUM
 2. Epicalyx absent; carpels dehiscent :
 3. Carpels 5–10, 1-seeded; flowers opening in the forenoon ... SIDA
 3. Carpels 5–20, 2-or more seeded; flowers opening in the evening ... ABUTILON
1. Carpels not separating from the axis at maturity; fruits capsular :
 4. Flowers polygamous in dense paniced-umbels ... KYDIA
 4. Flowers bisexual, axillary, solitary or in racemes :
 5. Trees or large shrubs; young parts covered with brown scales ... THESPESIA

5. Shrubs or herbs; young parts not covered with brown scales :
6. Calyx spathaceous, irregularly 2 or 3-lobed,
caducous ... ABELMOSCHUS
6. Calyx campanulate, regularly 5-lobed,
persistent ... HIBISCUS

ABELMOSCHUS Medik.

Abelmoschus manihot (L.) Medik. ssp. **tetraphyllus** (Roxb. ex Horn.) Borssum in *Blumea* 14(1): 98. 1966; Paul & Nayar in *Fasc. Fl. India* 19: 74-75. 1988. Paul in *Sharma et al. Fl. India* 3: 306. 1993. *Hibiscus tetraphyllus* Roxb. ex Horn. *Mort. Hafn.* 661. 1815; Mast. in *Hook. f. Fl. Brit. India* 1: 341. 1874; Cooke, *Fl. Pres. Bombay* 1: 118. 1958 (Repr. ed.). '*Ran-behndi*'.

Herbs or undershrubs, with spreading branches, strigose and weakly prickly. Leaves broadly ovate, 5-15 x 4-18 cm, 5-7 lobed, scabrid, base cuneate, margins dentate. Flowers yellow with purple centre within, in axillary racemes. Capsules 5-angled, 2-5 cm long, ovoid-oblong, hispid, cuspidate.

Fls. & Frts. : September-December.

Distrib. : Sonabardi forests in Ambabarwa range.

Notes : Occasional on hill slopes and along field edges.

Uses : This species yields a strong fibre which is employed by the tribals for rope-making.

ABUTILON Mill.

Abutilon indicum (L.) Sweet, *Hort. Brit.* 54. 1826; Mast. in *Hook. f. Fl. Brit. India* 1: 326. 1874; Cooke, *Fl. Pres. Bombay* 1: 102. 1958 (Repr. ed.); Borssum in *Blumea* 14(1): 170. 1966; Paul & Nayar in *Fasc. Fl. India* 19: 87. 1988; Paul in *Sharma et al. Fl. India* 3: 266. 1993. *Sida indica* L. *Cent. Sp. Pl.* ed. 2: 964. 1762. '*Mudra; Shikka*'.

Grey-tomentose undershrubs, reaching 1 m or more in height. Leaves broadly ovate or ovate-lanceolate or sub-orbicular, 2.5-9 x 2-10 cm, entire, apex acuminate, velvety on both the surfaces,

margins dentate; petiolate. Flowers yellow or orange-yellow, solitary, axillary, 4-5 cm across. Carpels 10-25, reniform, dark brown, 0.8-1.2 cm long, with minute scattered, stellate hairs.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Ic. t. 12. 1840.

Distrib. : Bawanbir, Dongar Khandala, Malkapur, Rohinkheda, Shegaon, Songaon forests, Sultanpur.

Notes : Common along road sides and also on hill slopes near human habitation.

Uses : Infusion of roots is given in fever.

CULTIVATED SPECIES

GOSSYPIMUM L.

Gossypium herbaceum L. Sp. Pl. 693. 1753; Mast. in Hook. f. Fl. Brit. India 1: 346. 1874; Cooke, Fl. Pres. Bombay 1: 123. 1958 (Repr. ed.); Paul & Nayar in Fasc. Fl. India 19: 175. 1988. '*Kapus*'.

Deep-rooted shrubs, erect, densely hairy. Leaves 3-5-lobed, broadly ovate, 4-7 x 4.5-7 cm; petiolate, with glands on midribs. Flowers yellow with a purple centre, axillary, solitary. Capsules ovoid, acute, 1.5-2.5 cm long.

Fls. & Frts. : September-February.

Distrib. : Warwat Bakal.

Uses. : Leaf juice is used in scorpion sting and snake bite.

Notes : Cultivated on large scale in the district. One of the major cash crops. 32% of total 7,44,000 hectares of agricultural land is used to grow cotton.

HIBISCUS L. *nom. cons.*

- | | | |
|---------------------|-----|----------------------|
| 1. Leaves 3-7 lobed | ... | <i>H. caesiua</i> |
| 1. Leaves entire | ... | <i>H. micranthus</i> |

Hibiscus caesius Garcke in Oester. Bot. Zoit. 7: 850. 1849; Cooke, Fl. Pres. Bombay 1: 116. 1958 (Repr. ed.); Rakshit & Kundu in Bull. Bot. Surv. India 12: 173. 1972; Paul & Nayar in Fasc. Fl. India 19: 126. 1988; Paul in Sharma *et al.* Fl. India 3: 334. 1993. *Hibiscus gibsonii* Stocks ex Harv. & Sond. Fl. Cap. 2: 587. 1861-62; Mast. in Hook. f. Fl. Brit. India 1: 339. 1874. '*Ran-ambadi*'.

Erect, suffruticose, annual herbs, sparingly patentely hairy. Leaves 3-5 lobed; petiolate; lobes narrowly or broadly elliptic-lanceolate, 4-10 x 1-3 cm, hairy. Flowers yellow, axillary, solitary. Capsules broadly ovoid or subglobose, shortly apiculate, hairy.

Fls. & Frts. : September-December.

Distrib. : Lonar lake.

Notes : Rare weed of cultivated fields.

H. micranthus L. f. Suppl. 308. 1781; Mast. in Hook. f. Fl. Brit. India 1: 335. 1874; Cooke, Fl. Pres. Bombay 1: 113. 1958 (Repr. ed.); Rakshit et Kundu Bull. Bot. Surv. India 12. 105. 1972; Paul & Nayar in Fasc. Fl. India 19: 137. 1988.

Erect, weak, perennial under-shrubs or shrubs, suffruticose. Leaves ovate, elliptic-obovate, 0.7-1.8 x 1.5-2.5 cm, margins entire. Flowers white, solitary, axillary or terminal, 1.5-2 cm across. Capsules globose, puberulous.

Fls. & Frts. : June-November.

Illus. : Maheshwari, Illus. Fl. Delhi t. 29. 1966.

Distrib. : Chinchphata forests, Jamod forests, Lonar lake, Sangrampur, Tunki.

Notes : Common on grassy hill slopes and in the rocky crevices in plains.

CULTIVATED SPECIES

Hibiscus cannabinus L. Syst. Nat. 1149. 1759; Mast. in Hook. f. Fl. Brit. India 1: 339. 1874; Cooke, Fl. Pres. Bombay 1: 116. 1958

(Repr. ed.); Rakshit & Kundu in Bull. Bot. Surv. India 12: 164. 1972; Paul & Nayar in Fasc. Fl. India 19: 127. 1988; Paul in Sharma *et al.* Fl. India 3: 324. 1993. '*Ambadi*'.

Erect, glabrescent shrubs, 1–2 m tall. Leaves deeply 3–5 lobed; lobes narrowly lanceolate or linear-lanceolate, 2–7 x 0.3–1.1 cm, glabrous. Flowers yellow with a chocolate centre, axillary, solitary, 2.5 cm across. Capsules ovoid, 2–4 cm long, apiculate. Seeds reniform, dotted with stellate hairs.

Fls. & Frts. : September–January.

Distrib. : Loni village fields, Bhingara forest fields, Warwand, Vayla.

Notes : Extensively cultivated.

Uses : Leaves are used as vegetable.

H. rosa-sinensis L. Sp. Pl. 694. 1753; Mast. in Hook. f. Fl. Brit. India 1: 344. 1874; Cooke, Fl. Pres. Bombay 1: 120. 1958 (Repr. ed.); Borssum in Blumea 14: 72. 1966; Matthew in Rec. Bot. Surv. India 20: 48. 1969; Rakshit et Kundu in Bull. Bot. Surv. India 12: 105. 1972; Paul & Nayar in Fasc. Fl. India 19: 147. 1988; Paul in Sharma *et al.* Fl. India 3: 391. 93. '*Jaswandi*'.

Evergreen shrubs, 3–4 m tall, nearly glabrous. Leaves ovate, 3–10 x 1.8–7 cm, apex acuminate, margins serrate, glabrous. Flowers red, 5–10 cm across, on long axillary peduncles, solitary.

Fls. : Throughout the year.

Distrib. : Raipur Road, Buldhana.

Notes : Commonly grown in gardens for its ornamental flowers.

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.); Paul & Nayar in Fasc. Fl. India 19: 160. 1988; Paul in Sharma *et al.* Fl. India 3: 344. 1993.

Moderate sized trees, 8–10 m tall, young parts covered with grey stellate hairs. Leaves broadly ovoid to nearly orbicular, 5–13 x 6–15

cm, rounded or subcordate at base, 3–5 lobed or angled, margins entire. Flowers whitish, 1.6–2 cm across in dense paniced umbels. Capsules ovoid, 0.4–0.6 cm broad, 3-loculed.

Fls. & Frts. : October–December.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 128, t. 78. 1909; Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 63. 1982.

Distrib. : Hajampani forests, Ambabarwa, Wasali forest, Ambabarwa.

Notes : Common in the district.

Uses : The wood is used in making agricultural implements by local tribals.

MALVASTRUM A. Gray *nom. cons.*

Malvastrum coromandelianum (L.) Garcke in Bonplandia 5: 295. 1875; Borssum in Blumea 14 (1): 152. 1966; Paul & Nayar in Fasc. Fl. India 19: 180–183. 1988; Paul in Sharma *et al.* Fl. India 3: 277. 1993. *Malva coromandeliana* L. Sp. Pl. 687. 1753. *Malvastrum tricuspidatum* (R.Br.) A. Gray., Pl. Wright 1: 16. 1852; Mast. in Hook. f. Fl. Brit. India 1: 321. 1874.

Erect, appressed hairy herbs, 50–80 cm tall. Leaves ovate-elliptic, 2–3 x 2–5 cm, entire, margins crenate-serrate. Flowers orange-yellow, in axillary fascicles, also densely crowded at the ends of the branches. Schizocarps globose, 0.4–0.6 cm across, depressed at apex; ripe carpels reniform, hairy, bicuspidate.

Fls. & Frts. : Throughout the year.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 26. 1969; Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 65. 1982; Paul & Nayar. *l.c.*, t. 39. 1988.

Distrib. : Buldhana, Chinchphata.

Notes : Common weed in the plains along roadsides, waste lands and gardens etc.

Uses : The juice-or ash of the leaves is used externally by local people for healing wounds and bruises.

SIDA L.

- | | | | |
|----|---|-----|-----------------|
| 1. | Leaves ovate, cordate; carpels 5 | ... | <i>S. alba</i> |
| 1. | Leaves ovate-oblong or ovate-lanceolate; carpels 6-10 : | | |
| 2. | Leaves ovate, ovate-oblong, appressed hairy | ... | <i>S. ovata</i> |
| 2. | Leaves lanceolate, glabrous | ... | <i>S. acuta</i> |

Sida acuta Burm. f. Fl. Indica 147. 1768; Cooke, Fl. Pres. Bombay 1: 98. 1958 (Repr. ed.); Borssum in Blumea 14(1): 186. 1966; Paul & Nayar in Fasc. Fl. India 19: 202-204. 1988; Paul in Sharma *et al.* Fl. India 3: 281. 1993. *S. carpinifolia* L. f. Suppl. 307. 1781; Mast. in Hook. f. Fl. Brit. India 1: 323. 1874.

Much branched, woody undershrubs, 20-50 cm tall. Leaves lanceolate, 1.5-10 x 0.4-6 cm, sessile or nearly so, margins serrate. Flowers yellow or pale orange, axillary, solitary or 2-3 fascicled. Schizocarps globose, 0.4-0.5 x 0.2-0.3 cm; carpels 6-8, strongly reticulate, brownish.

Fls. & Frts. : August-February.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 68. 1982; Paul & Nayar, *l.c.* t. 49.

Distrib. : Buldhana.

Notes : Common weed under the shade of garden trees.

S. alba L. Sp. Pl. ed. 2: 960. 1763; Sant., Fl. Saurashtra 1: 36. 1962; Paul & Nayar in Fasc. Fl. India 19: 206. 1988; Paul in Sharma *et al.* Fl. India 3: 283. 1993. *S. spinosa* L. Sp. Pl. 683. 1753 *p.p.*; Mast. in Hook. f. Fl. Brit. India 1: 323. 1874.

Grey-tomentose undershrubs, 50-90 cm tall. Leaves ovate or ovate-oblong, 1-5 x 1.5-4 cm, cordate at base, margins crenate-serrate; petiolate. Flowers white, 0.4-0.8 cm across, axillary solitary or paired in leaf axils. Schizocarps globose or nearly so, 0.4-0.5 cm; carpels 5, cuneate, awned.

Fls. & Frts. : September-December.

Distrib. : Mehkar, Sindkhed Raja.

Notes : Throughout, common.

S. ovata Forssk. Fl. Aegypt.-Arab. 106 et 124. 1775; Sant., Fl. Saurashtra 1: 36. 1962; Paul & Nayar in Fasc. Fl. India 19: 211-212. 1988; Paul in Sharma *et al.* Fl. India 3: 288. 1993. *S. grewioides* Guill. & Perr. in Guill. Perr. & Rich. Fl. Senegamb. Tent. 1: 71. 1831; Mast. in Hook. f. Fl. Brit. India 1: 323. 1874; Cooke, Fl. Pres. Bombay 1: 98. 1958 (Repr. ed.).

Erect undershrubs, 40-90 cm tall. Leaves ovate-oblong, 1.4-3.8 x 1.2-2.5 cm, grey-tomentose beneath. Flowers creamy-yellow or pale-yellow, axillary, solitary or in clustered at ends of branches. Schizocarps sub-globose, 0.4-0.6 cm across, carpels 6-8, prominently veined.

Fls. & Frts. : August-February.

Distrib. : Toradi forests, Udhera tank.

Notes : Common on the forest edges.

THESPESIA Soland. ex Corr. *nom. cons.*

Thespesia lampas (Cav.) Dalz. ex Dalz. & Gibs. Bombay Fl. 19. 1861; Mast. in Hook. f. Fl. Brit. India 1: 345. 1874; Borssum in Blumea 14: 116. 1966; Paul & Nayar in Fasc. Fl. India 19: 222-224. 1988; Paul in Sharma *et al.* Fl. India 3: 350. 1993. *Hibiscus lampas* Cav. Diss. 3: 154. t. 56. f. 2. 1787. *Thespesia macrophylla* auct. non Bl. 1825; Cooke, Fl. Pres. Bombay 1: 121. 1958 (Repr. ed.). '*Ran-kapus*'.

Large shrubs, 1-2 m tall, young parts brown, densely tomentose. Leaves ovate, palmately 3-lobed, 4.5-9 x 5-8 cm, cordate at base, apex acuminate. Flowers yellowish with purple centre, 5-6 cm across. Capsules ovoid, beaked, woody, 1.5-2 cm long.

Fls. & Frts. : August-December.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 124, t. 75. 1909; Paul & Nayar *l.c.* t. 58.

Distrib. : Sonala forest, Wasali forests.

Notes : Occasional on the bare slopes.

CULTIVATED SPECIES

T. populnea (L.) Soland. ex Corr. in Ann. Mus. Herb. Paris 9: 290. t. 8. f. 1. 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; Paul & Nayar in Fasc. Fl. India 19: 225–226. 1988; Paul in Sharma *et al.* Fl. India 3: 352. 1993. *Hibiscus populneus* L. Sp. Pl. 694. 1753. 'Parapimpal'.

Large evergreen tree with crooked stems, 8–12 m tall. Leaves broadly ovate, 5–15 x 4–16 cm, base cordate, apex acuminate, margins entire. Flowers large, yellow, axillary, solitary, pendulous. Capsules pyriform, depressed on top, 2–3 cm across, minutely stellate scaly.

Fls. & Frts. : Throughout the year.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 125, t. 76. 1909.

Distrib. : Loni.

Notes : Common roadside trees and occasionally planted in gardens and near temples.

Uses : The extract of bark is applied externally for skin diseases. The wood is used in making agricultural implements.

BOMBACACEAE

BOMBAX L.

Bombax ceiba L. Sp. Pl. 511. 1753, *p.p.*; Nicolson in Taxon 28: 367. 1979; Nayar & Biswas in Sharma *et al.* Fl. India 3: 398. 1993. *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.). 'Kate sawari'.

Tall, deciduous trees with conical prickles; stems and branches grey, glabrous. Leaves crowded at ends of branches, petiolate, digitately 5–7 foliolate; leaflets ovate-lanceolate or broadly ovate, 5–20 x 1.5–8 cm, glabrous, base acute, margins entire. Flowers bright red or blood red, 3.5–7.5 cm across. Capsules oblong, 8–12 x 3–5 cm, 5 valved, woody.

Fls. & Frts. : January–May.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 130, 131, tt. 79–80. 1909; Matthew, Illus. Fl. Tamilnadu Carnatic t. 71. 1982.

Distrib. : Lonar lake.

Notes : Common locally but sparse in the district.

Uses : Wood is used for firewood, packing cases and also in the manufacture of matchsticks. The cotton is used for stuffing pillows and mattresses.

STERCULIACEAE

- | | | |
|---------------------------------------|-----|------------|
| 1. Flowers with petals | ... | HELICTERES |
| 1. Flowers apetalous : | | |
| 2. Fruits capsules; seeds winged | ... | ERIOAENA |
| 2. Fruits follicles; seeds not winged | ... | STERCULIA |

ERIOAENA DC.

Eriolaena hookeriana Wight & Arn. Prodr. Fl. Ind. 1: 70. 1834; Mast. in Hook. f. Fl. Brit. India 1: 370. 1874; Cooke, Fl. Pres. Bombay 1: 139. 1958 (Repr. ed.); Malik in Sharma *et al.* Fl. India 3: 415. 1993.

Small, deciduous trees, 4–7 m tall; branchlets stellate tomentose. Leaves broadly ovate, 4–13 x 4–5 cm, minutely stellate hairy, base cordate, apex acuminate; petiolate. Flowers yellow, 3–4 cm across, in axillary cymes. Capsules pyriform, 2.5–3.5 cm long, sub-acute at apex, woody.

Fls. & Frts. : June–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 73. 1982.

Distrib. : Chinchphata forests.

Notes : Rare on hill slopes.

HELECTERES L.

Helicteres isora L. Sp. Pl. 963. 1753; Mast. in Hook. f. Fl. Brit. India 1: 365. 1874; Cooke, Fl. Pres. Bombay 1: 136. 1958 (Repr. ed.); Malick in Sharma *et al.* Fl. India 3: 426. 1993. '*Murud sheng*'.

Perennial shrubs with ascending branches, 1–2 m tall. Leaves obovate or sub-orbicular, 2.4–13 x 2–10 cm, coriaceous, scabrid hairy, apex shortly acuminate. Flowers red, in axillary clusters or in few flowered minutely bracteolate cymes. Follicles linear, 3–4.5 cm long, woody, twisted together into screws, stellate-tomentose.

Fls. & Frts. : July–December.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 146, t. 89. 1909; Matthew, Illus, Fl. Tamilnadu Carnatic t. 76. 1982.

Distrib. : Ambabarwa hillocks, Bedapani forests, Botha forests.

Notes : Common on the hill slopes of deciduous forests.

Uses : Bark yields strong fibres. Fruits are used against cough.

STERCULIA L.

Sterculia urens Roxb. Pl. Cor. 1: 25. t. 24 1795; Mast. in Hook. f. Fl. Brit. India 1: 355. 1874; Cooke, Fl. Pres. Bombay 1: 131. 1958 (Repr.ed.); Malick in Sharma *et al.* in Fl. India 3: 470. 1993. '*Kad*'.

Small, deciduous trees, 4–5 m tall. Leaves very large, 18–32 x 18–38 cm, palmately 5-lobed, glabrous, cordate at base; lobes deltoid-ovate. Flowers greenish-yellow, in paniced-racemes on naked branches, small, terminal. Follicles ovoid, 4–6 cm long, covered with stinging bristles.

Fls. & Frts. : December–March.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 137, t. 83. 1909.

Distrib. : Borala near Warwand.

Notes : Rare and infrequent tree in deciduous forests.

Uses : Bark is used in fibre industry. The white gum known as '*Katila gum*' is used in textile industry.

TILIACEAE

- | | | |
|----------------------------------|-----|------------|
| 1. Trees or shrubs | ... | GREWIA |
| 1. Herbs or undershrubs : | | |
| 2. Capsules echinate, not beaked | ... | TRIUMFETTA |
| 2. Capsules not echinate, beaked | ... | CORCHORUS |

CORCHORUS L.

- | | | |
|---|-----|------------------------|
| 1. Capsules angular, scabrid | ... | <i>C. trilocularis</i> |
| 1. Capsules cylindrical or linear-cylindrical, glabrous or softly pubescent : | | |
| 2. Capsules more than 3 cm long, ribbed | ... | <i>C. olitorius</i> |
| 2. Capsules less than 2 cm long, not ribbed | ... | <i>C. fascicularis</i> |

Corchorus fascicularis Lamk. Encycl. 2: 104. 1786; Mast. in Hook. f. Fl. Brit. India 1: 398. 1874; Cooke, Fl. Pres. Bombay 1: 159. 1958 (Repr. ed.); Chakravarty in Bull. Bot. Soc. Bengal 79: 1951; Daniel & Chandrabose in Sharma *et al.* Fl. India 3: 486. 1993.

Erect undershrubs, much branched. Leaves elliptic-oblong or obovate-oblong, 1.5–5.5 x 0.5–1.5 cm, apex obtuse, margins serrate, glabrous. Flowers yellow, in axillary 2–5 flowered fascicles. Capsules 0.9–1.5 cm long, shortly beaked, 3-valved, densely strigose.

Fls. & Frts. : June–October.

Distrib. : Jalgaon Jamod, Nalgangapur.

Notes : Occasional in wet fields and marshy places.

C. olitorius L. Sp. Pl. 529. 1753; Mast. in Hook. f. in Fl. Brit. India 1: 397. 1874; Cooke, Fl. Pres. Bombay 1: 68. 1958 (Repr. ed.); Chakravarty in Bull. Bot. Soc. Bengal 5: 77. 1951; Daniel & Chandrabose in Sharma *et al.* Fl. India 3: 487. 1993. 'Suchi'.

Erect, glabrous undershrubs, 45–100 cm tall. Leaves ovate to ovate-lanceolate, 3.5–10 x 2.5–5.3 cm, glabrous, apex acute or acuminate, margins serrate. Flowers yellow, in simple cymes, extra-axillary or leaf-opposed. Capsules cylindric, beaked, 4–6 cm long, 4–5 valved.

Fls. & Frts. : September–December.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 33. 1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 85. 1982.

Distrib. : Lonar lake.

Notes : Common around cultivated fields.

Uses : Jute fibre is obtained from the stem.

C. trilocularis L. Mant. 77. 1767; Mast. in Hook f. *Fl. Brit India* 1: 397. 1874; Cooke, *Fl. Pres. Bombay* 1: 158. 1958, (Repr. ed.); Chakravarty in *Bull. Bot. Soc. Bengal* 5: 78. 1951; Daniel & Chandrabose in *Sharma et al. Fl. India* 3: 488. 1993.

Erect or ascending annuals, suffruticose, 80–90 cm tall. Leaves oblong, elliptic-oblong or ovate-oblong, 1.5–7.5 x 0.9–2.4 cm, apex obtuse, margins serrate. Flowers yellow, in simple cymes, axillary, extra-axillary or leaf opposed. Capsules straight or slightly curved, glabrous, 4–6 cm long, 3–4 valved.

Fls. & Frts. : June–January.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 89. 1966.

Distrib. : Hiwarkheda village.

Notes : Common weed in moist, shady places.

GREWIA L.

1. Leaves hoary–tomentose beneath :

- | | | |
|------------------------------|-----|---|
| 2. Petals glandular at base | ... | <i>G. tiliifolia</i>
var. <i>tiliifolia</i> |
| 2. Petals eglandular at base | ... | <i>G. tiliifolia</i>
var. <i>leptopetala</i> |

1. Leaves not hoary–tomentose beneath :

- | | | |
|---|-----|----------------------|
| 3. Leaves orbicular, rugose | ... | <i>G. villosa</i> |
| 3. Leaves lanceolate, not rugose : | | |
| 4. Leaves linear–lanceolate; flower–buds ribbed... | | <i>G. hirsuta</i> |
| 4. Leaves elliptic–lanceolate; flower–buds not ribbed | ... | <i>G. flavescens</i> |

Grewia flavescens A. Juss. in Ann. Mus. Paris, 4: 89. 1804; Narayanaswamy & Rao in J. Indian Bot. Soc. 29: 187. 1950; Daniel & Chandrabose in Sharma *et al.* Fl. India 3: 498. 1993. *G. pilosa sensu* Mast. in Hook. f. Fl. Brit. India 1: 388. 1874, *p.p.*; Cooke, Fl. Pres. Bombay 1: 151. 1958 (Repr. ed.). *G. carpinifolia sensu* Mast. in Hook. f. Fl. Brit. India 1: 387. 1874 (*non* Juss. 1804). 'Kharbudi; Khadak chopda'.

Scandent shrubs, 2–3 m tall, with hairy branchlets. Leaves 1.5–7 x 0.8–2.5 cm, thinly appressed pubescent. Flowers yellow, in small, pedunculate, umbellate-cymes. Drupes globose, smooth, 0.7–1 cm across, glabrous, 1–2 lobed, orange coloured.

Fls. & Frts. : July–December.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 162, t. 99. 1909.

Distrib. : Borala near Warwand, Pathardi forests, Shiwni taka, Deulgaon Raja, Wasali forests.

Notes : Very common on the forest edges and hill slopes.

G. hirsuta Vahl, Symb. Bot. 1: 34. 1790; Mast. in Hook. f. Fl. Brit. India 1: 291. 1874; Cooke, Fl. Pres. Bombay 1: 153. 1958 (Repr. ed.); Daniel & Chandrabose in Sharma *et al.* Fl. India 3: 501. 1993.

Erect undershrubs or shrubs, 1–2 m tall, softly pubescent. Leaves 4–10 x 1–3 cm, scabrid, coriaceous, stellate-pubescent above, woolly beneath. Flowers pale yellow, polygamous in axillary or extra-axillary umbellate-cymes. Drupes globose, 0.5–1 cm across, reddish-brown with stiff hairs.

Fls. & Frts. : July–September.

Illus. : Wight, Ic. t. 76. 1838.

Distrib. : Hiwarkheda, Nandura.

Notes : Common along open hill slopes.

G. tillifolia Vahl, Symb. Bot. 1: 35. 1790; Mast. in Hook. f. Fl. Brit. India 1: 386. 1874; Cooke, Fl. Pres. Bombay 1: 150. 1958 (Repr. ed.); Daniel & Chandrabose in Sharma *et al.* Fl. India 3: 511. 1993. 'Dhaman'.

Erect shrubs or small trees, 4–5 m tall; bark rough, exfoliating irregular patches. Leaves broadly ovate-oblong, 3–15 x 2–12 cm, stellately pubescent above, hoary-tomentose beneath. Flowers yellow or greenish-yellow, in axillary or extra-axillary cymes, 0.5–1 cm across. Drupes globose, 2–4 lobed, 0.5–0.8 cm across, didymous, minutely hairy.

Fls. & Frts. : September.

Distrib. : Botha forests, Chinchpani forests, Dongar khandala, Dongar shewli, Gandhali forests near Loni.

Notes : Common on lower slopes of hills.

Uses : The fruits are sour and sweet in taste and are eaten by local people.

var. **leptopetala** (Brandis) Cooke, Fl. Pres. Bombay 1: 142. 1901 (1: 150. 1958, Repr. ed.). *G. leptopetala* Brandis, Ind. Trees. 100. 1906. *G. tiliifolia* var. *argentea* Burret, Not. Bot. Gart. 9: 661. 1926; Narayanaswamy et Rao in J. Indian Bot. Soc. 29: 183. 1950. 'Dhaman'.

This variety is similar to var. *tiliifolia* in all respect, except for its leaves glabrous to softly to densely tomentose and petals which are eglandular at base and is mostly restricted to deciduous forests.

Fls. & Frts. : May–August.

Illus. : Beddome, Fl. Sylv. t. 108. 1869.

Distrib. : Pathardi forests, Tunki near Wasali forests.

Uses : Fruits are edible.

G. villosa Willd. Ges. Naturf. Fl. Berlin Neue Schr. 4: 205. 1803; Mast. in Hook. f. Fl. Brit. India 1: 388. 1874; Cooke, Fl. Pres. Bombay 1: 151. 1958 (Repr. ed.); Daniel & Chandrasekhara in Sharma et al. in Fl. India 3: 515. 1993.

Stellate hairy shrubs, 0.5–1.5 m tall. Leaves nearly orbicular, 7–10 x 5–9 cm, velvety villous beneath, scabrid with stiff hairs above. Flowers yellowish, in axillary fascicles or leaf-opposed, 1–1.5 cm across. Drupes 1–1.2 cm across, globose, stellate hairy, orange coloured.

Fls. & Frts. : June–October.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 163, t. 100. 1909.

Distrib. : Bedapani hills.

Notes : Occasional in deep forests.

Uses : Fruits are eaten by local tribals.

CULTIVATED SPECIES

MUNTINGIA L.

Muntingia calabura L. Sp. Pl. 509. 1753; Curtis, Bot. Mag. t. 5982. 1870; Chitt. Dict. Gard. ed. 2: 1326. 1956; Murti in Sharma *et al.* Fl. India 3: India 3: 570. 1993.

Small trees with spreading branches, 8–10 m tall. Leaves lanceolate, 8–10 x 1.8–3 cm, apex acute, densely tomentose beneath. Flowers white. Capsules globose, papillose, brownish-black.

Fls. & Frts. : February–June.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 89. 1982.

Distrib. : Amdapur, Lonar lake.

Notes : Rare. Often mistaken for a *Grewia* sp.

TRIUMFETTA L.

- | | | |
|---|-----|------------------------|
| 1. Leaves ovate, 3-lobed, pubescent beneath; inflorescence of axillary clusters | ... | <i>T. rhomboidea</i> |
| 1. Leaves orbicular, entire, white tomentose beneath, inflorescence of terminal racemes | ... | <i>T. rotundifolia</i> |

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.); Raiz. in Indian For. 92: 325. 1966; Daniel & Chandrabose in Sharma *et al.* Fl. India 3: 520. 1993. *Bartramia indica* L. Sp. Pl. 376. 1753 (*non T. indica* Lamk. 1792).



Muningia calabura L.

A species always mistaken for *Grewia* sp.

Suffruticose undershrubs, 0.5–1 m tall, much branched. Leaves ovate, 2–10 x 1.5–4 cm, stellate pubescent. Flowers yellow, in axillary fascicles, 0.7–1 cm long. Capsules globose or sub-globose with hooked spines.

Fls. & Frts. : September–January.

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

Distrib. : Deulgaon Raja, Nalgangapur.

Notes : Common in plains and on hill slopes.

T. rotundifolia Lamk. *Encycl.* 3: 421. 1789; Mast. in Hook. f. *Brit. India* 1: 395. 1874; Cooke, *Fl. Pres. Bombay* 1: 157. 1958 (Repr. ed.); Daniel & Chandrabose in Sharma *et al.* *Fl. India* 3: 521. 1993.

Erect, stellate hairy undershrubs, 0.7–0.9 m tall, much branched. Leaves orbicular to obovate, 1.5–3 x 1.5–2.5 cm, margins entire, or irregularly toothed. Flowers yellow, 0.5–0.7 cm across, in terminal racemes. Capsules ovate or globose, 0.4–0.5 cm across, with hooked spines.

Fls. & Frts. : June–October.

Distrib. : Lonar lake, Mehkar.

Notes : Common along roadsides and in cleared forest areas.

MALPIGHIACEAE

ASPIDOPTERYS A. JUSS.

Aspidopterys cordata (Heyne ex Wall.) A. Juss. in *Ann. Sci. Nat. Bot.* 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. As. Rar.* 1: 13. 1829.

Large twiners, densely hairy. Leaves broadly ovate or sub-orbicular, 5–16 x 5.5–14 cm, nearly glabrous above, whitish-tomentose beneath. Flowers whitish, in axillary panicles. Samaras globose with orbicular wings, 1.2–2 cm across, glabrous, reticulate.

Fls. & Frts. : October–February.

Illus. : Gandhi in Sald. & Nicols. Fl. Hassan Dt. 409. f. B-Bb. 1976.

Distrib. : Buldhana, Sonala forests.

Notes : Common in open areas of Sonala forest range, infrequent in other parts of the district.

ZYGOPHYLLACEAE

TRIBULUS L.

Tribulus terrestris L. Sp. Pl. 387. 1753; Edgew. & Hook. f. in Fl. Brit. India 1: 423. 1874; Cooke, Fl. Pres. Bombay 1: 170. 1958 (Repr. ed.); Nayar & Giri in Bull. Bot. Surv. India 24: 164. (1982) 1983. '*Gokhru*'.

Prostrate, perennial herbs, woody at base. Leaves pinnate; leaflets elliptic-oblong, 0.8–1 x 0.2–0.4 cm, sessile or subsessile, apex acute, mucronate, margins entire. Flowers yellow, axillary, solitary or in between petioles. Schizocarps globose, 0.8–1 cm across, spiny, of 5 cocci, woody.

Fls. & Frts. : Throughout the year.

Illus. : Maheswari, Illus. Fl. Delhi t. 38. 1966; Matthew. Illus. Fl. Tamilnadu Carnatic t. 93. 1982.

Distrib. : Ayla killa, Hiwarkheda, Jamod, Motala, Nalgangapur, Rajura lake, Sultanpur.

Notes : Common weed in waste places on gravelly soil along roadsides, around villages and abandoned fields.

Uses : Roots are used as tonic.

OXALIDACEAE

- | | | |
|--|-----|-----------|
| 1. Bulbous herbs with running stems; leaves digitately 3-foliate | ... | OXALIS |
| 1. Non-bulbous herbs with erect stems; leaves even-pinnate | ... | BIOPHYTUM |

BIOPHYTUM DC.

Biophytum sensitivum (L.) DC. Prodr. 1: 690. 1824; Edgew. & Hook. f. in Fl. Brit. India 1: 436. 1874; Cooke, Fl. Pres. Bombay 1: 177. 1958 (Repr. ed.); Veldk. in van Steenis. Fl. Males. Ser. 7: 152. 1971. *Oxalis sensitiva* L. Sp. Pl. 434. 1753.

Small, erect, annual herbs, 4–10 cm tall. Leaves pinnate; leaflets oblong, 0.4–1 x 0.2–0.5 cm, sessile, opposite, glabrous. Flowers yellow or orange–yellow, 0.4–0.6 x 0.5–0.7 cm across, in terminal umbels, shortly pedicellate. Capsules ellipsoid, 0.2–0.5 cm long, 5–angled, minutely apiculate.

Fls. & Frts. : September–January.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 96. 1982.

Distrib. : Ambabarwa hills, Sonabardi forest fields, Udhera tank.

Notes : Common but infrequent in cultivated fields, on wet soils and also on hill slopes near human habitation.

Uses : Roots are given to children to induce sleep.

OXALIS L.

- | | | |
|---|-----|-----------------------|
| 1. Leaflets triangular; flowers bluish–purple | ... | <i>O. latifolia</i> |
| 1. Leaflets obcordate; flowers yellow | ... | <i>O. corniculata</i> |

Oxalis corniculata L. Sp. Pl. 435. 1753; Edgew. & Hook. f. in Fl. Brit. India 1: 436. 1874; Cooke, Fl. Pres. Bombay 1: 177. 1958 (Repr. ed.); Veldk. in van Steenis, Fl. Males. Ser. 1. 7: 155. 1971. '*Ambushi*'.

Weak herbs with long creeping or subterranean stems. Leaves palmately 3–foliolate; leaflets broadly obcordate, 0.5–1.4 x 0.4–1 cm, sparsely appressed hairy or glabrous. Flower yellow, in axillary umbels. Capsules sub–cylindric, 0.9–1.3 cm long, 5–angled, shortly beaked.

Fls. & Frts. : Throughout the year.

Illus. : Maheshwari, Illus. Fl. Delhi t. 41. 1966; Matthew, Illus. Fl. Tamilnadu Carnatic t. 97. 1982.

Distrib. : Buldhana, Dhad, Lonar lake.

Notes : Common weed around cultivated fields preferably in moist shady places.

O. latifolia H.B. & K. Nov. Gen. et Sp. 5: 184. 237, t. 567. 1821; Matthew, Rec. Bot. Surv. India 20: 57. 1969; Veldk. in van Steenis, Fl. Males. Ser. 1, 7: 158. 1971.

Perennial herbs; bulbs globose. Leaves 3-foliolate; leaflets broadly and distinctly triangular, apices broad, tapering towards the base. Flowers bluish-purple, in cymes. Capsules not seen.

Fls. : November–April.

Distrib. : Buldhana city Corporation garden.

Notes : Occasional in moist shady areas.

BALSAMINACEAE

IMPATIENS L.

Impatiens balsamina L. var. **rosea** (Lindl.) Hook. f. Fl. Brit. India 1: 454. 1874. *I. rosea* Lindl. in Bot. Reg. t. 27. 1841. *I. balsamina* L. var. *brevicalcarata* Cooke, Fl. Pres. Bombay 1: 174. 1901 [1: 185. 1958 (Repr. ed.)]. 'Terda'.

Fleshy, erect, annual herbs, 50–80 cm tall, slightly branched. Leaves lanceolate, 2.6–11 x 1–2.8 cm, alternate, apex acuminate, margins deeply serrate. Flowers pink-red, 2–2.4 cm across, 1–3 in leaf axils. Capsules ellipsoid, white tomentose.

Fls. & Frts. : July–October.

Distrib. : Pathardi forests.

Notes : Occasional along Man river bank.

RUTACEAE

- | | | |
|--|-----|---------|
| 1. Leaves 3-foliolate; flowers bisexual; stamens 30–60 | ... | AEGLE |
| 1. Leaves imparipinnate; flowers polygamous; stamens 10–12 | ... | LIMONIA |

AEGLE Corr. *nom. cons.*

Aegle marmelos (L.) Corr. in Trans. Linn. Soc. 5: 223. 1800; Hook. f. Fl. Brit. India 1: 516. 1875; Cooke, Fl. Pres. Bombay 1: 204. 1958 (Repr. ed.). *Crataeva marmelos* L. Sp. Pl. 444. 1753. 'Bel'.

Small, deciduous trees, thorny, 6-10 m tall. Leaves 3-foliolate; leaflets ovate or ovate-elliptic, 1.2-8.5 x 0.5-5 cm, apex acuminate, margins glabrous. Flowers greenish-white, in axillary panicles, scented. Fruits globose, 5-12 cm across, pulp sweet.

Fls. & Frts. : April-August.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 205, t. 125. 1909; Matthew, Illus. Fl. Tamilnadu Carnatic t. 101. 1982.

Distrib. : Chinchphata forests, Lavhala near Mehkar.

Notes : Occasional in deciduous forests.

Uses : Fruits are used in medicine.

LIMONIA L.

Limonia acidissima L. Sp. Pl. ed. 2, 554. 1762. *Feronia elephantum* Corr. in Trans. Linn. Soc. 5: 225. 1800; Hook. f. Fl. Brit. India 1: 516. 1875; Cooke, Fl. Pres. Bombay 1: 203. 1958 (Repr. ed.). 'Kawath'.

Small trees with straight thorns, 8-12 m tall. Leaves imparipinnate; leaflets obovate, 0.5-2.7 x 0.5-1.8 cm, glabrous, opposite. Flowers reddish in terminal and lateral panicles. Fruits globose or ovoid-elliptic, 2-3 cm across.

Fls. & Frts. : April-August.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 204, t. 124. 1909; Matthew, Illus. Fl. Tamilnadu Carnatic t. 108. 1982.

Distrib. : Lavhala, Mehkar.

Notes : Occasional in the deciduous forests. According to Airy Shaw (Kew Bull. 293. 1939) *Limonia* L. is a distinct and valid genus as per rules of ICBN. and should not be confused with another genus *Limonium* Mill.

Uses : The pulp is eaten when ripe and made into fresh chutney when raw.

Murraya paniculata (L.) Jack. Malayan Misc. 1(5): 31. 1820; Alston in Trimen, Fl. Ceylon 6 (Suppl.): 37. 1931; Swingle in Citrus India 1: 232. 1967. *Chalcas paniculata* L. Mant. 1: 68. 1767. *Murraya exotica* auct. non L. 1771; Roxb. Fl. Ind. 2: 374. 1832; Hook. f. Fl. Brit. India 1: 502. 1875; Cooke, Fl. Bombay Pres. 1: 193. 1958 (Repr. ed.).

Small, evergreen trees, 4–5 m tall. Leaves imparipinnate; leaflets 3–9, ovate or ovate-lanceolate, oblique at the base, acuminate at apex. Flowers white, in simple cymes, sweet scented. Fruits ovoid, 1.8–2.4 cm long, glandular dotted.

Fls. & Frts. : May–October.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 193, t. 118. 1909; Matthew, Illus. Fl. Tamilnadu Carnatic t. 109. 1982.

Distrib. : Buldhana.

Notes : Occasionally cultivated in gardens as ornamental plants, also as an escape.

CULTIVATED SPECIES

CITRUS L.

Citrus aurantifolia (Chrism.) Sw. in J. Wash. Acad. Sci. 3: 465. 1913. *Limon aurantifolia* Christm. in Linn. Pflanzen. Syst. 1: 168. 1777. *Citrus medica* L. var. *acida* Roxb; Hook. f. Fl. Brit. India 1: 515. 1875; Cooke, Fl. Pres. Bombay 1: 201. 1958 (Repr. ed.). '*Limbu*'.

Small trees with thorny trunks and branches, 2–5 m tall. Leaves elliptic-oblong or elliptic-ovate, 2–9 x 1.5–3.5 cm, glabrous, with winged petioles. Flowers greenish-white, axillary, solitary or 2–3 clustered, 0.5–0.9 cm across.

Fls. & Frts. : January–June.

Distrib. : Jalgaon Jamod, Lonar lake.

Notes : Cultivated in the northern parts of the district.

Uses : The fruit is used in culinary purposes. The juice of the fruit is used in preparing drinks.

CULTIVATED SPECIES

MURRAYA L. *nom. cons.*

Murraya koenigii (L.) Spreng. Syst. Veg. 2: 315. 1826; Hook. f. Fl. Brit. India 1: 503. 1875; Cooke, Fl. Pres. Bombay 1: 193. 1958 (Repr. ed.); Swingle, Citrus India 1: 236. 1967. *Bergera koenigii* L. Mant. 1: 565. 1767. '*Kadhi-patta*'.

Shrubs or small trees, evergreen, 4–5 m tall. Leaves imparipinnate; leaflets 11–25, ovate or obliquely ovate-rhomboid, 2–4 x 1–1.5 cm, apex acuminate. Flowers white, in corymbose paniced-cymes. Fruits ovoid or sub-globose, 0.5–0.7 cm across, glandular dotted.

Fls. & Frts. : January–May.

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

Distrib. : Buldhana.

Notes : Common, grown in backyards of houses.

Uses : Leaves are used to flavour curries and other similar preparations.

CULTIVATED SPECIES

RUTA L.

Ruta graveolens L. Sp. Pl. 383. 1753. Hook. f. Fl. Brit. India 1: 485. 1875; Cooke, Fl. Pres. Bombay 1: 187. 1958 (Repr. ed.). '*Satap*'.

Strongly smelling herbs, woody at the base, 0.5–1 m tall, glabrous, glaucous. Leaves petioled, decomposed; segments cuneate, spathulate-oblong or linear-oblong, 0.2–0.9 x 0.1–0.3 cm. Flowers yellow in divaricately spreading corymbs. Capsules obtuse, shortly pedicelled, globose, 4–5 lobed.

Fls. & Frts. : January–April.

Distrib. : Buldhana.

Notes : Common, planted in gardens.

Uses : Rue is a narcotic and stimulant.

SIMAROUBACEAE

Ailanthus Desf. *nom. cons.*

Ailanthus excelsa Roxb. Pl. Cor. 1: 24, t. 23. 1795; Bennett in Hook. f. Fl. Brit. India 1: 518. 1875; Cooke, Fl. Pres. Bombay 1: 205. 1958 (Repr. ed.); Basak in Fasc. Fl. Ind. 4: 4. 1980. '*Maharukh*'.

Large, deciduous trees, 10–20 m tall. Leaves pinnate, 30–50 cm long, crowded at the ends of branches; leaflets ovate, 4–6 x 2.5–4.5 cm, obliquely truncate at base, sub-opposite. Flowers greenish-yellow, in large axillary and terminal, hairy panicles. Samaras lanceolate, 2–6 x 0.5–1.5 cm, acute at both ends, twisted near the base.

Fls. & Frts. : December–April.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 207–208, tt. 126 & 127. 1909; Matthew, Illus. Fl. Tamilnadu Carnatic t. 115. 1982.

Distrib. : Deulgaon Mali near Mehkar, Dhanora and Gumti near Jalgaon Jamod.

Notes : Planted along the roadsides.

Uses : The leaf extract is used for washing wounds and skin eruptions.

BALANITACEAE

Balanites Del. *nom. cons.*

Balanites aegyptiaca (L.) Del. Fl. Aegypt 77 & 221, tab. 28, t. 1. 1813; Blatter in J. Bombay Nat. Hist. Soc. 34: 895. 1930; Basak in Fasc. Fl. India 4: 20. 1980. *Ximenia aegyptiaca* L. Sp. Pl. 1194. 1753. *Balanites roxburghii* Planch. in Ann. Sci. Nat. Bot. Ser. 4, 2: 258. 1854; Bennett in Hook. f. Fl. Brit. India 1: 522. 1875; Cooke, Fl. Pres. Bombay 1: 107. 1958 (Repr. ed.). '*Hinganbet*'.

Large bushy, thorny shrubs or small trees, 4–5 m tall. Leaves palmately 2-foliolate, often arising from thorny twigs; leaflets elliptic-oblong or obovate, 0.8–2.2 x 0.4–1.3 cm, glaucous green. Flowers greenish-white, in fascicled cymes. Fruits elliptic-oblong or ovoid, 3.4–4.2 x 2.8–3.2 cm, slightly 5-grooved.

Fls. & Frts. : June–October.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 211, t. 128. 1909; Matthew, Illus. Fl. Tamilnadu Carnatic t. 116. 1982.

Distrib. : Nalgangapur, Tunki.

Notes : Abundant along the roadsides. *Balanites aegyptiaca* from Egypt and *B. roxburghii* from India were formerly considered as two distinct taxa based on the absence and presence of hairs on leaves and petals respectively which is an unreliable character of ecological variation.

The genus *Balanites*, which was formerly treated under the family Simaroubaceae has been now separated from it and is elevated to the rank of a family viz. Balanitaceae (vide ICBN, 1966).

BURSERACEAE

- | | | |
|---|-----|-----------|
| 1. Fruits trigonous; ovary 3-celled; stamens glabrous | ... | BOSWELLIA |
| 1. Fruits globose-oblong; ovary 5-celled; stamens pubescent | ... | GARUGA |

BOSWELLIA Roxb. ex Colebr.

Boswellia serrata Roxb. ex Colebr. Asiat. Res. 9: 379. t. 5. 1807; Bennett in Hook. f. Fl. Brit. India 1: 528. 1875; Cooke, Fl. Pres. Bombay 1: 210. 1958 (Repr. ed.). 'Salai'.

Deciduous trees, 5–7 m tall with greenish-grey bark. Leaves imparipinnate, apically clustered; leaflets ovate, 1.8–5 x 1–2 cm, truncate and oblique at base. Flowers greenish-white, in fascicled or paniced–racemes crowded at the ends of the leafless branchlets. Fruits ovoid, trigonous, 1.5 x 1 cm, glabrous.

Fls. & Frts. : February–June.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 216, t. 130. 1909; Matthew, Illus. Fl. Tamilnadu Carnatic t. 119. 1982.

Distrib. : Mardadi temple valley, Pathardi forests, Wasali forests.

Notes : Common throughout the district. One of the most common species of the district, Ambabarwa, Bhingara, Botha, Buldhana (north side), Chinchphata, Pathardi, Wardwad and Wasali forests consist of well developed pure patches of *Salai*.

Uses : Wood is used as timber for manufacture of paper and for packing cases. Resin is used in the preparation of ointment for sores and external eruptions.

GARUGA Roxb.

Garuga pinnata Roxb. Pl. Cor. 3: 5. t. 208. 1811; Bennet in Hook. f. Fl. Brit. India 1: 528. 1875; Cooke, Fl. Pres. Bombay 1: 211. 1958 (Repr. ed.); Witt, List. 13. 1908; Kalkman in Blumea 7: 468. 1953. '*Kakad*'.

Moderate sized trees, 5–8 m tall. Leaves imparipinnate, apically clustered; leaflets 6–9 pairs, opposite, ovate, obovate or oblong, 2.5–5 x 1.5–2.5 cm, rounded and oblique at base. Flowers yellow, in fascicled or paniced–racemes, crowded at the ends of leafless branchlets. Fruits, 1.5–2 cm across, smooth.

Fls. & Frts. : February–March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 122. 1962.

Distrib. : Aampani forests, Buldhana, (Witt. l.c.), Dongar Khandala, Warwand.

Notes : Occasional on hill slopes.

Uses : Fruits are eaten fresh and also pickled by local people.

MELIACEAE

- | | | |
|--|-----|-------------|
| 1. Fruits capsular; seeds winged | ... | SOYMIDA |
| 1. Fruits drupaceous; seeds not winged : | | |
| 2. Flowers purple, disc present | ... | MELIA |
| 2. Flowers white, disc absent | ... | AZADIRACHTA |

AZADIRACHTA A. Juss.

Azadirachta indica A. Juss. in Mem. Mus. Hist. Nat. Paris 19: 221. t. 2. fig. 5. 1830; Cooke, Fl. Pres. Bombay 1: 220. 1958 (Repr. ed.).
Melia azadirachta L. Sp. Pl. 385. 1753; Hiern in Hook. f. Fl. Brit. India 1: 544. 1875. '*Kadu limb*'.

Trees with straight trunks, 10–12 m tall; bark dark. Leaves imparipinnate; leaflets oblong-lanceolate, 4–6 x 1.5–2.5 cm, falcate, margins serrate. Flowers white, 0.4–0.6 cm across, in axillary, lax paniced–racemes, sweet scented. Drupes ovoid-oblong, 1.2 x 1 cm, with milky juice.

Fls. & Frts. : April–June.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 229, t. 136. 1990; Matthew, Illus. Fl. Tamilnadu Carnatic t. 125. 1982.

Notes : Common trees grown along roadsides and near temples for shade.

Distrib. : Dongar Khandala.

Uses : All parts of the plant are used medicinally. Seeds yield oil which is used for various skin diseases. The leafless twigs are used for cleaning teeth.

MELIA L.

Melia azedarach L. Sp. Pl. 384. 1753; Hiern in Hook. f. Fl. Brit. India 1: 544. 1875; Cooke, Fl. Pres. Bombay 1: 218. (Repr. ed.). '*Limbara*'.

Trees with dark grey bark. Leaves bipinnate, sometimes tripinnate; leaflets ovate or lanceolate, 1.5–5.5 x 1–2 cm, apex acuminate, margins serrate. Flowers purplish, in axillary, paniced–racemes. Drupes ovoid-oblong, 1.5 x 1 cm.

Fls. & Frts. : June–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 128. 1982.

Distrib. : Buldhana, Loni Gawli, Shegaon, Sindked Raja, Tunki.

Notes : Common along roadsides and near villages.

SOYMIDA A. Juss.

Soymida febrifuga (Roxb.) A. Juss. in Mem. Muss. Hist. Nat. Pairs 19: 251. t. 22. f. 26. 1830; Hiern in Hook. f. Fl. Brit. India 1: 567. 1875; Cooke, Fl. Pres. Bombay 1: 228. 1958 (Repr. ed.). *Swietenia febrifuga* Roxb. Pl. Cor. 1: 18. t. 17. 1795. '*Dhor kumbi*'.

Trees with straight branches, 5–15 m tall, deciduous. Leaves even-pinnate, apically clustered; leaflets ovate-oblong or elliptic, 3–9 x 3–7 cm, thick, coriaceous, opposite, apex obtuse glabrous. Flowers greenish-white, 0.5–0.9 cm across, in axillary and terminal panicles. Capsules obovoid, 3–6.5 x 2–4 cm, woody.

Fls. & Frts. : February–June.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic tt. 129 & 965 d. 1982.

Distrib. : Occasional in deciduous forests.

CELASTRACEAE

- | | | |
|---|------|-----------|
| 1. Twiners; inflorescence a raceme; ovary free from disc | ... | CELASTRUS |
| 1. Trees or shrubs; inflorescence a cyme; ovary confluent with disc : | | |
| 2. Plants armed with woody thorns; seeds arillate | | MAYTENUS |
| 2. Plants unarmed; seeds exarillate | ... | CASSINE |

CASSINE L.

Cassine glauca (Rottb.) O. Ktze. Rev. Gen. Pl. 1: 114. 1891; Ding Hou in van Steenis, Fl. Males. Ser. 1. 6: 289. 1962. *Mangifera glauca* Rottb. Nye Saml. Kongel. Norske Vid. Selsk. Skr. 2: 534. t. 4. f. 1. 1783. *Celastrus glaucus* Vahl, Symb. Bot. 2: 42. 1791, non R. Br. 1814. *Elaeodendron glaucum* (Rottb.) Pers. Syn. Pl. 1: 241. 1805; Lawson in Hook. f. Fl. Brit. India 1: 623. 1875; Cooke, Fl. Pres. Bombay 1: 248. 1958 (Repr. ed.). '*Bhutakas*'.

Small trees, 4–5 m tall. Leaves ovate-oblong or elliptic-oblong, 6–10 x 4–5 cm, thin, coriaceous, margins serrate-crenate. Flowers greenish-yellow, in axillary, dichotomously branched cymes. Drupes obovoid, 0.5–1 cm long, apiculate.

Fls. & Frts. : October–January.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 275, t. 162. 1909; Matthew, Illus. Fl. Tamilnadu Carnatic t. 141. 1982.

Distrib. : Buldhana.

Notes : Occasional on the hill slopes.

CELASTRUS L.

Celastrus paniculatus Willd. Sp. Pl. 1: 1125. 1789; Lawson in Hook. f. Fl. Brit. India 1: 613. 1875; Cooke, Fl. Pres. Bombay 1: 245. 1958 (Repr. ed.); Ding Hou in van Steenis, Fl. Males. Ser. 1, 6: 235. 1962. '*Malkangi*'.

Rambling shrubs, 4–5 m long. Leaves elliptic-obovate, 3–12 x 2–10 cm, apex abruptly acuminate. Flowers pale greenish-yellow in axillary and terminal racemes. Capsules ovoid, 0.4–0.6 cm long, 3-valved.

Fls. & Frts. : November–June.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 277, t. 163. 1909; Mathew, Illus. Fl. Tamilnadu Carnatic t. 142. 1982.

Distrib. : Aampani forests, Botha forests, Chinchpani forests, Sonabardi forests.

Notes : Very common along hill tracts and lower hill slopes.

Uses : Oil extracted from the seeds is used as stimulant.

MAYTENUS Molina

Maytenus emarginata (Willd.) Ding Hou in van Steenis Fl. Males. Ser. 1, 6: 241. 1962. *Celastrus emarginatus* Willd. Sp. Pl. 1: 1128. 1798. *Gymnosporia montana* (Roth) Benth. Fl. Austr. 1: 400. 1863; Lawson in Hook. f. Fl. Brit. India 1: 621. 1875; Cooke, Fl. Pres. Bombay 1: 247. 1958 (Repr. ed.). 'Enkala'.

Large shrubs or small trees, 3–4 m tall; thorns terminating into short shoots. Leaves ovate, oblong or lanceolate, 3–5 x 2–3 cm, margins crenate or entire. Flowers creamish-white, in axillary, many flowered cymes, fragrant. Capsules globose, 0.4–0.6 cm across, 3-velved.

Fls. & Frts. : October–April.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 281, t. 166. 1909.

Distrib. : Botha forests, Deulgaon Raja, Dhanori, Jalgaon Jamod, Lonar lake, Pathardi forests, Shara, Sonala forests, Tunki.

Notes : Very common and abundant on the hill slopes. One of the dominant species of the district.

RHAMNACEAE

- | | | |
|--|-----|-----------|
| 1. Armed trees or shrubs; flowers in axillary fascicles | ... | ZIZIPHUS |
| 1. Unarmed stragglers or climbers; flowers in terminal and axillary panicles | ... | VENTILAGO |

VENTILAGO Gaertn.

Ventilago denticulata Willd. in Ges. Naturf. For. Neue Schr. 3: 417. 1801; Naik in Indian For. 95 (6): 413. 1969; Bhandari & Bhansal in Nayar *et al.* Fasc. Fl. India 20: 82. 1990. *V. calyculata* Tul. in Ann. Sci. Nat. Ser. 4, 8: 124. 1857; Lawson in Hook. f. Fl. Brit. India 1: 631. 1875; Cooke, Fl. Pres. Bombay 1: 254. 1958 (Repr. ed.). 'Suparichi wel'.

Extensive woody stragglers. Leaves ovate or elliptic-oblong, 4-12 x 2.2-7 cm, apex sub-acute, margins crenate-serrate or entire. Flowers scented, numerous, greenish-yellow, in terminal and axillary panicles. Nuts globose, 0.2-0.5 cm across, wings 3-5 cm long, minutely bifid at tip.

Fls. & Frts. : September-March.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 292, t. 174. 1909.

Distrib. : Aampani forests, Borkhedi, Hingankeda near Warwand, Lonar lake, Sonala forests.

Notes : Frequent in shady places, on the lower slopes of deciduous forests.

ZIZIPHUS Tourn. ex Mill.

- | | | |
|---|-----|----------------------|
| 1. Scandent or climbing shrubs | ... | <i>Z. oenoplia</i> |
| 1. Erect shrubs or small trees : | | |
| 2. Leaves whitish, tomentose beneath : | | |
| 3. Trees 4-8 m tall | ... | <i>Z. mauritiana</i> |
| 3. Shrubs 0.5-1.2 m tall | ... | <i>Z. nummularia</i> |
| 2. Leaves pubescent or glabrous beneath : | | |
| 4. Bushy shrubs, 1-1.5 m tall | ... | <i>Z. horrida</i> |
| 4. Trees or shrubs, 3-7 m tall | ... | <i>Z. xylopyrus</i> |

Ziziphus horrida Roth, Nov. Pl. Sp. 159. 1821; Lawson in Hook. f. Fl. Brit. India 1: 636. 1875; Cooke, Fl. Pres. Bombay 1: 258. 1958 (Repr. ed.); Bhandari & Bhansal in Nayar *et al.* Fasc. Fl. India 20: 96. 1990. '*Ghat bor*'.

Bushy shrubs with divaricate branches, 2-3 m tall. Leaves sub-orbicular-ovate, 1.2-2.2 x 0.5-1.4 cm, glabrescent. Flowers greenish-yellow, in axillary fascicles. Drupes globose, 0.8-1.2 cm across.

Fls. & Frts. : August-October.

Distrib. : Sindkhed Raja.

Notes : Rare on hill slopes.

Uses : Fruits are edible.

Z. mauritiana Lamk. Encycl. 3: 319. 1789; Bailey. Man. Cult. Pl. 646. 1949; Bhandari & Bhansal in Nayar *et al.* Fasc. Fl. India 20: 99. 1990. *Z. jujuba* Lamk. Encycl. 3: 318. 1789; Lawson in Hook. f. Fl. Brit. India 1: 632. 1785; Cooke, Fl. Pres. Bombay 1: 256. 1958 (Repr. ed.), *non* Mill. 1768. 'Bor'.

Moderate, much branched trees, 4–6 m tall, armed with curved spines. Leaves ovate to broadly elliptic, 1.3–4 x 0.8–2.2 cm, basally 3-nerved, glabrous above, brown tomentose beneath. Flowers greenish-white, in axillary fascicles. Drupes globose, 1–1.5 cm across, glabrous, yellowish-brown.

Fls. & Frts. : June–September.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 294. t. 175. 1909; Maheshwari, Illus. Fl. Delhi t. 44. 1966.

Distrib. : Bibi, Buldhana, Dhad, Kingaon Raja, Lonar lake, Rohin khed, Warwat.

Notes : Common in the plains and around forest villages. Infrequent in the deciduous forests. So far this taxon is recorded under the name *Ziziphus jujuba* Lamk. The name *Z. jujuba* cannot be used for the present species, being later homonym and hence illegitimate according to ICBN, because that name is preoccupied by Miller's plant, which is different one. So Lamarck's *Z. mauritiana* (l.c.) is followed here.

Uses : Fruits are edible.

Z. nummularia (Burm. f.) Wight & Arn. Prodr. 162. 1834; Lawson in Hook. f. Fl. Brit. India 1: 633. 1875; Bhandari & Bhansal in Nayar *et al.* Fl. Fasc. India 20: 102. 1990. *Rhamnus nummularius* Burm. f. Fl. Ind. 61. 1768. *Ziziphus rotundifolia* Lamk. Encycl. 3: 319. 1789; Cooke, Fl. Pres. Bombay 1: 257. 1958 (Repr. ed.); Witt. List. 16. 1908. 'Bor'.

Small shrubs, with zigzag branches and slender thorns. Fruits red.

Frts. : December–January.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 45. 1966.

Distrib. : Buldhana (Witt *l.c.*).

Notes : This species has been reported here on the authority of Witt, *l.c.*

Uses : Fruits edible.

Z. oenoplia (L.) Mill. *Gard. Dict.* ed. 8. 1768; Lawson in Hook. f. *Fl. Brit. India* 1: 634. 1875; Cooke, *Fl. Pres. Bombay* 1: 258. 1958 (Repr. ed.); Bhandari & Bhansal in Nayar *et al. Fasc. Fl. India* 20: 103. 1990. *Rhamnus oenoplia* L. *Sp. Pl.* 194. 1753. 'Chanbor'.

Scandent or climbing, prickly shrubs; young branches rusty-tomentose. Leaves ovate or ovate-lanceolate, 1.5–4.5 x 1–2 cm, rufous-silky-pubescent beneath. Flowers greenish, in axillary fascicles. Drupes globose or obovoid, 0.5–0.7 cm across.

Fls. & Frts. : August–December.

Illus. : Talbot, *For. Fl. Bombay Pres. & Sind* 1: 297, t. 176. 1909.

Distrib. : Buldhana, Chinchpani.

Notes : Common on forest hill slopes.

Uses : Fruits edible.

Z. xylopyrus (Retz.) Willd. *Sp. Pl.* 1: 1104. 1798; Lawson in Hook. f. *Fl. Brit. India* 1: 634. 1875; Cooke, *Fl. Pres. Bombay* 1: 269. 1958 (Repr. ed.); Bhandari & Bhansal in Nayar *Fasc. Fl. India* 20: 112. 1990. *Rhamnus xylopyrus* Retz. *Obs. Bot.* 2: 11. 1781. 'Ghat bor'.

Sparsely armed trees, 2–6 m tall, seldom unarmed, deciduous. Leaves ovate-oblong, 5–8 x 3–7 cm, glabrous above, brown pubescent beneath. Flowers creamish-white, 0.5–0.6 cm across in axillary fascicles. Drupes globose, grey-tomentose, woody.

Fls. & Frts. : September–December.

Distrib. : Bedapani forests, Botha forests, Chinchpani forests, Pathardi forests.

Notes : Common in deciduous forests.

Uses : Young shoots are used as fodder.

VITACEAE

- | | | |
|--|-----|--------------|
| 1. Flowers 5 merous; peduncles tendrilar | ... | AMPELOCISSUS |
| 1. Flowers 4 merous; peduncles not tendrilar: | | |
| 2. Seeds ellipsoid, smooth, faceted or pitted | ... | CISSUS |
| 2. Seeds hemispheric, deep pitted or oblong, angular | ... | CAYRATIA |

AMPELOCISSUS Planch. *nom. cons.*

Ampelocissus latifolia (Roxb.) Planch. in J. Vigne Amer. 374. 1844 et in DC. Mon. Phan. 5(2): 370. 1887. *Vitis latifolia* Roxb. Fl. Ind. 1: 661. 1820; Lawson in Hook. f. Fl. Brit. India 1: 652. 1875; Cooke, Fl. Pres. Bombay 1: 269. 1958 (Repr. ed.). '*Jangli draksh*'.

Extensive climbers, woody, with weak stems; stems 4–5 m long; tendrils forked. Leaves broadly ovate in outline, 3–7 angled, deeply 3-lobed. Flowers 0.5–1 mm across, reddish-brown in thyrsoïd cymes. Berries globose, 0.5–0.8 cm across, black.

Fls. & Frts. : June–October.

Illus. : Ic. Roxb. Fasc. 3, t. 5. 1969 (Repr. ed).

Distrib. : Aampani forests, Deulgaon Raja, Dongar Khandala, Loni Budruk, Undri, Warwand, Wasali forests.

Notes : Common on hedges and forest undergrowth.

CAYRATIA A. JUSS.

- | | | |
|--------------------------------------|-----|----------------------|
| 1. Leaves 3-foliolate; berries black | ... | <i>C. trifolia</i> |
| 1. Leaves 5-foliolate; berries red | ... | <i>C. auriculata</i> |

Cayratia auriculata (Wall. ex Wight. & Arn.) Gamble, Fl. Pres. Madras 237. 1918. *Vitis auriculata* Wall. ex 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.); Witt, List. 17. 1908. 'Ambat vel'.

Extensive climbers; branches succulent, young parts softly pubescent. Leaves 3–5 foliolate; leaflets ovate, 6–15 x 5–8 cm, membranous. Flowers 4–merous, in axillary, divaricate cymes. Fruits globose, 1–1.5 cm across, red.

Fls. & Frts. : Not recorded.

Illus. : Wight, Ic. t. 145. 1839; Talbot, For. Fl. Bombay Pres. & Sind 1: 322, t. 191. 1909.

Distrib. : Buldhana (Witt, l.c.).

Notes : This species has been reported here on the authority of Witt, l.c.

C. trifolia (L.) Domin, Biblioth. Bot. 89: 371. 1927. *Vitis trifolia* L. Sp. Pl. 203. 1753; Cooke, Fl. Pres. Bombay 1: 271. 1958 (Repr. ed.). *V. carnosia* Wall. ex Wight & Arn. Prodr. 127. 1834; Lawson in Hook. f. Fl. Brit. India 1: 654. 1875.

Herbaceous climbers, woody at base, slender, 4–5 m long. Leaves 3–foliolate; leaflets ovate to obovate, glaucous–green, thinly pubescent. Flowers greenish, in paniced–cymes. Berries globose, black or deep purple, glabrous.

Fls. & Frts. : June–October.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 318, tt. 187 & 188. 1909.

Distrib. : Buldhana, Deulgaon Raja, Nandura, Sonala forests.

Notes : Common, spreading on thorny bushes.

CISSUS L.

1. Leaves 3–foliolate; branches bristly–setose; seeds pitted ... *C. setosa*
1. Leaves simple, branches not bristly–setose; seeds not pitted :

- | | | |
|--|-----|---------------------|
| 2. Flowers pale yellow; seeds tessellated on sides | ... | <i>C. vitiginea</i> |
| 2. Flowers reddish-green; seeds smooth | ... | <i>C. repanda</i> |

Cissus repanda Vahl, Symb. Bot. 3: 18. 1894. *Vitis repanda* Wight & Arn. Prodr. 125. 1834; Lawson in Hook. f. Fl. Brit. India 1: 648. 1875; Cooke, Fl. Pres. Bombay 1: 267. 1958. (Repr. ed.).

Large, woody climbers, with fissured, corky bark; tendrils with flattened disc. Leaves broadly ovate to orbicular, pubescent above, silky tomentose beneath. Flowers reddish-green, in pedunculate cymes. Fruits not seen.

Fls. : June–September. *Frts.* : Not seen.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 313, t. 185. 1909.

Distrib. : Loni village, near Lonar lake.

Notes : Rare.

C. setosa Roxb. Fl. Ind. 1: 410. 1832. *Vitis setosa* (Roxb.) Wall. ex Wight & Arn. Prodr. 127. 1834; Lawson in Hook. f. Fl. Brit. India 1: 654. 1875; Cooke, Fl. Pres. Bombay 1: 270. 1958 (Repr. ed.).

Herbaceous, fleshy, weak, spreading climbers, with glandular bristles all over the plant, including stems. Leaves 3-foliolate; leaflets oblong-obovate, 4.5–8.2 x 3–5 cm, succulent. Flowers greenish, 0.4–0.5 cm across, in peduncled cymes. Berries ovoid, 1 x 0.7 cm across, red.

Fls. & Frts. : June–August.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 157. 1982.

Distrib. : Buldhana.

Notes : Rare.

C. vitiginea L. Sp. Pl. 117. 1753. *Vitis linnaei* Wall. ex Lawson in Hook. f. Fl. Brit. India 1: 649. 1875.

Robust, erect or climbing shrubs, densely pubescent. Leaves simple, broadly ovate or rotund-ovate, 4.5–6 x 3.8–7.2 cm, 5-angular or deeply lobed, thick-coriaceous. Flowers creamy-white, 0.2–0.5 cm across, in peduncled, umbellate-cymes. Berries pyriform, rugose, apiculate.

Fls. & Frts. : September–June.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 158, 1982.

Distrib. : Aampani forests, Chinchpani forests, Rajura lake, near Jalgaon Jamod, Sonabardi forests, Undri.

Notes : Frequent, along forest streams.

SAPINDACEAE

1. Tendril climbers; leaves 2-ternate; fruits inflated capsules ... CARDIOSPERMUM
1. Shrubs or trees, etendrillar; leaves not ternate; fruits not as above :
 2. Leaves simple; capsules membranous; valves winged ... DODONAEA
 2. Leaves compound; fruits indehiscent, wingless :
 3. Flowers with petals; fruits lobed into cocci ... SAPINDUS
 3. Flowers without petals; fruits not lobed and nor separating into cocci ... SCHLECHTERA

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.); Witt, *List.* 19. 1909. '*Karnal phodi*'.

Trailing–twining, annual herbs; tendrils 3-fid, stiff. Leaves biternate; leaflets lanceolate or ovate–lanceolate, 0.5–5.5 x 0.2–1.2 cm, glabrous or sparsely hairy. Flowers white, in axillary, simple cymes with 2, opposite, circinate tendrils below the flowers. Capsules winged, inflated, depressed–pyriform, 1.5–2 cm in diam.

Fls. & Frts. : September–March.

Illus. : Manaswar, *Illus. Fl. Delhi* t. 47. 1966.

Distrib. : Buldhana Buldhana King Raja.

Notes : Common in the wild in grasslands.

DODONAEA MILL.

Dodonaea viscosa (L.) Jacq. Enum. Pl. Carib. 19. 1760; L., Mant. Alt. 2: 228. 1771; Hiern in Hook. f. Fl. Brit. India 1: 687. 1875; Cooke, Fl. Pres. Bombay 1: 287. 1958 (Repr. ed.); Witt, List. 18. 1908. *Ptelea viscosa* L. Sp. Pl. 118. 1753.

Evergreen, large shrubs, 3–5 m tall; young parts covered with viscid resin. Leaves oblanceolate to spatulate, 3–9 x 0.5–2 cm, glabrous, base subsessile, margins entire. Flowers greenish-yellow in terminal and axillary cymes. Capsules 1.2–1.9 cm across, 2–4 valved; valves winged on the back.

Fls. & Frts. : June–October.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 342, t. 202. 1909; P. Abdulla in Fl. W. Pakistan t. 1, A–E. 1973.

Distrib. : Buldhana, Lonar lake.

Notes : Common, planted in hedges at some places, also naturalized in Lonar lake area.

SAPINDUS L.

Sapindus laurifolius Vahl, Symb. Bot. 3: 54. 1794; Cooke, Fl. Pres. Bombay 1: 284. 1958 (Repr. ed.). *S. trifoliatus* non L. 1753; Hiern in Hook. f. Fl. Brit. India 1: 682. 1875, p.p. '*Ritha*'.

Small trees. Leaves pinnate; leaflets elliptic-lanceolate, 5–16 x 4–7 cm, base sub-sessile, apex acuminate, glabrous, margins entire. Flowers greenish-white, in dense terminal corymbose-panicles. Drupes 2–3 lobed, pubescent, 1.7–2 cm across, ferruginous.

Fls. & Frts. : October–March.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 337, t. 199. 1909.

Distrib. : Bibi, Deulgaon Raja, Warwat.

Notes : Common, along roadsides.

Uses : Fruits are used as substitute for soap, for washing clothes as well as the hair.

SCHLEICHERA Willd.

Schleicheria oleosa (Lour.) Oken, Allg. Naturgesch. 3(2): 1341. 1841. *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 (Repr. ed.). 'Kusumb'.

Large trees, dense-foliaged, 15–20 m tall. Leaves abruptly pinnate; leaflets 2–4 pairs, lanceolate or oblong-lanceolate, 5–13 x 2–5 cm, coriaceous, apex acute, obtuse, margins entire. Flowers yellowish-green, 0.2–0.4 cm across, in axillary or extra-axillary, interrupted racemes or panicles. Drupes ovoid, 2–1.5 cm, glabrous, dark brown.

Fls. & Frts. : February–June.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 336, t. 198. 1909; Matthew, Illus. Fl. Tamilnadu Carnatic tt. 168 & 966c. 1982.

Distrib. : Mardadi forest temple area.

Notes : One of the common species of the district.

Uses : Fruits are edible.

ANACARDIACEAE

- | | | |
|--|-----|------------|
| 1. Leaves compound | ... | RIIUS |
| 1. Leaves simple : | | |
| 2. Flowers bisexual; carpels free; drupes hard | ... | BUCHANANIA |
| 2. Flowers polygamous; carpels united; thalamus fleshy | ... | SEMECARPUS |

BUCHANANIA Spreng.

- | | | |
|---|-----|---------------------|
| 1. Leaves oblong-elliptic, glabrous beneath | ... | <i>B. axillaris</i> |
| 1. Leaves broadly oblong, pubescent beneath | ... | <i>B. lanzan</i> |

Buchanania axillaris (Desr.) Ramamoorthy in Sald. & Nicols. Fl. Hassan Dt. 374. 1976. *Mangifera axillaris* Desr. in Lamk., Encycl. 3: 697. 1792. *Buchanania angustifolia* Roxb. Pl. Cor. t. 262. 1820; Hook. f. Fl. Brit. India 2: 23. 1876; Cooke, Fl. Pres. Bombay 1: 294. 1958 (Repr. ed.); Witt, list. 20. 1908.

Small trees, young parts glabrous. Leaves ovate, linear-oblong or elliptic, 6-10 x 2-4 cm, coriaceous, base rounded or acute, apex obtuse or emarginate. Flowers white, subsessile; calyx 5-lobed; petals ovate. Fruits ovoid, compressed, 1.5 cm long.

Fls. & Frts. : Not recorded.

Illus. : Wight, Ic. t. 101. 1840; Matthew, Illus. Fl. Tamilnadu Carnatic t. 171. 1982.

Distrib. : Buldhana (Witt, l.c.).

Notes : This species has been included here on the authority of Witt (l.c.), who has reported it only from Ajantha jungles, basing on the list drawn up by Mr. F.B. Dickinson in 1892, for the Berar Circle, under the Buldhana forest division.

B. lanzan Spreng. in J. Bot. (Schrader) 2: 234. 1801. *B. latifolia* Roxb. Fl. Ind. 2: 385. 1832; Hook. f. Fl. Brit. India 2: 23. 1876; Cooke, Fl. Pres. Bombay 1: 293. 1958 (Repr. ed.). 'Char', 'Charoli'

Trees, 8-12 m tall. Leaves broadly ovate, 10-15 x 6-12 cm, base round, margins entire, above glabrous pubescent, beneath. Flowers greenish-white, 0.2-0.4 cm across, in terminal and axillary, pubescent, pyramidal panicles. Drupes globose, 1 cm broad.

Fls. & Frts. : February-June.

Distrib. : Borkhedi, Dongar shewli, Ghatbori, Wasali forests.

Notes : Common, in almost all forest ranges of the district.

Uses : Seeds edible.

RHUS L.

Rhus mysorensis G. Don, Gen. Syst. 2: 74. 1832; Hook. f. Fl. Brit. India 2: 9. 1876; Cooke, Fl. Pres. Bombay 1: 290. 1958 (Repr. ed.).

Perennial, spinous shrubs, 1-2 m tall. Leaves 3-foliolate; leaflets obovate-crenate, 1.5-2 x 1-1.7 cm, coriaceous. Flowers greenish-white, in terminal and axillary, short panicles. Drupes sub-globose, 0.3-0.5 cm across, wrinkled, brownish and shining on drying.

Fls. & Frts. : June-October.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 347; t. 203. 1909; Maheshwari, *Illus. Fl. Delhi* t. 48. 1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 175. 1982.

Distrib. : Sindkhed Raja.

Notes : Occasional, along roadsides and hedges.

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.); Ding Hou in van Steenis, *Fl. Males. Ser.* 1, 8: 518. 1978. '*Bibba*'.

Small trees, 4-7 m tall. Leaves ovate, obovate-oblong or ovate-oblong, 10-26 x 5-9 cm, glabrous above, pubescent beneath. Flowers creamy-white, 0.5-0.8 cm across, in terminal, panicles. Drupes obliquely-ovoid, 2-2.5 cm long, black, fleshy, with orange-red receptacles.

Fls. & Frts. : June-November.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 355, t. 208. 1909; Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 176. 1982.

Distrib. : Deulgaon Mahi, Dudha, Loni.

Notes : Infrequent, collected and noticed from the southern parts of the district.

Uses : Thalamus eaten raw, fruits are dried or roasted. Fruit juice is used for making ink.

CULTIVATED SPECIES

MANGIFERA L.

Mangifera indica L. Sp. Pl. 200. 1753; Bedd. Fl. Sylv. t. 162. 1871; Hook. f. Fl. Brit. India 2: 13. 1876; Cooke, Fl. Pres. Bombay 1: 291. 1958 (Repr. ed.); Ding Hou in van Steenis, Fl. Males. Ser. 1, 8: 427. 1978. 'Amba'.

Large, spreading, evergreen trees, 10–15 m tall, with hemispheric canopy. Leaves oblong-lanceolate, 8–18 x 2.5–5.5 cm, coriaceous, glabrous, margins entire. Flowers greenish, in pubescent panicles. Drupes ovoid, fleshy, obliquely pyriform, stone compressed, fibrous, hard.

Fls. & Frts. : January–June.

Illus. : Bedd. *L.c.*; Matthew, *Illus. Fl. Tamilnadu Carnatic* tt. 173 & 977a. 1982.

Distrib. : Buldhana, Warwand.

Notes : Common, wild and under cultivation.

Uses : Fruits are eaten in all stages and are pickled. The dried kernels too are eaten or pickled. The wood is used for planking door, windows etc.

MORINGACEAE

MORINGA Adans.

- | | | |
|---|-----|-----------------------|
| 1. Leaves 2-pinnate; leaflets equally round; wild | ... | <i>M. concanensis</i> |
| 1. Leaves 3-pinnate; leaflets apically emarginate; planted or self-sown | ... | <i>M. oleifera</i> |

Moringa concanensis Nimmo ex Dalz. & Gibs. Bombay Fl. 311. 1861; Hook. f. Fl. Brit. India 2: 45. 1876; Cooke, Fl. Pres. Bombay 1: 301. 1958 (Repr. ed.). 'Ran-shewga'.

Small trees, 5–10 m tall. Leaves 2-pinnate; leaflets odd-pinnate, broadly ovate or elliptic, 1–2.5 x 0.9–1.8 cm, chartaceous, glaucous beneath. Flowers white with purple streaks, 0.8–1.2 cm across. Capsules 0.5–1.5 m, beaked.

Fls. & Frts. : February–June.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* tt. 178 & 967, c, d. 1982.

Distrib. : Dhanori near Garpiti.

Notes : Rare, on the forest edges.

M. oleifera Lamk. *Encycl.* 1: 398. 1785. *M. pterygosperma* Gaertn. *Fruct.* 2: 314. 1791; Bedd. *Fl. Sylv.* t. 80. 1871; Hook. f. *Fl. Brit. India* 2: 45. 1876; Cooke, *Fl. Pres. Bombay* 1: 301. 1958 (Repr. ed.). '*Shewga*'.

Small trees, 5–8 m tall. Leaves 3-foliate; leaflets elliptic-ovate or obovate, opposite, margins entire, membranous, pale beneath. Flowers white, in large spreading panicles. Capsules 30 cm x 1.5–2 m, pendulous, ribbed.

Fls. & Frts. : Throughout the year.

Illus. : Talbot, *For. Fl. Bombay Pres. & Sind* 1: 365, t. 212. 1909.

Distrib. : Lonar lake.

Notes : Common, found cultivated in the kitchen gardens.

Uses : The tender leaves, flowers and young fruits are eaten as vegetables.

FABACEAE

1. Plants erect, suberect or prostrate :

2. Trees :

3. Leaflets 3 :

- | | | |
|--------------------------------------|-----|-----------|
| 4. Plants armed; pods turulose | ... | ERYTHRINA |
| 4. Plants unarmed; pods not as above | ... | BUTEA |

3. Leaflets more than 3 :

- | | | |
|---|-----|----------|
| 5. Leaflets opposite; pods woody | ... | PONGAMIA |
| 5. Leaflets alternate; pods not woody : | | |

- | | | | |
|----|--|-----|-------------|
| 6. | Flowers creamy-white; pods oblong,
not winged | ... | DALBERGIA |
| 6. | Flowers yellow; pods orbicular, winged | ... | PTEROCARPUS |
2. Shrubs, undershrubs or herbs :
- | | | | |
|-----|---|-----|------------|
| 7. | Flowers white, yellow or spotted purple : | | |
| 8. | Pods turgid | ... | CROTALARIA |
| 8. | Pods not turgid : | | |
| 9. | Leaves bifoliolate; pod joints echinate | ... | ZORNIA |
| 9. | Leaves not as above; pods joints
not echinate : | | |
| 10. | Leaves simple or 1-foliolate : | | |
| 11. | Plants prostrate; flowers yellow;
pods flat | ... | GONIOGYNA |
| 11. | Plants erect; flowers white
or purple; pods turgid | ... | PSORALEA |
| 10. | Leaves 3-foliolate | ... | MELILOTUS |
7. Flowers red, reddish-purple, pink or blue :
- | | | | |
|-----|-----------------------------|-----|--------------|
| 12. | Pods jointed : | | |
| 13. | Joints of the pods tumid | ... | ALYSICARPUS |
| 13. | Joints of the pods flat | ... | DESMODIUM |
| 12. | Pods not jointed : | | |
| 14. | Pods flat : | | |
| 15. | Plants viscid pubescent | ... | PSEUDARTHRIA |
| 15. | Plants not viscid pubescent | ... | TEPHROSIA |
| 14. | Pods turgid or angular | ... | INDIGOFERA |
1. Plants climbing or twining :
- | | | | |
|-----|--|-----|-----------|
| 16. | Leaves more than 3-foliolate : | | |
| 17. | Plants woody twiners : | | |
| 18. | Pods constricted, linear or linear-oblong,
2-5 seeded | ... | MILLETTIA |

- | | | |
|--|-----|------------|
| 18. Pods not constricted, strap-shaped,
generally 1-seeded | ... | DALBERGIA |
| 17. Plants herbaceous twiners : | | |
| 19. Flowers pink or white in racemes | ... | ABRUS |
| 19. Flowers blue, solitary, axillary | ... | CLITORIA |
| 16. Leaves 3-foliolate : | | |
| 20. Flowers yellowish or with red tinge : | | |
| 21. Leaves gland dotted beneath : | | |
| 22. Corolla more than 1 cm long;
seeds 3 or more | ... | ATYLOSIA |
| 22. Corolla not more than 1 cm long;
seeds 1-2 | ... | RHYNCHOSIA |
| 21. Leaves not gland dotted beneath : | | |
| 23. Stipules prolonged below; styles
ending beyond the stigma
in a beak | ... | VIGNA |
| 23. Stipules not prolonged below;
styles without any apical
appendages | ... | PHASEOLUS |
| 20. Flowers white, rosy, blue or dark purple : | | |
| 24. Flowers dark purple in drooping
racemes; pods 'S'-shaped, covered
with stinging bristles | ... | MUCUNA |
| 24. Flowers and pods not as above : | | |
| 25. Flowers large, pink or white;
pods more than 1 cm broad | ... | CANAVALIA |
| 25. Flowers small, white or
reddish; pods less than
1 cm broad | ... | TERAMNUS |

ABRUS Adans.

Abrus precatorius L. Syst. Nat. ed. 12, 472. 1767; Baker in Hook. f. Fl. Brit. India 2 : 175. 1876; Cooke, Fl. Pres. Bombay 1: 382. 1958 (Repr. ed.). '*Gunj*'.

Perennial twiners. Leaves paripinnate; leaflets 5–11 pairs, 1.3 x 0.5 cm, membranous, glabrous above, thinly silky beneath. Flowers pink or white, in axillary racemes, shorter than the leaves. Pods oblong, 1.8–3.7 x 0.6–1.5 cm, turgid, truncate.

Fls. & Frts. : October–February.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1 : 397, t. 223. 1909; Maheshwari, Illus. Fl. Delhi t. 71. 1966.

Distrib. : Botha forests.

Notes : Occasional, on hill slopes.

Uses : The dried leaves are eaten along with 'Betal' leaf 'Pan'.

ALYSICARPUS Desv. *nom. cons.*

1. Calyx shorter than the first joint of the pod :
 2. Pods moniliform, veinless ... *A. monilifer*
 2. Pods moniliform, veined ... *A. procumbens*
1. Calyx longer than the first joint of the pod :
 3. Teeth of the calyx imbricate in fruiting stage :
 4. Pods slightly moniliform neither veined nor rugose ... *A. bupleurifolius*
 4. Pods transversely ribbed :
 5. Pods 4-gonous, exserted ... *A. tetragonolobus*
 5. Pods compressed, not exserted :
 6. Stems finely pubescent or glabrous ... *A. rugosus*
 6. Stems densely pubescent or villous ... *A. heyneanus*
 3. Teeth of calyx not imbricate in fruiting stage ... *A. vasavadae*

Alysicarpus bupleurifolius (L.) DC. Prodr. 2: 352. 1825; Baker in Hook. f. Fl. Brit. India 2: 158. 1876; Cooke, Fl. Pres. Bombay 1: 370. 1958 (Repr. ed.). *Hedysarum bupleurifolium* L. Sp. Fl. 745. 1753.

Erect and diffuse herbs, 40–60 cm tall. Leaves elliptic, linear-lanceolate, 1–2 x 0.2–0.4 cm, glabrous or thinly puberulous, margins entire. Flowers red or bluish-purple, sometimes white, 0.4–0.6 cm across, in terminal racemes. Pods subterete, 0.5–1.1 x 0.1–0.2 cm, 3–6 jointed, stipitate, glabrous.

Fls. & Frts. : September–November.

Illus. : Maheshwari, Illus. Fl. Delhi t. 70. 1966.

Distrib. : Ayla killa, Jalgaon Jamod, Loni.

Notes : Common, in plains and also on hill slopes.

A. heyneanus Wight & Arn. Prodr. 1 : 234. 1834. *A. rugosus* (Willd.) DC. var. *heyneanus* (Wight & Arn.) Baker in Hook. f. Fl. Brit. India 2: 159. 1876; Cooke, Fl. Pres. Bombay 1 : 371. 1958 (Repr. ed.).

Suberect herbs, densely pubescent or villous, 10–40 cm tall. Leaves elliptic-oblong or obovate-oblong, 1–4 x 0.4–2 cm, pubescent beneath. Flowers reddish-purple, in terminal and axillary racemes. Pods glabrous, with ciliate margins, moniliform, apiculate, 3–5 jointed.

Fls. & Frts. : September–December.

Distrib. : Naygaon Dattapur.

Notes : Rare, among grasses in fields.

A. monilifer (L.) DC. Prodr. 2 : 353. 1825; Baker in Hook. f. Fl. Brit. India 2 : 157. 1876; Cooke, Fl. Pres. Bombay 1 : 368. 1958 (Repr. ed.). *Hedysarum moniliferum* L. Mant. Pl. 102. 1767.

Prostrate herbs, 20–25 cm long, with elongate, spreading, pilose hairs. Leaves elliptic-oblong or obovate, 0.4–2 x 0.2–1 cm, chartaceous, pubescent. Flowers bluish-purple, in terminal racemes, few, 0.4–0.6 cm across. Pods 3–6 jointed; joints hairy, subglobose.

Fls. & Frts. : September–October.

Distrib. : Aampani forests.

Notes : Occasional, along sandy beds of dry water courses.

A. procumbens (Roxb.) Schindl. in Feddes, Rep. 21 : 11. 1925. *Hedysarum procumbens* Roxb. Fl. Ind. 3: 345. 1832. *Alysicarpus hamosus* Edgew in J. As. Soc. Bengal 21: 171. 1853; Baker in Hook, f. Fl. Brit. India 2: 157. 1876; Cooke, Fl. Pres. Bombay 1: 368. 1958 (Repr. ed.).

Patently hairy herbs, prostrate or procumbent. Leaves broadly ovate-oblong or sub-orbicular, 0.4-4.1 x 0.2-3.5 cm, membranous, glabrous, with hairy nerves beneath. Flowers reddish-purple, in terminal and axillary racemes. Pods compressed, 0.5-2.2 cm long, 2-5 jointed, pubescent.

Fls. & Frts. : June-March.

Distrib. : Lonar lake area.

Notes : Frequent among grasses, along roadsides.

A. rugosus (Willd.) DC. Prodr. 2: 353. 1825; Baker in Hook. f. Fl. Brit. India 2 : 159. 1876; Cooke, Fl. Pres. Bombay 1: 371. 1958 (Repr. ed.); Verdc. in Kew Bull. 24 : 67. 1970. *Hedysarum rugosum* Willd. Sp. Pl. 3 : 1172. 1802.

Suffruticose annual herbs, 0.5-1 m long. Leaves linear-lanceolate or oblong-lanceolate, 1.5-3.5 x 0.4-0.6 cm, appressed hairy beneath. Flowers reddish-purple, in terminal and lateral racemes. Pods moniliform, 0.7-1.3 x 0.3-0.4 cm transversely ribbed, 3-5 jointed.

Fls. & Frts. : September-January.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 181. 1982.

Distrib. : Buldhana, Mehkar, Raipur.

Notes : Common weed of cultivated fields.

A. tetragonolobus Edgew. in J. As. Soc. Bengal 21: 169. 1853; Baker in Hook. f. Fl. Brit. India 2: 159. 1876; Cooke, Fl. Pres. Bombay 1 : 372. 1958 (Repr. ed.).

Slender, sub-erect or diffuse, hairy herbs. Leaves linear-oblong or linear-lanceolate, 0.8–4 x 0.4–1.2 cm, glabrous above, appressed hairy beneath. Flowers pink, in terminal racemes. Pods 4-sided, 0.7–0.2 x 0.2 cm, rugose, 3–6 jointed.

Fls. & Frts. : August–October

Notes. : Occasional on open grassy hill slopes.

A. vasavadae Hemadri, in Indian For. 97: 65–67. 1971.

Erect, annual herbs, 20–80 cm tall, branching from base along main stems. Leaves 1-foliolate, linear-oblong, 1.5–4.6 x 0.2–0.8 cm, sparsely villous, 3-nerved. Flowers orange-yellow with orange-red spots at the base, in terminal, spicate-racemes. Pods obovate, 0.5–0.7 x 0.2–0.3 cm, 1-jointed, flat with turgid centre.

Fls. & Frts. : August–October.

Distrib. : Sultanpur.

Notes : Rare, among grasses.

ATYLOSIA Wight & Arn.

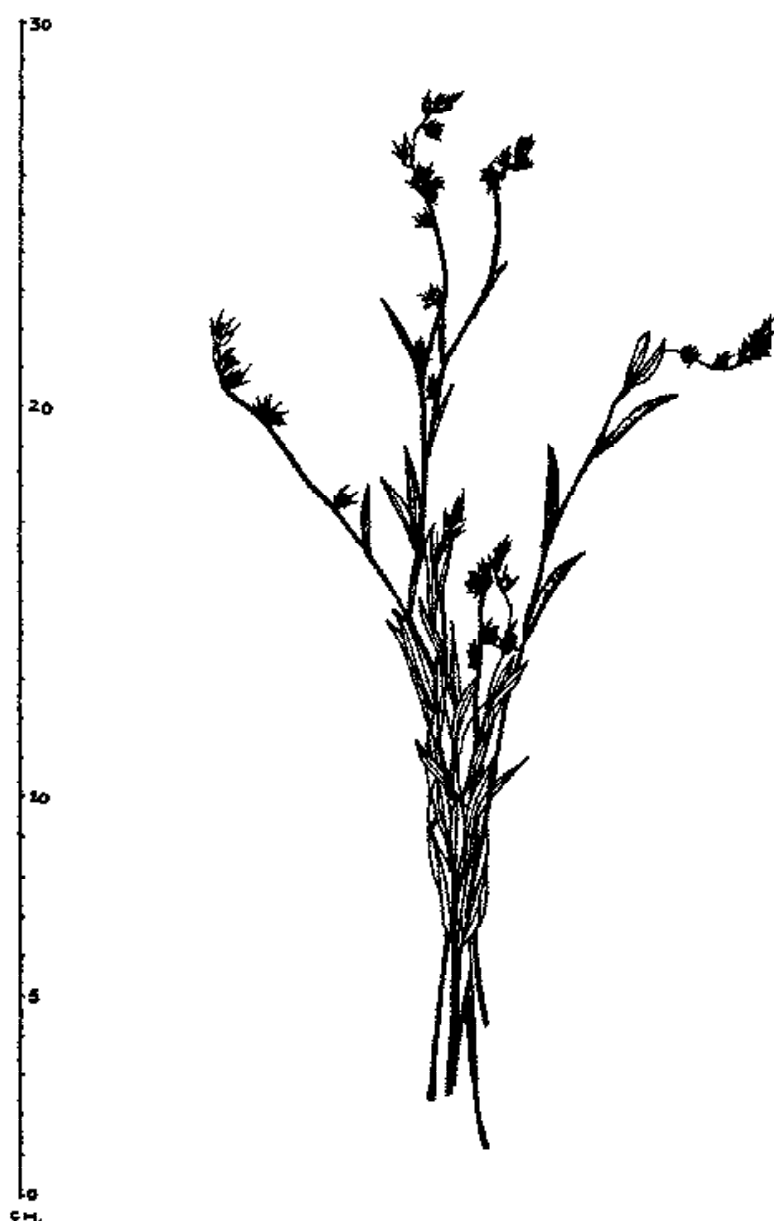
Atyosia scarabaeoides (L.) Benth. in Miq. Pl. Jungh. 2: 243. 1852; Baker in Hook. f. Fl. Brit. India 2: 215. 1876; Cooke, Fl. Pres. Bombay 1: 409. 1958 (Repr. ed.). *Dolichos scarabaeoides* L. Sp. Pl. 726. 1753.

Slender, herbaceous, trailing or twining, annual herbs, 30–60 cm long. Leaves 3-foliolate; leaflets elliptic or ovate-oblong, 2.3–5.1 x 2–2.8 cm. Flowers greenish-yellow or yellow, solitary, axillary. Pods turgid, with constricted in between the seeds.

Fls. & Frts. : September–October.

Distrib. : Buldhana, Udhera tank, Deulgaon Raja.

Notes : Common on the hill slopes. Very recently van der Maesen in Agric. Univ. Wageningen Pan. 85–4. 1–225. 1985 (1986) has sunk the genus *Atylosia* Wight & Arn. under *Cajanus* DC. and has transferred the present species to *Cajanus scarabaeoides* (L.) du Petit-Thouars, Dict. Sc. Nat. 6: 617 var. *scarabaeoides* (van der Maesen l.c. 183, 189, f. 27 : 1–11).



Alysicarpus vasavadae Hem.
One of the rare species of the district.

BUTEA KOEN. ex Roxb. *nom. cons.*

Butea monosperma (Lamk.) Taub. in Engl. & Prantl, Pflanzenf. 3(3): 366. 1894. *Erythrina monosperma* Lamk. Encycl. 1: 391. 1785. *Butea frondosa* Koen. ex Roxb. As. Res. 3: 469. 1792 et 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.). 'Palas'.

Small, deciduous trees with crooked trunk and irregular branches, 6-8 m tall. Leaves 3-foliolate; leaflets obliquely rounded, 9-18 x 6-9 cm, coriaceous. Flowers orange-red, in panicles on naked branches. Pods flat, 13-19 x 3-4.7, softly pubescent, ligulate.

Fls. & Frts. : March-June.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 409, t. 231. 1909; Maheshwari, Illus. Fl. Delhi t. 74. 1966; Matthew, Illus. Fl. Tamilnadu Carnatic t. 184. 1982.

Distrib. : Dhanora near Garpiti, Motala, Nimkhedi near Bhingara.

Notes : Very common in the hilly tracts of the forests.

Uses : Many products are obtained from it like fibre, gum and lac from stems and dye from flowers.

CANAVALIA DC.

Canavalia gladiata (Jacq.) DC. Prodr. 2: 404. 1825; Sauer in Brittonia 16: 149. 1964. *Dolichos gladiatus* Jacq. Coll. Bot. 2: 276. 1786. *Canavalia ensiformis* auct. non DC. 1825, nec. *Dolichos ensiformis* L. 1753; Baker in Hook. f. Fl. Brit. India 2: 195. 1876; Cooke, Fl. Pres. Bombay 1: 397. 1958 (Repr. ed.).

Stout, glabrous, lignose twiners. Leaves 3-foliolate; leaflets ovate, 4-12 x 2-9 cm, subcoriaceous, glabrous. Flowers pink, in axillary racemes. Pods glabrous, slightly falcate.

Fls. & Frts. : July-December.

Distrib. : Lonar lake.

Note : Occasional on the hedges.

CLITORIA L.

Clitoria ternatea L. Sp. Pl. 753. 1753; Baker in Hook. f. Fl. Brit. India 2 : 208. 1876; Cooke, Fl. Pres. Bombay 1 : 405. 1958 (Repr. ed.). 'Gokarn'.

Twiners with terete, slender, downy stems. Leaves pinnate; leaflets elliptic-oblong, ovate-oblong, 1-4.2 x 0.6-3.4 cm, obtuse, subcoriaceous. Flowers usually blue, sometimes white, axillary, solitary or in pairs. Pods linear, oblong, flat, appressed hairy, slightly falcate.

Fls. & Frts. : Throughout the year.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic, t. 188. 1982.

Distrib. : Buldhana, Warwat Bakal.

Notes : Common, cultivated in gardens or as an escape.

Uses : Various parts of the plants are used medicinally.

CROTALARIA L.

- | | | |
|---|-----|-----------------------|
| 1. Leaves compound | ... | <i>C. medicaginea</i> |
| 1. Leaves simple : | | |
| 2. Pods glabrous : | | |
| 3. Corolla exserted or longer than calyx : | | |
| 4. Diffuse annuals; racemes few-flowered | ... | <i>C. filipes</i> |
| 4. Erect herbs or shrubs; racemes many flowered : | | |
| 5. Stipules and bracts large, leafy | ... | <i>C. spectabilis</i> |
| 5. Stipules and bracts not as above | ... | <i>C. retusa</i> |
| 3. Corolla not exserted | ... | <i>C. mysorensis</i> |
| 2. Pods hairy : | | |
| 6. Plants usually erect : | | |
| 7. Stems terete; pods more than 10 seeded | ... | <i>C. juncea</i> |

- | | | |
|--|-----|------------------------|
| 7. Stems quadrangular; pods 4-6 seeded | ... | <i>C. leptostachya</i> |
| 6. Plants usually diffuse | ... | <i>C. hirta</i> |

Crotalaria filipes Benth. in Hook. London J. Bot. 2: 475. 1834; Baker in Hook. f. Fl. Brit. India 2: 66. 1876; Cooke, Fl. Pres. Bombay 1 : 312. 1958 (Repr. ed.).

Prostrate herbs, with patent hairs. Leaves ovate to ovate-oblong, 0.3-1.4 x 0.2-0.5 cm, minutely patent hairy. Flowers yellow, in leaf-opposed racemes, small, distant. Pods 0.5-0.7 x 0.4-0.5 cm, green, glabrous.

Fls. & Frts. : August-November.

Distrib. : Aampani forest, Bhingara.

Notes : Common, locally amidst grasses.

C. hirta Willd. Ges. Naturf. Freud Berlin Neue Schr. 4: 217. 1803; Baker in Hook. f. Fl. Brit. India 2: 70. 1876.

Spreading, annual herbs, profusely branched. Leaves oblong, or oblong-elliptic, 1.4-3 x 0.4-0.6 cm, sparsely pubescent. Flowers yellow, in terminal, subcapitate heads. Pods ellipsoid, 1.2-1.5 x 0.7-0.9 cm, glabrous.

Fls. & Frts. : October-November.

Distrib. : Nalgangapur.

Notes : Occasional along the dried beds of Nalganga river.

C. juncea L. Sp. Pl. 714. 1753; Baker in Hook. f. Fl. Brit. India 2: 79. 1876; Cooke, Fl. Pres. Bombay 1 : 320. 1958 (Repr. ed.); Munk in Reinwardtia 6 : 206. 1962; 'Taag'.

Erect, stiff, perennial herbs or undershrubs, 1-2 m tall, with slender, terete branches. Leaves linear-lanceolate, 2.8-6 x 0.6-2 cm, appressed pubescent, subsessile. Flowers yellow with golden coloured veins, in terminal, lax racemes. Pods hairy 1.8-2.5 x 0.9-1.2 cm, cylindric.

Fls. & Frts. : October-November.

Distrib. : Waghadi village.

Notes : Cultivated for its fibre, also found as an escape on waste lands with human habitation.

Uses : Seeds and foliages given as food to milking cows.

C. leptostachya Benth. in Hook. London J. Bot. 2 : 562. 1843; Baker in Hook. f. Fl. Brit. India 2 : 78. 1876; Cooke, Fl. Pres. Bombay 1 : 320. 1958 (Repr. ed.); Munk in Reinwardtia 6 : 208. 1962.

Erect, undershrubs, rigid, fulvous-pubescent. Leaves oblong-lanceolate or linear-oblong, 5-12.5 x 1-3.2 cm, silky pubescent, membranous. Flowers bright yellow, in terminal and axillary racemes. Pods ellipsoid, 1-2 cm long.

Fls. & Frts. : September-December.

Distrib. : Ambabarwa, Dongar Khandala.

Notes : Common on the edges of the forests.

C. medicagine Lamk. Encycl. 2 : 201. 1786; Baker in Hook. f. Fl. Brit. India 2 : 81. 1876; Cooke, Fl. Pres. Bombay 1 : 322. 1958 (Repr. ed.).

Small, diffuse perennial herbs, with erect stems, 30-60 cm tall. Leaves trifoliate; leaflets obovate to oblanceolate, 1-3 x 0.5-1.2 cm, appressed pubescent beneath. Flowers yellow, in terminal racemes, 0.6-0.8 cm long. Pods obliquely subglobose, 0.3-0.5 cm long, minutely beaked.

Fls. & Frts. : September-November.

Illus. : Maheshwari, Illus. Fl. Delhi t. 49. 1966.

Distrib. : Deulgaon, Gaumal forests.

Notes : Common on hill slopes.

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.); Munk in Reinwardtia 6 : 210. 1962.

Erect annual herbs or undershrubs, 0.8-1 m tall, hairy. Leaves linear-oblong, 2-4.8 x 0.4-0.8 cm, sessile, pilose. Flowers yellow with red veins, in terminal, leafy racemes. Pods oblong, 1.0-2.5 x 1-1.2 cm, shortly beaked.

Fls. & Frts. : August–December.

Distrib. : Lavhala.

Notes : Occasional in plain areas.

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.); Munk in Reinwardtia 6 : 212. 1962.

Erect, undershrubs, 1–1.5 m tall, woody, much branched, appressed hairy. Leaves oblanceolate–oblong, 2.4–7 x 1.2–2.5 cm. Flowers yellow, in terminal racemes, 1.4–1.6 cm long. Pods obovoid, 3.5–4 x 0.7–1 cm, glabrous, beaked.

Fls. & Frts. : October–January.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1 : 377, t. 215. 1909.

Distrib. : Bhingara forests.

Notes : Common weed in cultivated fields.

C. spectabilis Roth, Nov. Pl. Sp. 341. 1821; Ali in Biol. 12 (2): 26. 1966. *C. sericea* Retz. Obs. Bot. 5 : 26. 1789; Baker in Hook. f. Fl. Brit. India 2 : 75. 1876; Cooke, Fl. Pres. Bombay 1 : 319. 1958 (Repr. ed.); Witt, List, 21. 1908. '*Jangli san*'.

Short, glabrous undershrubs, 1–1.5 m tall; branches stout, striate; stipules large, leafy. Leaves oblong–elliptic or oblanceolate, silky beneath, cuneate at base, acute, mucronate at apex. Flowers yellow in 20–30 cm long racemes. Pods oblong, 2–3.5 cm long.

Fls. & Frts. : Not recorded.

Distrib. : Buldhana (Witt. l.c.).

Notes : Confined to the banks and beds of streams. This species has been included here on the authority of Witt (l.c.).

DALBERGIA L.f. *nom. cons.*

1. Stamens monadelphous :

2. Leaflets acuminate; flowers distinctly stalked ... *D. sissoo*

2. Leaflets obtuse or emarginate; flowers nearly sessile ... *D. latifolia*
 1. Stamens diadelphous ... *D. lanceolaria*

Dalbergia lanceolaria L. f. Suppl. 316. 1781; Baker in Hook. f. Fl. Brit. India 2: 235. 1876; Cooke, Fl. Pres. Bombay 1: 425. 1958 (Repr. ed.). '*Rangorad*'.

Trees, 5–10 m tall, with greyish–white bark. Leaves pinnately compound; leaflets elliptic-oblong, 1.2–6 x 0.5–2.2 cm, glabrous above, puberulous beneath. Flowers pinkish–white, 0.8–1.1 cm long in panicles. Pods flat, 5–10 x 1.2–2 cm, narrowed at both ends.

Fls. & Frts. : March–July.

Illus. : Wight, Ic. t. 266. 1840.

Distrib. : Aampani forests.

Notes : Frequent on hill slopes.

D. latifolia Roxb. Pl. Cor. 2: 7, t. 113. 1799 & Fl. Ind. 3: 221. 1832; Baker in Hook. f. Fl. Brit. India 2: 231. 1876; Cooke, Fl. Pres. Bombay 1: 422. 1958 (Repr. ed.); Witt, List 27. 1908. '*Shisham*'.

Small trees, 5–8 m tall. Leaves pinnately compound; leaflets broadly ovate or sub-orbicular, 1.5–6 x 2–5 cm, emarginate. Flowers white, 0.5–0.8 cm long, in lax panicles. Pods oblong–lanceolate, 3–6 x 1.2–1.5 cm, strap shaped.

Fls. & Frts. : March–July.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1 : 424, t. 239. 1909.

Distrib. : Botha forests, Buldhana, Witt (*l.c.*).

Notes : Occasional along roadsides.

Uses : The dark purple heart wood is used for furnitures.

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.). '*Shiswi*'.

Deciduous trees with grey bark, 6–10 m tall, branches drooping. Leaves imparipinnately compound; leaflets rhomboid, 3–8 x 3–4 cm,

glabrous. Flowers creamy-white, in paniced-cymes. Pods strap-shaped, 3-5 x 1 cm, 1-2 seeded.

Fls. & Frts. : March-November.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1 : 423, t, 238. 1909.

Distrib. : Buldhana, Deulgaon Sakharsa, Khamgaon, Lonar village, Sultanpur.

Notes : Very common, along roadsides.

Uses : Timber is very valuable for furniture. The foliage is used as a good fodder.

DESMODIUM Desv. *nom. cons.*

- | | | |
|-----------------------|-----|----------------------|
| 1. Leaves 3-foliolate | ... | <i>D. laxiflorum</i> |
| 1. Leaves 1-foliolate | ... | <i>D. gangeticum</i> |

Desmodium gangeticum (L.) DC. Prodr. 2: 327. 1825; Baker in Hook. f. Fl. Brit. India 2: 168. 1876; Cokke, Fl. Pres. Bombay 1: 379. 1958 (Repr. ed.); Knaap-van Meeuwen in Reinwardtia 6: 249. 1962; Ohashi in Ginkgoana 1: 184. 1973. *Hedysarum gangeticum* L. Sp. Pl. 46. 1753.

Slender, suberect undershrubs, 50-80 cm tall. Leaves ovate, 3-8 x 1-3.8 cm, glabrous above, hairy beneath. Flowers bluish-purple, in terminal racemes. Pods sub-falcate, 2.2-4 x 0.2 cm, 6-8 jointed.

Fls. & Frts. : September-December.

Illus. : Maheshwari, Illus. Fl. Delhi t. 68. 1966.

Distrib. : Lonar lake.

Notes : Occasional among grasses.

D. laxiflorum DC. in Ann. Sci. Nat. Paris 4: 100. 1825; Baker in Hook. f. Fl. Brit. India 2: 164. 1876; Cooke, Fl. Pres. Bombay 1: 376. 1958 (Repr. ed.); Knaap-van Meeuwen in Reinwardtia 6: 252. 1962; Ohashi in Ginkgoana 1: 101. 1973.

Suffrutescent, perennial undershrubs, 0.5–1 m tall, hairy. Leaves 3-foliolate; leaflets ovate-elliptic, sometimes broadly lanceolate, 4–14 x 2–7.5 cm, glabrous above, pubescent beneath. Flowers bluish-pink, 0.4–0.5 cm long, in axillary and terminal racemes. Pods slightly falcate, 2–3 x 0.1–0.2 cm, 4–10-jointed.

Fls. & Frts. : September–November.

Illus. : Wight, Ic. t. 374. 1840.

Distrib. : Dongaon on way to Mehkar.

Notes : Infrequent, amidst bushes.

ERYTHRINA L.

- | | | |
|-----------------------|-----|---------------------|
| 1. Calyx 2-lipped | ... | <i>E. suberosa</i> |
| 1. Calyx not 2-lipped | ... | <i>E. variegata</i> |

Erythrina suberosa Roxb. Fl. Ind. 3 : 253. 1832; Baker in Hook. f. Fl. Brit. India 2 : 189. 1876; Cooke, Fl. Pres. Bombay 1 : 392. 1958 (Repr. ed.); Witt. List 24. 1908. '*Nagthada*'.

Middle sized trees with corky, deeply cracked bark; branchlets covered sparingly with conical prickles. Leaflets 5–15 cm as broad as long, rhomboid, deltoid at base. Flowers much smaller in bright red capitate-racemes. Pods curved upto 12–18 cm long. Spongy tissue between seeds.

Fls. : April–May. *Frts.* : Not recorded.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1 : 403, t. 227. 1909.

Distrib. : Buldhana, Witt (*l.c.*).

Notes : This species has been included here on the authority of Witt (*l.c.*).

E. variegata L. Herb. Amb. 10. 1754 & Amoen. Acad. 4: 122. 1759. *E. indica* Lamk. Encycl. Method. 2: 391. 1786; Baker in Hook. f. Fl. Brit. India 2: 188. 1876; Cooke, Fl. Pres. Bombay 1: 390. 1958 (Repr. ed.). '*Pangara*'.

Small, moderate sized trees. Leaves 3-foliolate; leaflets broadly ovate or ovate-rhomboid, 3.2–8.9 x 2.5–10.2 cm, apex acute or acuminate. Flowers scarlet, in terminal horizontally spreading racemes. Pods sub-cylindric, 10–14 x 1–1.5 cm, glabrescent.

Fls. & Frts. : March–June.

Illus. : Wight, Ic. t. 58, 1938.

Distrib. : Lonar lake.

Notes : Planted, ornamental trees.

Uses : The wood is used for the manufacture of light boxes, toys etc.

GONIOGYNA DC.

Goniogyna hirta (Willd.) Ali in Taxon 16: 463. 1967. *Hallia hirta* Willd. Sp. Pl. 3: 1169. 1802. *Heylanda latebrosa* DC. Mem. Leg. 201. 1825; Baker in Hook. f. fl. Brit. India 2 : 65. 1876; Cooke, Fl. Pres. Bombay 1 : 310. 1958 (Repr. ed.).

Prostrate, much branched, annual herbs, clothed with silky hairs. Leaves ovate, 0.5–1.2 x 0.3–0.5 cm, obliquely cordate at base, hairy. Flowers yellow with red veins, axillary, solitary. Pods elliptic, 0.4–0.5 x 0.1–0.3 cm, turgid.

Fls. & Frts. : September–November.

Illus. : Matthew, Illus. Fl. Tamlnadu Carnatic t. 190. 1982.

Distrib. : Lonar lake, Yelgaon.

Notes : Common weed along cultivated fields and roadsides.

INDIGOFERA L.

1. Leaves simple :

2. Leaves linear-lanceolate; flowers in axillary racemes; pods 1-seeded	...	<i>I. linifolia</i>
--	-----	---------------------

2. Leaves ovate-cordate; flowers axillary solitary or in fascicles; pods 1–2 seeded	...	<i>I. cordifolia</i>
--	-----	----------------------

1. Leaves compound :

3. Flowers in axillary, peduncled heads :

- | | | |
|--|-----|----------------------|
| 4. Plants erect; leaflets nigro-punctate beneath;
pods winged | ... | <i>I. glandulosa</i> |
| 4. Plants prostrate; leaflets not punctate beneath;
pods not winged | ... | <i>I. linnaei</i> |

3. Flowers in axillary racemes :

- | | | |
|--------------------------|-----|-----------------|
| 5. Racemes 6-12 flowered | ... | <i>I. trita</i> |
|--------------------------|-----|-----------------|

5. Racemes more than 12 flowers :

6. Pods cylindric :

- | | | |
|---|-----|----------------------|
| 7. Flowers in dense racemes; pods
straight | ... | <i>I. cassioides</i> |
|---|-----|----------------------|

- | | | |
|---|-----|---------------------|
| 7. Flowers in spicate-racemes;
pods deflexed | ... | <i>I. tinctoria</i> |
|---|-----|---------------------|

6. Pods tetragonal or sub-tetragonal :

- | | | |
|-------------------------------------|-----|-----------------------|
| 8. Pods densely pubescent, reflexed | ... | <i>I. astragalina</i> |
|-------------------------------------|-----|-----------------------|

8. Pods thinly hairy, spreading :

- | | | |
|---|-----|----------------------|
| 9. Leaflets rounded or emarginate
at apex; pods 3-4 cm long,
torulose | ... | <i>I. constricta</i> |
|---|-----|----------------------|

- | | | |
|--|-----|-------------------|
| 9. Leaflets mucronate at apex;
pods 2-4 cm long, straight | ... | <i>I. wightii</i> |
|--|-----|-------------------|

Indigofera astragalina DC. Prodr. 2 : 228. 1825. *I. hirsuta* *sensu* Baker in Hook. f. Fl. Brit. India 2: 98. 1876, *p.p.*, *non* L. 1753; Cooke, Fl. Pres. Bombay 1: 339. 1958 (Repr. ed.).

Erect undershrubs, covered with spreading hairs, 0.8-1 m tall. Leaves 8-10 cm long; leaflets elliptic-oblong or ovate-oblong, 1-4.5 x 0.5-1.5 cm, appressed hairy. Flowers pink, in dense, many-flowered, peduncled racemes. Pods tetragonal, 1.5 = 2 x 0.1-0.2 cm, densely pubescent.

Fls. & Frts. : June-October.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 59. 1966.

Distrib. : Aampani forests, Sonala forests.

Notes : Frequent on hill slopes.

I. cassioides Rottl. ex DC. Prodr. 2 : 255. 1825. *I. pulchella* Roxb. Fl. Ind. 3: 382. 1832; Baker in Hook. f. Fl. Brit. India 2: 101. 1876; Cooke, Fl. Pres. Bombay 1: 341. 1958 (Repr. ed.); Witt, List 22. 1908.

Large undershrubs or shrubs, 2-4 m tall. Leaves imparipinnately compound; leaflets elliptic-oblong or elliptic-obovate, 0.5-2.2 x 0.5-1.3 cm, pubescent. Flowers pinkish-rosy, in axillary racemes. Pods cylindrical, straight, 2.2-4.3 x 0.3-0.4 cm, glabrous, turgid.

Fls. & Frts. : September-February.

Illus. : Matthew, Illus. Fl. Tamlnadu Carnatic t. 204. 1982.

Distrib. : Buldhana, Witt (*l.c.*); Gaumal forests, near Badalkhora of Madhya Pradesh border.

Notes : Occasional along forest streams.

I. constricta (Thw.) Trim. Cat. Ceyl. Pl. 23. 1885; Cooke, Fl. Pres. Bombay 1: 340. 1958 (Repr. ed.).

Large, erect shrubs, 3-4 m tall; branches divaricate, terete or obscurely angled with few appressed hairs. Leaves 5-10 cm long, compound; stipules minute, subulate; leaflets opposite, 7-11 or sometimes 13 in number, soon deciduous, dark green above, glaucous beneath, thin, elliptic-oblong, appressed white hairy, rounded or finely emarginate at apex, base rounded. Flowers 15-20; calyx silky white; corolla silky, greenish with pinkish tinge. Pods thinly hairy, torulose, ca 3-4 cm long.

Fls. & Frts. : August-November.

Distrib. : Lonar lake, north side.

Notes : Rare. The present collection of this plant from Buldhana district forms a new record for Maharashtra and thus this rare species spreads further north from earlier known distribution viz. Cochin in Kerala and North Kanara in Karnataka and Goa only.

L. 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.).

Erect annual herbs. Leaves 0.5–1.8 x 0.4–1.5 cm, densely hairy on both sides. Flowers bright pink, in dense, 4–8-flowered heads. Pods cylindric, 0.5–0.6 cm long, beaked, densely hairy.

Fls. & Frts. : June–November.

Distrib. : Buldhana, Nalganagapur, Rajur lake near Jalgaon Jamod, Sonapalli of Sonal forests.

Notes : Common throughout the district.

L. glandulosa Wendl. Bot. Becob. 55. 1798; Roxb. ex Willd. Sp. Pl. 3: 122. 1803; Baker in Hook. f. Fl. Brit. India 2: 94. 1876; Cooke, Fl. Pres. Bombay 1: 332. 1958 (Repr. ed.); Witt, List 21. 1908. '*Barbata*'.

var. **glandulosa**

Erect, much branched, woody herbs; young parts fulvus hairy. Leaves 3-foliate; leaflets obovate, 1.5–2 x 0.5–0.8 cm. Flowers red in dense capitate axillary racemes. Pods dentately winged on either sutures.

Fls. & Frts. : October–February.

Illus. : Wight, Ic. t. 330. 1840.

Distrib. : Buldhana, Witt (*l.c.*); Nalgangapur.

Notes : Common on waste lands.

var. **sykesii** Griff. ex Baker in Hook. f. Fl. Brit. India 2: 94. 1876; Naik in Indian For. 95: 413. 1969; Vijaykumar et Ramayya in Curr. Sci. 52: 429. 1983.

Racemes rather elongated reaching 1 cm long in fruit. Pods globose, 2.5 mm across with very short wings and one seeded.

Fls. & Frts. : August–October.

Distrib. : Janephal, Sultanpur.

Notes : Common weed along roadsides and in cultivated fields.

L. 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.

Annual herbs, prostrate or suberect. Leaves 0.4–1.4 x 0.2–0.5 cm, appressed hairy. Flowers bright red, axillary, solitary or few, in short racemes. Pods globose, 0.2–0.3 cm across, appressed hairy.

Fls. & Frts. : June–November.

Illus. : Wight, Ic. t. 313. 1840; Maheshwari, Illus. Fl. Delhi t. 54. 1966.

Distrib. : Deulgaon Raja, Garpiti near Jalgaon Jamod, Mehkar, Motala.

Notes : Very common weed of cultivated fields, roadwides and on hillocks.

L. linnaei Ali in Bot. Not. 111: 549. 1958. *L. enneaphylla* L. Mant. 2: 272. 1771, *nomen illegit.*; Baker in Hook. f. Fl. Brit. India 2: 94. 1876; Cooke, Fl. Pres. Bombay 1: 332. 1958 (Repr. ed.).

Prostrate, woody, annual herbs, clothed with appressed hairs. Leaves pinnately compound; leaflets oblanceolate, 0.5–0.9 x 0.2–0.3 cm. Flowers red in dense axillary racemes. Pods cylindric, turgid, hirsute, 2-seeded.

Fls. & Frts. : August–December.

Distrib. : Lonar lake.

Notes : Common forming mat in open areas and in waste places.

L. tinctoria L. Sp. Pl. 751. 1753; Baker in Hook. f. Fl. Brit. India 2: 99. 1876; Cooke, Fl. Pres. Bombay 1: 339. 1958 (Repr. ed.).

Erect undershrubs, 1–1.5 m tall, appressed hairy. Leaves pinnately compound; leaflets oblong to obovate, 0.4–2.5 x 0.2–0.6 cm, hairy beneath. Flowers red in dense axillary and terminal spicate-racemes. Pods linear, straight, beaked.

Fls. & Frts. : August–October.

Illus. : Wight, Ic. t. 365. 1840.

Distrib. : Ayla killa near Jalgaon Jamod.

Notes : Frequent in open lands.

L. trita L. f. Suppl. 335. 1781; Baker in Hook. f. Fl. Brit. India 2: 96. 1876; Cooke, Fl. Pres. Bombay 1: 335. 1958 (Repr. ed.).

Diffuse, perennial, tall herbs or undershrubs, 0.75–1.2 m, divaricately branched, appressed hairy. Leaves 3-foliolate; leaflets elliptic or obovate-lanceolate, 2–3 x 0.8–1.3 cm, appressed hairy. Flowers red, axillary, spicate-racemes. Pods linear, 2.3–0.2 cm, sharply mucronate.

Fls. & Frts. : September–November.

Illus. : Wight, Ic. tt. 315 & 366. 1840; Maheshwari, Illus. Fl. Delhi t. 58. 1966.

Distrib. : Lonar lake.

Notes : Occasional on hillocks.

L. wightii Grah. ex Wight & Arn. Prodr. 202. 1834; Baker in Hook. f. Fl. Brit. India 2: 99. 1876; Cooke, Fl. Pres. Bombay 1: 340. 1958 (Repr. ed.).

Shrubs, 1–1.5 m tall, with silvery-strigose branches. Leaves pinnately compound; leaflets elliptic, 0.6–0.3 x 1–0.6 cm, appressed hairy. Flowers purple in dense, axillary racemes. Pods straight, 2–4 cm long.

Fls. & Frts. : September–December.

Distrib. : Bhingara forests, Botha forests.

Notes : Frequent on forest hill slopes.

MELILOTUS Mill.

Melilotus indica (L.) All. Fl. Pedem. 1: 308. 1785; Cooke, Fl. Pres. Bombay 1: 325. 1958 (Repr. ed.). *Trifolium indica* L. Sp. Pl. 745. 1733. *Melilotus parviflora* Desf. Fl. Atlant. 2: 192. 1800; Baker in Hook. f. Fl. Brit. India 2: 89. 1876. '*Ran-methi*'.

Erect, glabrous herbs, 30–40 cm tall. Leaves 3-foliolate; leaflets oblanceolate or obovate-cuneate, 1–1.5 x 0.8–1 cm, glabrous or nearly so. Flowers yellow in axillary, peduncled, many-flowered racemes. Pods ellipsoid-oblong, 0.2–0.4 cm long, glabrous.

Fls. & Frts. : January–March.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 53. 1966.

Distrib. : Malkapur.

Notes : Frequent in wet fields along the water channels.

MILLETTIA Wight & Arn.

Millettia auriculata Baker ex Brandis, *For. Fl.* 138. 1874; Chavan & Bedi in *J. Bombay Nat. Hist. Soc.* 63: 779. 1966. *M. extensa* Benth. ex Baker in *Hook. f. Fl. Brit. India* 2: 109. 1876; Witt, *List* 22. 1908.

Large, woody climbers; branches finely downy. Leaves imparipinnate; leaflets ovate-oblong, membranous, 10–25 x 5–15 cm, apex acute, thinly silky. Flowers reddish-purple, in many, close 15–20 cm long racemes. Pods strap shaped, straight, 10–15 long.

Fls. & Frts. : Not recorded.

Distrib. : Buldhana, Witt (*l.c.*).

Notes : Common in dense forests. This species has been included here on the authority of Witt (*l.c.*).

Uses : The bark is used to poison fish and an infusion of the root is a useful insecticide. The roots are pounded and steeped in water until the latter has become almost white; the liquid thus obtained is rubbed on horses and cattle to keep off flies.

MUCUNA Adans. *nom. cons.*

Mucuna 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. *Herb. Amb.* 23. 1754. '*Khaj-khuiri*'.

Annual, twining herbs, 4–5 m long. Leaves 3-foliolate; leaflets ovate, 6–8 x 5–6 cm, velvety and shiny beneath. Flowers dark purple-mauve, in axillary racemes. Pods 'S'-shaped, 4–7 x 0.5–1.2 cm, densely clothed with dark brown stinging and shining bristles.

Fls. & Frts. : August–December.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 73. 1966.

Distrib. : Dongar shewli forests, Sonapalli forests.

Notes : Occasional along dried water streams on *Lantana* sp.

Uses : The roots and seeds are medicinal.

PONGAMIA Vent.

Pongamia pinnata (L.) Pierre, *Fl. For. Cochinch. Sub.* t. 385. 1899; Thothathri in *Bull. Bot. Surv. India* 3: 418. (1961) 1962 & in *Taxon* 30: 44. 1981. *Cytisus pinnatus* L. *Sp. Pl.* 741. 1753. *Pongamia glabra* Vent. *Jard. Mal.* t. 28. 1803; Baker in Hook. f. *Fl. Brit. India* 2: 240. 1876; Cooke, *Fl. Pres. Bombay* 1: 429. 1958 (Repr. ed.); Witt, *List.* 28. 1908. *Derris indica* (Lamk.) Bennet in *J. Bombay Nat. Hist. Soc.* 68: 303. 1971. '*Karanj*'.

Small trees, 5–7 m tall. Leaves 3–5 foliolate; leaflets ovate-elliptic or elliptic, 4–10 x 5–7 cm, glabrous. Flowers white with purple tinge, axillary racemes. Pods oblong-obovoid, 5–6 x 2–3 cm, flat, woody.

Fls. & Frts. : March–September.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 212. 1982.

Distrib. : Borkhedi, Buldhana, Gondankheda, Nandura.

Notes : Common along river banks and streams.

PSEUDARTHRIA Wight & Arn.

Pseudarthria viscida (L.) Wight & Arn. *Prodr.* 109. 1834; Baker in Hook. f. *Fl. Brit. India* 12: 154. 1876; Cooke, *Fl. Pres. Bombay* 1: 366. 1958 (Repr. ed.). *Hedysarum viscidum* L. *Sp. Pl.* 747. 1753.

Prostrate or suberect, hairy herbs. Leaves 3-foliate; leaflets ovate-oblong or ovate-rhomboid, 2-4.1 x 1.4-3.5 cm, appressed hairy. Flowers rose coloured, in terminal and axillary racemes. Pods linear-oblong, 0.5-2 x 1.5-3 cm, viscidly hairy, minutely beaked.

Fls. & Frts. : January-April.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic t.* 213. 1982.

Distrib. : Lonar lake, along Sita nahani.

Notes : Frequent along dried streams and river banks.

PSORALEA L.

Psoralea corylifolia L. Sp. Pl. 764. 1753; Baker in Hook. f. *Fl. Brit. India* 2; 103. 1876; Cooke, *Fl. Pres. Bombay* 1: 341. 1958 (Repr. ed.).

Erect, pubescent herbs, 10-70 cm, tall. Leaves simple, broadly ovate-elliptic, 1.2-8.3 x 1.6 cm, pubescent. Flowers purple, axillary solitary or in axillary racemes. Pods ovoid-oblong, 0.4-0.5 cm long, glabrous.

Fls. & Frts. : September-December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic t.* 215. 1982.

Distrib. : Ambabarwa, Mehkar.

Notes : Occasional along roadsides.

PTEROCARPUS Jacq. *nom. cons.*

Pterocarpus marsupium Roxb. Pl. Cor. 209, t. 116. 1799; Baker in Hook. f. *Fl. Brit. India* 2: 239. 1876; Cooke, *Fl. Pres. Bombay* 1: 427. 1958 (Repr. ed.); Witt, *List.* 28. 1908. 'Bija'.

Tall trees, 10-15 m tall. Leaves pinnately compound; leaflets broadly ovate, 2-8 x 1.5-3.2 cm, pubescent beneath. Flowers yellow, in short lateral and terminal, pubescent racemes. Pods nearly circular, 2-3 cm across, winged.

Fls. & Frts. : August-November.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 216. 1982.

Distrib. : Buldhana.

Notes : Frequent on the hedges of the forests.

Uses : Wood is used in making furniture.

RHYNCHOSIA Lour. *nom. cons.*

Rhynchosia minima (L.) DC. Prodr. 2: 385. 1825; Baker in Hook. f. *Fl. Brit. India* 2: 223. 1876; Cooke, *Fl. Pres. Bombay* 1: 414. 1958 (Repr. ed.). *Dolichos minima* L. Sp. Pl. 1020. 1753.

Trailing and twining, annual herbs, 1–1.5 m long. Leaves 3-foliolate; leaflets rhomboid to orbicular, 0.8–2.2 cm across, glabrous above, pubescent beneath. Flowers yellow with orange veins, in axillary, weak racemes. Pods flat, 1.2–1.7 x 0.4–0.5 cm, pubescent.

Fls. & Frts. : June–September.

Illus. : Maheshwari, *Illus. fl. Delhi* t. 76. 1966.

Distrib. : Buldhana, Lavhala.

Notes : Common weed of cultivated fields.

TEPHROSIA Pers. *nom. cons.*

- | | | |
|--|-----|---------------------|
| 1. Racemes axillary; styles pubescent | ... | <i>T. tinctoria</i> |
| 1. Racemes extra-axillary; styles glabrous | ... | <i>T. purpurea</i> |

Tephrosia purpurea (L.) Pers. Syn. Pl. 2: 329. 1807; Baker in Hook. f. *Fl. Brit. India* 2: 112. 1876; Cooke, *Fl. Pres. Bombay* 1: 346. 1958 (Repr. ed.); Bosman & de Haas in *Blumea* 28: 464. 1983. *Cracca purpurea* L. Sp. Pl. 752. 1753.

Erect, suffruticose, annual herbs, 30–70 cm tall, pubescent. Leaves pinnately compound; leaflets 11–21, obovate to oblanceolate, 0.5–2 x 0.2–1 cm, appressed silky hairy beneath. Flowers pink, in extra-axillary racemes. Pods linear, flat, 2–4 x 0.3–0.4 cm, slightly curved, glabrous.

Fls. & Frts. : June–November.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 386, t. 219. 1909; Maheshwari, Illus. Fl. Delhi t. 63. 1966; Matthew, Illus. Fl. Tamilnadu Carnatic t. 225. 1982.

Distrib. : Ghatbori, Jalgaon Jamod, Nalgangapur, Sultanapur.

Notes : Common and abundant throughout the district.

T. tinctoria Pers. Syn. Pl. 2: 329. 1807; Baker in Hook. f. Fl. Brit. India 2: 111. 1875; Cooke, Fl. Pres. Bomaby 1: 345. 1958 (Repr. ed.).

Erect or ascending, perennial herbs or undershrubs, 0.5–1 m tall. Leaves pinnately compound; leaflets 7–13, oblong-elliptic, 1.2–5 x 0.5–1.5 cm, more or less silvery beneath. Flowers bright rosy-purple, in axillary racemes. Pods linear, 3.8–5.2 x 0.4–0.5 cm, flat.

Fls. & Frts. : September–October.

Illus. : Wight, Ic. t. 388. 1840.

Distrib. : Buldhana, Lonar lake.

Notes : Very common and locally abundant.

TERAMNUS R. Br.

Teramnus labialis (L.f.) Spreng. Syst. Veg. 3 : 235. 1836; Baker in Hook. f. Fl. Brit. India 2 : 184. 1876; Cooke, Fl. Pres. Bombay 1: 387. 1958. (Repr. ed.); Verdc. in Kew Bull. 24 : 266. 1970 & *Ibid.* 37 : 132. 1982. *Glycine labialis* L. f. Suppl. 325. 1781.

Weak, woody, twining annuals with appressed hairs. Leaves 3-foliolate; leaflets ovate-lanceolate or elliptic, 1.5–5.4 x 0.8–2.8 cm, appressed hairy. Flowers yellow with red veins, in axillary, weak, lax racemes. Pods flat, 2–4 x 0.3–0.4 cm, turgid, beaked.

Fls. & Frts. : September–December.

Illus. : Wight, Ic. t. 168. 1840; Matthew, Illus. Fl. Tamilnadu Carnatic t. 226. 1982.

Distrib. : Bawanbir, Deulgaon Sakhar, Sonala forests.

Notes : Common in hedges and along roadsides.

VIGNA Savi

1. Keels spirally twisted :

2. Pods glabrous or puberulous ... *V. trilobata*

2. Pods hirsute ... *V. angularis*

1. Keels not as above ... *V. vexillata*

Vigna angularis (Willd.) Ohwi & Ohashi in J. Jap. Bot. 44 : 29. 1969. *Dolichos angularis* Willd. 3: 1051. 1802. *Phaseolus mungo* auct. non L., 1753; Baker in Hook. f. Fl. Brit. India 2: 203. 1876; Cooke, Fl. Pres. Bombay 1 : 403. 1958 (Repr. ed.).

Sub-erect or twining, annual herbs, patently hairy, with angular stems. Leaves 3-foliate; leaflets, ovate-lanceolate, 2-5 x 1-3.5 cm. Flowers yellow, in axillary, lax racemes. Pods linear-oblong, 10-13 x 0.5-1 cm, beaked.

Fls. & Frts. : September-January.

Distrib. : Loni.

Notes : Cultivated at Loni, also as an escape.

V. trilobata (L.) Verdc. in Taxon 17: 172. 1968. *Dolichos trilobatus* L. Mant. 101. 1767; Baker in Hook. f. Fl. Brit. India 2: 202. 1876. *Phaseolus trilobatus* (L.) Schreb. in Nov. Acad. Caes. Leop.-Carl. Nat. Cur. 4: 132. 1770; Cooke, Fl. Pres. Bombay 1: 401. 1958 (Repr. ed.).

Trailing herbaceous, annuals. Leaves 3-foliate; leaflets 2-3 x 1-2 cm, 3-lobed, middle lobe largest, broad. Flowers yellow, in axillary, subcapitate racemes. Pods cylindric, 1-3 x 0.1 cm, glabrous.

Fls. & Frts. : February-June.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 227. 1982.

Distrib. : Lavhala.

Notes : Common in grasslands and along river banks.

V. vexillata (L.) A. Rich. in Sagru, Hist. Fls. Polit. Nat 1, 11: 191. 1845; Baker in Hook. f. Fl. Brit. India 2: 206. 1876; Verdc. in Kew Bull. 24: 553. 1970. *Phaseolus vexillatus* L. Sp. Pl. 724. 1753. *Vigna capensis* (L.) Walp. in Linnaea 13: 553. 1839; Cooke, Fl. Pres. Bombay 1: 404. 1958 (Repr. ed.).

Weak, twining or trailing herbs, with perennial, fusiform roots. Leaves 3-foliolate; leaflets ovate-rhomboid or ovate-lanceolate, 3-7.9 x 2-4 cm, thinly appressed hairy. Flowers pink or bluish-purple, few, in capitate racemes. Pods linear, 8-12 x 0.3-0.5 cm, appressed hairy.

Fls. & Frts. : September-November.

Illus. : Wight, Ic. t. 202. 1840.

Distrib. : Songaon forests.

Notes : Few along hill slopes.

ZORNIA Gmel.

Zornia gibbosa Span. in Linnaea 15: 192. 1841; Dandy & Mine-Redhead in Kew Bull. 17 : 74. 1963. *Z. diphylla* auct. pl. non (L.). Pers. 1807; Baker in Hook. f. Fl. Brt. India 2: 147. 1876, p.p.; Cooke, Fl. Pres. Bombay 1 : 355. 1958 (Repr. ed.).

Prostrate-diffuse or erect, annual herbs, deep rooted. Leaves 2-foliolate; leaflets linear-lanceolate, 1-2.2 x 0.2-0.8 cm, pellucid-punctate. Flowers yellow, in terminal spicate-racemes. Pods flat, 0.5-1.5 x 0.2 cm, 1-5-jointed, echinate.

Fls. & Frts. : August-December.

Illus. : Maheshwari, Illus. Fl. Delhi t. 64. 1966.

Distrib. : Lonar lake.

Notes. : Scarce in open areas.

Uses : Roots given to children to induce sleep.

CULTIVATED SPECIES

Lablab purpureus (L.) Sweet, Hort. Brit. 481. 1827. *Dolichos purpureus* L. Sp. Pl. (ed. 2): 1021. 1763. *D. lablab* L. Sp. Pl. 725. 1753; Baker in Hook. f. Fl. Brit. India 2: 209. 1876; Cooke, Fl. Pres. Bombay 1: 406. 1958 (Repr. ed.). '*Pawta*'.

Extensive twiners, sparsely hairy. Leaves 3-foliolate; leaflets broadly ovate-rhomboid or elliptic-ovate, 2-12 x 1.5-10 cm, glabrescent. Flowers white or lilac, in axillary and terminal racemes. Pods linear-oblong, 4-12 x 1-2.5 cm, falcate, compressed, glabrous.

Fls. & Frts. : October-February.

Distrib. : Garpiti tribal village.

Notes : Cultivated in fields, also an escape.

Uses : Seeds are used as vegetable.

SESBANIA Adans. *emend.* Scop. *nom. cons.*

Sesbania grandiflora (L.) Poir. in Lamk. Encycl. 7: 127. 1806; Baker in Hook. f. Fl. Brit. India 2: 115. 1876; Cooke, Fl. Pres. Bombay 1: 350. 1958 (Repr. ed.); Gillett in Kew Bull. 17: 105. 1963. *Robinia grandiflora* L. Sp. Pl. 722. 1753. '*Hadga*'.

Soft-wooded, small trees, 5-8 m tall. Leaves pinnately compound; leaflets oblong or slightly obovate, 1.5-3 x 0.5-1.5 cm, glabrous. Flowers white, showy, 5-10 cm long, in short, axillary racemes. Pods linear, 10-20 cm long, woody, beaked.

Fls. & Frts. : September-December.

Distrib. : Buldhana.

Notes : Common, planed near houses.

Uses : Flowers are used as vegetable.

S. sesban (L.) Merr. Philipp. J. Sci. 7: 235. 1912; Gillett in Kew Bull. 17: 112. 1963. *Aeschynomene sesban* L. Sp. Pl. 714. 1753. *Sesbania aegyptiaca* Poir. in Lamk. Encycl. 7: 128. 1806; Baker in Hook. f. Fl. Brit. India 2: 115. 1876. '*Shewri*'.

Soft-wood shrubs, 3–5 m tall. Leaves pinnately compound; leaflets oblong, 0.8–1.7 x 0.2–0.4 cm, glabrous. Flowers yellowish, in copious lax, axillary racemes. Pods sub-terete, torulose, 20–30 cm long, horned.

Fls. & Frts. : November–March.

Distrib. : Lonar lake.

Notes. : Common in irrigated fields.

Uses. : Leaves are used as fodder.

STYLOSANTHES Sw.

Stylosanthes fruticosa (Retz.) Alst. in Trim. Handb. Fl. Ceylon 6 (Suppl.): 77. 1931; Nooteb. in Reinwardtia 5: 449. 1961; Verdc. in Kew Bull. 24: 59. 1970. *Arachis fruticosa* Retz. Obs. Bot. 5: 26. 1788. *Stylosanthes mucronata* Willd. Sp. Pl. 3: 1166. 1802. Baker in Hook. f. Fl. Brit. India 2: 148. 1876; Cooke, Fl. Pres. Bombay 1: 356. 1958 (Repr. ed.). '*Staylo-Gawat*'.

Spreading undershrubs, 50–70 cm tall, appressed hairy. Leaves 3-foliate; leaflets oblong-elliptic, 0.7–1.3 x 0.2–0.4 cm, prominently nerved. Flowers brown, in terminal and axillary heads. Pods oblong, strongly nerved, beaked.

Fls. & Frts. : September–February.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 224. 1982.

Distrib. : Sultanpur.

Notes : Common, cultivated for fodder.

Uses : Entire plant is used as fodder.

CAESALPINIACEAE

1. Leaflets 2 :
 2. Leaflets distinct; petals 0 ... HARDWICKIA
 2. Leaflets at least partly connate; petals 5 ... BAUHINIA
1. Leaflets more than 2 :
 3. Leaves 1-pinnate :
 4. Stamens 3; filaments connate ... TAMARINDUS
 4. Stamens 5 to 10; filaments free ... CASSIA
 3. Leaves 2-pinnate :
 5. Straggling scandent or erect shrubs ... CAESALPINIA
 5. Trees :
 6. Plants armed; pods torulose, turgid ... PARKINSONIA
 6. Plants unarmed; pods not torulose, compressed :
 7. Flowers golden-yellow in panicles ... PELTOPHORUM
 7. Flowers red in corymbose-racemes ... DELONIX

BAUHINIA L.

1. Large climbers ... *B. vahlii*
1. Trees or shrubs :
 2. Flowers purple; fertile stamens 3-5 ... *B. purpurea*
 2. Flowers yellowish; fertile stamens 10 :
 3. Flowers solitary or paired; pods flat ... *B. tomentosa*
 3. Flowers in pendulous racemes; pods turgid ... *B. racemosa*

Bauhinia purpurea L. Sp. 375. 1753; Baker in Hook. f. Fl. Brit. India 2: 284. 1878; Cooke, Fl. Pres. Bombay 1: 461. 1958 (Repr. ed.); Witt. List. 33. 1908; de Wit in Reinwardtia 3: 406. 1956; Nair in J. Bombay Nat. Hist. Soc. 81 : 532. 1984. '*Kanchan*'.

Small trees, 5–7 m tall. Leaves sub-orbicular, 3–12 x 3–14 cm, thin, coriaceous, base sub-cordate. Flowers rose-purple, in axillary and terminal lax racemes. Pods flat, 15–20 x 1.5–2 cm, woody, glabrous.

Fls. & Frts. : September–December.

Distrib. : Buldhana, Chikhali, Deulgaon Mahi.

Notes : Occasional along roadsides.

B. racemosa Lamk. *Encycl.* 1 : 390. 1783; Baker in Hook. f. *Fl. Brit. India* 2: 276. 1878; Cooke, *Fl. Pres. Bombay* 1 : 459. 1958 (Repr. ed.); de Wit in *Reinwardtia* 3: 537. 1956. 'Apta'.

Small trees, 3–6 m tall. Leaves broader than long, 2–7.1 x 3–7.2 cm, glabrous above, whitish-tomentose beneath. Flowers yellow, in terminal and leaf-opposed racemes. Pods flat, 10–10 x 2–3 cm, turgid.

Fls. & Frts. : June–November.

Illus. : Talbot, *For. Fl. Bombay Pres. & Sind* 1 : 462 & 463, tt. 262 & 263. 1909; Matthew, *Illus. Fl. Tamilnadu Carnatic t.* 229. 1982.

Distrib. : Bedapani hills, Dongar Khandala, Garpiti, Loni, Mardadi temple valley, Nimkhedi.

Notes : Common on the hill slopes.

Uses. : The leaf is sacred and offered among the 'Hindus' on 'Vijayadashmi' day.

B. tomentosa L. *Sp.* 375. 1753; Baker in Hook. f. *Fl. Brit. India* 2 : 275. 1878; Cooke, *Fl. Pres. Bombay* 1: 459. 1958 (Repr. ed.); de Wit in *Reinwardtia* 3 : 409. 1956.

Large shrubs or small trees, 2–4 m tall. Leaves orbicular, 3–5 x 3–6 cm, glabrous above, densely pubescent beneath. Flowers yellow, in leaf-opposed racemes. Pods flat, 8–14 x 1.1–1.5 cm, puberulous.

Fls. & Frts. : August–October.

Distrib. : Lonar lake.

Notes : Occasional on hill slopes.

B. vahlii Wight & Arn. Prodr. 297. 1834; Baker in Hook. f. Fl. Brit. India 2: 279. 1878; Cooke, Fl. Pres. Bombay 1: 461. 1958 (Repr. ed.).

Large woody climbers with circinate tendrils. Leaves 10–40 x 15–45 cm, orbicular, cordate at base and lobed at apex, 11–13 nerved. Flowers white in long-peduncled terminal corymbose-racemes. Pods woody, 20–30 x 4–8 cm, rusty tomentose. Seeds 6–12, flat, dark brown.

Illus. : Singh, Fl. Madhya Pradesh. 1: 415. fig. 41. 1993.

Distrib. : Chinchpani forests, Ambabarwa.

Notes. : Frequent on hill slopes.

CAESALPINIA L.

1. Armed scandent shrubs :

2. Pods spiny ... *C. bonduc*

Pods not spiny ... *C. decapetala*

1. Unarmed or weakly armed, erect shrubs :

3. Unarmed; pods spinous ... *C. coriaria*

3. Weakly armed; pods not spinous ... *C. pulcherrima*

Caesalpinia bonduc (L.) Roxb. Fl. Ind. 2 : 362. 1832, *emend.* Dandy et Exell in J. Bot. 76 : 179. 1938. *Guilandina bonduc* L. Sp. Pl. 381. 1753. *Caesalpinia bonducella* (L.) Flem. in As. Res. 11 : 159. 1810; Baker in Hook. f. Fl. Brit. India 2 : 254. 1878; Cooke, Fl. Pres. Bombay 1 : 437. 1958 (Repr. ed.). '*Sagargota*'.

Straggling shrubs, 3–6 m long; branches grey-downy, prickly. Leaves 30–59 cm long; pinnae 6–8 pairs; pinnules elliptic-oblong, 1.5–3.5 x 1–2 cm, glabrous above, puberulous beneath. Flowers yellow, in terminal and supra-axillary spicate-racemes. Pods broadly oblong, 4–8 x 2–4 cm, densely clothed with sharp prickles, turgid.

Fls. & Frts. : June–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 230. 1982.

Distrib. : Assalgaon, Lavhala, Lonar lake, Nalgangapur, Nandura, Shara.

Notes : Very common along roadsides and along hedges of cultivated fields.

C. coriaria Willd. Sp. Pl. 2 : 532. 1799; Cooke, Fl. Pres. Bombay 1 : 440. 1958 (Repr. ed.). 'Waykarni'.

Erect shrubs, 4–6 m tall. leaves 5–6 cm long; leaflets linear-oblong, 0.4–0.7 x 0.1–0.3 cm. Flowers dirty-white or creamish in long terminal panicles. Pods 3–4 x 1–1.5 cm, sinuate, shortly apiculate.

Fls. & Frts. : September–October.

Distrib. : Nalgangapur.

Notes. : Rare, along roadsides.

C. decapetala (Roth) Alst. in Trim. Handb. Fl. Ceylon (Suppl.) 6: 89. 1931; Sant. & Wagh in Bull. Bot. Surv. India 5 (2): 108. (1963) 1964. *Reichardia decapetala* Roth, Nov. Pl. Sp 212. 1821. *Caesalpinia sepiaria* Roxb. Fl. Ind 2: 360. 1832; Baker in Hook. f. Fl. Brit. India 2: 256. 1878; Cooke, Fl. Pres. Bombay 1: 439. 1958 (Repr. ed.). 'Chilar'.

Straggling shrubs, 3–5 m long, branches finely downy. Leaves 20–30 cm long; pinnae 5–10 pairs; leaflets oblong, 1–1.2 x 0.4–0.5 cm, puberulous above, pubescent beneath. Flowers bright yellow, in axillary and terminal racemes. Pods oblong, 6–8 x 1.5–2.5 cm, turgid, constricted between seeds.

Fls. & Frts. : November–March.

Illus. : Wight, Ic. t. 37. 1838; Talbot, For. Fl. Bombay Pres. & Sind 1 : 441, t. 248. 1909.

Distrib. : Chikhali, Ghatbori, Lonar lake.

Notes : Very common hedge plant along roadsides.

Uses : Planted in hedges of cultivated fields, also running wild in some places.

C. pulcherrima (L.) Swartz, Obs. 166. 1791; Baker in Hook. f. Fl. Brit. India 2: 255. 1878; Cooke, Fl. Pres. Bombay 1: 440. 1958 (Repr. ed.). *Poinciana pulcherrima* L. Sp. Pl. 380. 1753. 'Shankasur'.

Erect, shrubs 2–4 m tall. Leaves 10–15 cm long; pinnae 6–10 pairs; leaflets obovate-oblong, 1.2–2.4 x 0.5–0.8 cm. Flowers red or orange-yellow, in axillary and terminal, corymbose-racemes. Pods flat, 5–7 x 1–1.5 cm.

Fls. & Frts. : Throughout the year.

Distrib. : Buldhana, Jamod, Kothali near Taroda, Lonar lake.

Notes : Common hedge plant grown in gardens.

CASSIA L.

1. Trees; fruits woody :
 2. Flowers in erect racemes; pods compressed with reticulate veins ... *C. siamea*
 2. Flowers in pendulous racemes; pods cylindric with horizontal veins ... *C. fistula*
1. Shrubs or herbs; fruits not woody :
 3. Stipules large, foliaceous and auricled ... *C. auriculata*
 3. Stipules not as above :
 4. Prostrate or procumbent herbs; leaflets 0.5–1.0 cm long ... *C. pumila*
 4. Erect undershrubs; leaflets 1.5–10 cm long :
 5. Leaflets 5–9, acute; pods flat ... *C. occidentalis*
 5. Leaflets 6, obovate; pods sub-cylindric ... *C. tora*

Cassia auriculata L. Sp. Pl. 379. 1753; Baker in Hook. f. Fl. Brit. India 2: 263. 1878; Cooke, Fl. Pres. Bombay 1: 448. 1958 (Repr. ed.); Pandey in J. Bombay Nat. Hist. Soc. 68 : 316. 1971. 'Tarwad'.

Bushy undershrubs or shrubs, 0.5–1.5 m tall. Leaves 8–12 cm long; leaflets elliptic-oblong, 0.6–2 x 0.5–1.1 cm, glabrous above, pubescent beneath. Flowers yellow with red veins, in axillary and terminal corymbs. Pods oblong-linear, 4–10 x 1.2–2 cm, often wrinkled, beaked.

Fls. & Frts. : Throughout the year.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1 : 450, t. 254. 1909.

Distrib. : Bhingara tribal village, Changephal, Deulgaon Sakharsa, Lonar lake, Mardadi temple valley, Sonala village, Warwat Bakal, Yelgaon.

Notes : Very common at foot hills, along roadsides and on waste lands.

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.); Pandey in J. Bombay Nat. Hist. Soc. 68 : 313. 1971. '*Bahawa*'.

Small trees, 5–8 m tall. Leaves 20–40 cm long; leaflets 4–8 pairs, ovate, 5–12 x 2.5–6 cm, glabrous above, pubescent beneath. Flowers bright yellow, in large drooping racemes. Pods cylindric, 20–50 cm long.

Fls. & Frts. : April–October.

Illus. : Wight, Ic. t. 269. 1840; Talbot, For. Fl. Bombay Pres. & Sind 1 : 449, t. 253. 1909.

Distrib. : Botha forests, Chinchphata forests, Dongar Shewli, Nandura, Pathardi forests.

Notes : Very common and abundant at foot hills.

Uses : The pulp of fruit is taken in as purgative.

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.); Pandey in J. Bombay Nat. Hist. Soc. 68 : 316. 1971. '*Dev-tarwad*'.

Erect herbs or undershrubs 0.5–1 m tall. Leaves 10–20 cm long; leaflets 5–9, ovate-lanceolate, 2–8 x 1–2.8 cm, glabrous. Flowers yellow, in axillary short racemes. Pods flat, 10–15 x 0.5–0.7 cm.

Fls. & Frts. : September–June.

Illus. : Pandey (*l.c.*) t. 2, f. 26–31. 1971.

Distrib. : Buldhana, Lonar lake, Warwat Bakal.

Notes : Common on wastelands, along roadsides.

C. siamea Lamk. *Encycl.* 1 : 648. 1785; Baker in Hook. f. *Fl. Brit. India* 2: 64. 1878; Cooke, *Fl. Pres. Bombay* 1: 454. 1958 (Repr. ed.); Pandey in *J. Bombay Nat. Hist. Soc.* 68: 312. 1971.

Moderate-sized trees, 8–12 m tall. Leaves 10–24 cm long; leaflets 6–14 pairs, elliptic-oblong, 1–7 x 0.5–2.2 cm, glabrous above, pilose beneath. Flowers yellow, in dense pyramidal terminal panicles. Pods flat, 18–25 x 1–1.5 cm, woody, slightly hairy.

Fls. & Frts. : October–June.

Illus. : Pandey (*l.c.*) t. 1, f. 1–9. 1971.

Distrib. : Buldhana.

Notes. : Planted along roadsides, naturalised at some places.

C. tora L. *Sp. Pl.* 376. 1753; Baker in Hook. f. *Fl. Brit. India* 2: 263. 1878; Cooke, *Fl. Pres. Bombay* 1: 447. 1958 (Repr. ed.); Pandey in *J. Bombay Nat. Hist. Soc.* 68 : 316. 1971; V. Singh, *Ibid.* 75 : 437. 1978. '*Tarota*'.

Erect, annual herbs, or undershrubs, 20–50 cm tall. Leaves 5–10 cm long; leaflets 3 pairs, orbicular-obovate, 1–6.5 x 0.8–3.5 cm, glabrous above, pubescent beneath. Flowers yellow, in pairs or axillary, solitary. Pods linear, 10–15 x 0.4–0.5 cm, glabrous.

Fls. & Frts. : September–April.

Illus. : Pandey (*l.c.*) t.2, f. 32–38. 1971.

Distrib. : Deulgaon Raja.

Notes. : Common weed around cultivated fields and villages.

DELONIX Raf.

Delonix regia (Boj. ex Hook.) Raf. Fl. Tel. 2: 92. 1837. *Poinciana regia* Boj. ex Hook. Bot. Mag. t. 2884. 1829; Baker in Hook. f. Fl. Brit. India 2: 260. 1878; Cooke, Fl. Pres. Bombay 1: 442. 1958 (Repr. ed.). 'Gulmohar'.

Tall trees with umbrella like canopy, 12–15 m tall. Leaves 30–50 cm long; pinnae 15–23 pairs; leaflets 20–40 pairs, 0.5–0.8 cm long. Flowers crimson–orange red, in terminal, lax racemes. Pods flat, 20–50 x 4–5 cm, woody.

Fls. & Frts. : April–August.

Distrib. : Lonar lake.

Notes. : Common garden tree.

HARDWICKIA Roxb.

Hardwickia binata Roxb. Pl. Cor. 3 : 6, t. 209. 1819; Baker in Hook. f. Fl. Brit. India 2: 270. 1878; Cooke, Fl. Pres. Bombay 1: 456. 1958 (Repr. ed.); Witt. List 30. 1908. 'Anjan'.

Small trees, 5–8 m tall. Leaflets 1–pair, obliquely ovate, 1.5–3 x 2.3–4 cm, glabrous. Flowers yellowish–green, in terminal and axillary panicles. Pods 5–7 x 1–1.5 cm, strap-shaped.

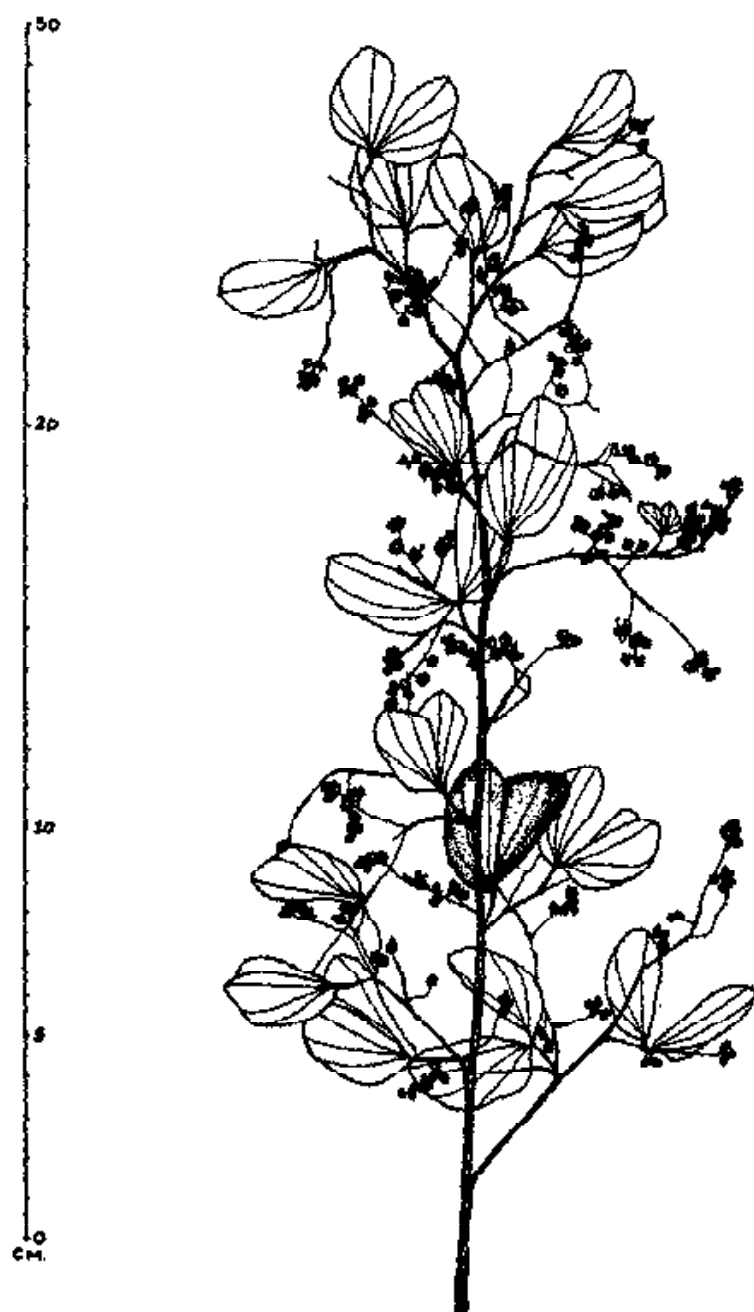
Fls. & Frts. : August–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic tt. 233 & 968 a, b. 1982.

Distrib. : Botha forests, Buldhana, Chinchphata forests, Deulgaon Sakharasa, Dongar Khandala, Ghatbori, Jamod, Tarawadi.

Notes. : One of the most common representatives of vegetation of the district. Pure 'Anjan' patches, throughout the district, are representatives of peculiar vegetation of the area.

Uses : The heart wood is very hard and heavy and is used for building purposes. Leaves are used as the best fodder, throughout the year.



Hardwickia binata Roxb.

The most common and representative species of the district.

PARKINSONIA L.

Parkinsonia aculeata L. Sp. Pl. 375. 1753; Baker in Hook. f. Fl. Brit. India 2: 260. 1878; Cooke, Fl. Pres. Bombay 1: 442. 1958 (Repr. ed.); Witt, List 29-30 1908. '*Wedi babhul*'.

Small trees, with sharp woody spines. Leaves 2-pinnate; pinnae 1-3 pairs; leaflets obliquely ovate, 1.5-3 x 2-3.5 cm. Flowers yellow, in lax, axillary racemes. Pods torulose, 7-10 x 0.5-1 cm, glabrous.

Fls. & Frts. : December-June.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 235. 1982.

Distrib. : Botha forest nuersery, Buldhana, Jalgaon Jamod, Lavhala, Nalgangapur, Saluja.

Notes. : Common a long roadsides, though planted, naturalised along stream-banks.

PELTOPHORUM (Vogel) Walp. *nom. cons.*

Peltophorum pterocarpum (DC.) Baker ex K. Heyne, Nutt. Pl. Ned. Ind. (ed. 2) 2 : 755. 1927. *Inga pterocarpa* DC. Prodr. 2 : 441. 1825. *Peltophorum ferrugineum* Benth. Fl. Austr. 2 : 279. 1864; Baker in Hook. f. Fl. Brit. India. 2: 257. 1878.

Densely foliaceous trees, 10-12 m tall. Leaves 2-pinnate, 20-25 cm long; pinnae 4-13 pairs; leaflets 8-22 pairs. Flowers golden-yellow, in axillary and terminal panicles. Pods flat, 5-10 x 1.5-2.6 cm, glabrous.

Fls. & Frts. : June-November.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 236. 1982.

Distrib. : Buldhana.

Notes. : Common ornamental tree along roadsides and in garden.

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.). 'Chinch'.

Large trees, 10–20 m tall. Leaves 6–12 cm long; leaflets 10–20 pairs, oblong, 0.8–1.8 x 0.5–0.8 cm. Flowers yellowish with pink stripes, in few-flowered lax racemes at the ends of the branchlets. Pods linear, 4–10 x 2–2.5 cm, turgid, often falcate.

Fls. & Frts. : April–June.

Illus. : Bedd. Fl. Sylv. t. 184. 1872; Talbot, For. Fl. Bombay Pres. & Sind 1: 460 & 461, tt. 260 & 261. 1909.

Distrib. : Chinchpani forests, Mardadi temple valley.

Notes : Common on hill slopes.

Uses : Fruits are used in curry preparations and the wood is used for agricultural implements.

MIMOSACEAE

Mimosoideae Kunth considered as one of the sub-families of the family *Leguminosae* which is now raised to the level of a family the *Mimosaceae* R. Br.

1. Stamens definite, 4–10 :

2. Flowers in globose heads :

3. Flowers pink; pods with prickles; stamens 4-8 ... MIMOSA

3. Flowers yellow; pods without prickles;
stamens 10 ... NEPTUNIA

2. Flowers in spikes :

4. Spikes of two colours (pink and yellow);
pods twisted when mature ... DICHROSTACHYS

4. Spikes uniformly greenish-yellow; pods straight ... PROSOPIS

1. Stamens indefinite :

- | | | |
|---|-----|----------------|
| 5. Armed trees or shrubs; flowers in spikes or heads forming panicles : | | |
| 6. Pinnae— 1-paired; stamens monadelphous; pods turgid, coiled | ... | PITHECELLOBIUM |
| 6. Pinnae more than 1-paired; stamens free; pods flat, not coiled | ... | ACACIA |
| 5. Unarmed trees; flowers in globose heads | ... | ALBIZIA |

ACACIA Mill.

- | | | |
|---|-----|--|
| 1. Flowers in spikes | ... | <i>A. chundra</i> |
| 1. Flowers in globose heads : | | |
| 2. Trees, armed with long and straight, stipular spines : | | |
| 3. Flower heads on axillary peduncles | ... | <i>A. nilotica</i>
<i>ssp. indica</i> |
| 3. Flower heads in panicles | ... | <i>A. leucophloea</i> |
| 2. Large shrubs, armed with recurved prickles | ... | <i>A. pennata</i> |

Acacia chundra (Roxb. ex Rottl.) Willd. Sp. Pl. 4: 1078. 1806. *Mimosa chundra* Roxb. ex Rottl. in Ges. Naturf. Fr. Berlin Neue Schr. 4 : 207. 1803. *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. As. Soc. Beng. 66: 508. 1896; Cooke, Fl. Pres. Bombay 1: 477. 1958 (Repr. ed.). 'Khair'.

Large shrubs, 2–3 m tall. Leaves 10–15 cm long; pinnae 10–20 pairs; leaflets linear-oblong, 0.3–0.6 x 0.1 cm, glabrous. Flowers greenish-yellow, in axillary spikes. Pods flat, 4–9 x 0.6–1 cm, glabrous.

Fls. & Frts. : June–November.

Illus. : Bedd. Fl. Sylv. t. 50. 1870; Talbot, For. Fl. Bombay Pres. & Sind 1: 488, t. 277, 1909.

Distrib. : Dongar, Shewli, Nimkhedi, Warwand.

Notes : Very common, along the roadsides.

A. leucophloea (Roxb.) Willd. Sp. Pl. 4: 1083. 1806; Baker in Hook. f. Fl. Brit. Ind. 2: 294. 1878; Cooke, Fl. Pres. Bombay 1: 475. 1958 (Repr. ed.); Niels. in Adansonia 19: 345. 1980. *Mimosa leucophloea* Roxb. Pl. Cor. t. 150. 1800. 'Hiwar'.

Small, deciduous trees, 3–5 m tall. Leaves 1.5–4.5 cm long, pinnae 4–7 pairs; leaflets linear-oblong, 0.3 x 0.6 cm, glabrous above, pubescent beneath. Flowers creamish-white, in panicle-heads. Pods linear-oblong, 5–10 x 0.8–1 cm, flat, rusty-tomentose.

Fls. & Frts. : June–December.

Illus. : Bedd. Fl. Sylv. t. 48. 1870; Maheshwari, Illus. Fl. Delhi t. 80. 1966.

Distrib. : Bawanbir, Nandura, Sindkhed Raja, Warwat Bakal.

Notes : Common on hill slopes and along streams.

Uses : Wood is used for various purposes.

A. nilotica (L.) Willd. ex Del. ssp. *indica* (Bth.) Brenan in Kew Bull. 12 : 84. 1957; Ali & Qasir in Bot. J. Linn. Soc. 80: 70. 1980. *A. arabica* var. *indica* Bth. London J. Bot. 1: 500. 1842. *A. arabica auct. non* (Lamk.) Willd. 1808; Baker in Hook. f. Fl. Brit. India 2: 293. 1878; Cooke, Fl. Pres. Bombay 1: 472. 1958 (Rep. ed.). 'Babhul'.

Small evergreen trees, 4–7 m tall. Leaves 5–10 cm long; pinnae 4–8 pairs; leaflets linear-oblong, 0.2–0.4 x 0.1 cm, glabrous. Flowers yellow, in fascicled-globose heads. Pods linear, 8–14 x 1–1.5 cm, moniliform, glaucous.

Fls. & Frts. : June–January.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1:480, t. 272. 1909.

Distrib. : Buldhana, Motala, Undri.

Notes : Very common throughout the district. This plant was mistaken until very recently for Willdenow's *Acacia arabica* i.e. *A. nilotica* (L.) Willd. ex Del., which does not occur in India, and is actually native of East Africa and surroundings.

Uses : The heart wood is used for agricultural implements. The gum is edible and is used for various purposes. The green pods, young shoots and leaves are used as an excellent fodder.

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.); Niels. in Adansonia 10 : 352. 1980. *Mimosa pennata* L. Sp. Pl. 522. 1753. '*Chilar*'.

Large, scandent shrubs, 5–10 m tall. Leaves 7–14 cm long; pinnae 6–10 pairs; leaflets linear, obtuse, 0.5–0.8 x 0.1 cm, glabrous. Flowers pale yellow in terminal and axillary paniced and solitary heads. Pods flat, 9–14 x 2–3 cm, strap-shaped.

Fls. & Frts. : December–June.

Distrib. : Botha forests, Loni, Nimkhedi.

Notes : Occasional in forest edges and along roadsides.

ALBIZIA Durazz.

According to Art. No. 73 of ICBN, the spelling of the genus should be '*Albiza*' and not '*Albizzia*'.

Albizia lebbeck (L.) Bth. 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.); Niels. in Adansonia 19: 220. 1979. *Mimosa lebbeck* L. Sp. Pl. 516. 1753. '*Shirish*'.

Large deciduous trees, 6–13 m tall. Leaves 15–25 cm long; pinnae 2–4 pairs; leaflets elliptic-oblong or ovate-oblong, 2–5 x 1–2.5 cm, glabrous above, pubescent on nerves beneath. Flowers white, in glabose, umbellate-heads. Pods flat, linear-oblong, 12–15 x 3–3.5 cm, glabrous.

Fls. & Frts. : March–July.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1 : 495 & 496, tt. 280 & 281. 1909.

Distrib. : Lonar lake valley.

Notes : Common on hill slopes.

Uses : Bark and seeds are given in piles and diarrhoea.

DICHROSTACHYS (A. DC.) Wight & Arn. *nom. cons.*

Dichrostachys cinerea (L.) Wight & Arn. Prodr. 271. 1834; Baker in Hook. f. Fl. Brit. India 2: 288. 1878; Cooke, Fl. Pres. Bombay 1: 458. 1958 (Repr. ed.). *Mimosa cinerea* L. Sp. Pl. 520. 1753.

Bushy shrubs, 1–2 m tall. Leaves 2–4 cm long; pinnae 2–6 pairs; leaflets narrowly linear-lanceolate, 0.3–0.5 x 0.1–0.2 cm, appressed hairy. Flowers 2-coloured, upper ones bisexual and yellow and lower ones sterile with pink or white staminodes. Pods flat, twisted, 5–7.5 x 1 cm.

Fls. & Frts. : June–November.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 474, t. 269. 1909; Matthew, Illus. Fl. Tamilnadu Carnatic t. 242. 1982.

Distrib. : Buldhana, Garpiti, Mehkar, Warwat. Bakal.

Notes : Frequent on lower hill slopes.

MIMOSA L.

Mimosa hamata Willd. Sp. Pl. 4 : 1033. 1806; Baker in Hook. f. Fl. Brit. India 2: 291. 1878; Cooke, Fl. Pres. Bombay 1: 471. 1958 (Repr. ed.).

Much branched shrubs, 1–2 m tall. Leaves 3–5 cm long; pinnae 3–4 pairs; leaflets ovate-oblong, 0.5 x 0.1 cm, hairy beneath. Flowers pink, in terminal and axillary, fascicled-heads. Pods flat, falcate, 5–6 x 1–1.2 cm, prickly along sutures.

Fls. & Frts. : June–November.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 1: 477, t. 270. 1909; Maheshwari, Illus. Fl. Delhi t. 79. 1966.

Distrib. : Jalgaon Jamod, Loni, Sindkhed Raja.

Notes : Common along hedges of cultivated fields.

NEPTUNIA Lour.

Neptunia triquetra (Willd.) Bth. in London, J. Bot. 4: 355. 1842; Baker in Hook. f. Fl. Brit. India 2: 286. 1878; Cooke, Fl. Pres. Bombay 1: 464. 1958 (Repr. ed.); Mabber. in Taxon 34: 155. 1985. *Desmanthus triquetrus* Willd. Sp. Pl. 4: 1045. 1806.

Low, perennial, prostrate herbs; stems ascending, compressed, angular. Leaves abruptly 2-pinnate; main rhachis grooved; leaflets linear-oblong, 0.5 x 0.1 cm, sessile, glabrous. Flowers yellow in globose heads. Pods oblong, flat, glabrous, straight, equal sided. Seeds oblong, 4-8, dark-brown.

Fls. & Frts. : June-September.

Illus. : Wight, Ic. t. 756. 1844.

Distrib. : Hiwarkhed.

Notes : Rare, along roadsides.

PITHECELLOBIUM Mart. *nom. cons.*

Pithecellobium dulce (Roxb.) Bth. in London J. Bot. 3: 199. 1844; Baker in Hook. f. Fl. Brit. India 2: 302. 1878; Cooke, Fl. Pres. Bombay 1: 485. 1958 (Repr. ed.). *Mimosa dulcis* Roxb. Pl. Cor. t. 99. 1796. '*Vilayati chinch*'.

Armed trees, 8-12 m tall. Leaves 3-5 cm long, 2 pairs of leaflets; leaflets obovate-oblong, 1-2.8 x 0.4 -0.9 cm, glabrous. Flowers greenish-yellow, in terminal and axillary heads. Pods spirally twisted, 10-15 x 0.6-1.1 cm.

Fls. & Frts. : January-June.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 249. 1982.

Distrib. : Borkhedi.

Notes : Planted in gardens and as hedge.

Uses : Aril in fruits edible.

PROSOPIS L.

- | | | |
|--|-----|---------------------|
| 1. Trees with pendent or scandent branches;
leaflets 10-20 pairs; pods compressed | ... | <i>P. juliflora</i> |
| 1. Trees with compact branches; leaflets 7-10 pairs;
pods cylindric | ... | <i>P. cineraria</i> |

Prosopis cineraria (L.) Druce in Rep. Bot. Soc. Exch. Cl. Brit. Isles 3: 422. 1914; Burkhardt in J. Arnold Arbor. 57: 450. 1976. *Mimosa cineraria* L. Sp. Pl. 517. 1753 ('cinerea'). *Prosopis spicigera* L. Mant. 68. 1767; Baker in Hook. f. Fl. Brit. India 2: 288. 1878; Cooke, Fl. Pres. Bombay 1: 467. 1958; Witt, List, 33. 1908. 'Saundar'.

Medium-sized, armed trees, with bluish-green foliage. Leaves bipinnate; pinnae 2; leaflets 7-10 pairs obliquely oblong, 0.8-1.5 x 0.2-0.4 cm. Flowers minute, yellow, sessile in spikes, axillary and terminal panicles. Pods cylindric, pendulous, contracted between the seeds.

Fls. & Frts. : Not recorded.

Illus. : Bedd. Fl. Sylv. t. 56. 1870; Talbot, For. Fl. Bombay Pres. & Sind 1: 472, t. 267. 1909.

Distrib. : Buldhana. (Witt l.c.)

Notes : This species has been reported here on the authority of Witt (l.c.).

P. juliflora (Sw.) DC. Prodr. 2: 447. 1825; M.C. Johnston in Brittonia 14: 83. 1962; C. Town in Kew Bull. 21: 436. 1968; Burkhardt in J. Arnold Arbor. 57: 499. 1976. *Mimosa juliflora* Sw. Prodr. 85. 1788 & Fl. Ind. Occ. 2: 986. 1800.

Scandent shrubs or small trees, 2-5 m tall; branchlets with stipular spines, 1 cm long. Leaves 2-pinnate; pinnae 1-3 pairs, 6-8 cm long; leaflets 15-20 pairs, obliquely-oblong. Flowers cream coloured or pale yellow, in hanging 1-few-fascicled spikes. Pods oblong, flat, 10-22 x 1-1.5 cm, torulose.

Fls. & Frts. : June–December.

Distrib. : Matala, Nalgapur, Shegaon, Zadegaon.

Notes : Common on hedges of fields.

Uses : These small trees are drought-resistant and are grown as very effective and well protective hedge plants in different localities.

COMBRETACEAE

- | | | |
|--------------------------------------|-----|------------|
| 1. Straggling shrubs; petals present | ... | COMBRETUM |
| 1. Trees; petals absent : | | |
| 2. Inflorescence of spikes | ... | TERMINALIA |
| 2. Inflorescence of heads | ... | ANOGEISSUS |

ANOGEISSUS (DC.) Guill. & Perr.

Anogeissus latifolia (Roxb. ex DC.) Wall. ex Guill. & Perr. Fl. Seneg. Tent. 1: 280. 1832; C.B.Cl. in Hook. f. Fl. Brit. India 2: 450. 1878; Cooke, Fl. Pres. Bombay 1: 512. 1958 (Repr. ed.); Scott in Kew Bull. 33: 560. 1979. *Conocarpus latifolia* Roxb. ex DC. Prodr. 3: 17 1828. 'Dhawda'.

Small trees, 3–5 m tall. Leaves elliptic-oblong, 6–10 x 2–4 cm, glabrous. Flowers yellowish, in small dense, pedunculate heads, sessile. Fruits orbicular, 0.4–0.7 cm across, 2-winged, glabrous.

Fls. & Frts. : September–January.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 23, t. 301. 1911; Matthew, Illus Fl. Tamilnadu Carnatic, t. 261. 1982.

Distrib. : Bibi, Botha forests, Pathardi forests, Sonala forests, Warwand.

Notes : Common in deciduous forests, along forest streams.

COMBRETUM Loefl. *nom. cons.*

- | | | |
|---------------------------------------|-----|---------------------|
| 1. Calyx lobes 5; fruits with 5 wings | ... | <i>C. decandrum</i> |
| 1. Calyx lobes 4; fruits with 4 wings | ... | <i>C. albidum</i> |

Combretum albidum G. Don in Trans. Linn. Soc. London 15: 429. 1827; Bennet, Name changes of Flowering plants of India & adj. Reg. 139. 1987. *C. ovalifolium* Roxb. Fl. Ind. 2: 226. 1832; C. B. Cl. in Hook. f. Fl. Brit. India 2: 458. 1878; Cooke, Fl. Pres. Bombay 1: 515. 1958 (Repr. ed.).

Large, scandent shrubs, 5–6 m long. Leaves elliptic-oblong, 4–10 x 2–3.8 cm, glabrous, rounded at base, acuminate or cuspidate at apex. Flowers creamy-white, in axillary and terminal paniced-cymes. Fruits ovoid or sub-globose in outline, 2–3 x 1.5–2 cm, including papery wings.

Fls. & Frts. : January–April.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2 : 26, t. 303. 1911; Matthew, Illus. Fl. Tamilnadu Carnatic t. 263. 1982.

Distrib. : Gondan Kheda, Jalgaon Jamod, Wasali forests.

Notes : Occasional, in forests along stream banks.

C. decandrum Roxb. Pl. Cor. t. 59. 1805; C. B. Cl. in Hook. f. Fl. Brit. India 2: 452. 1878; Witt. List t. 39. 1908 '*Piwalwel*'.

Straggling shrubs, with greyish-white corky bark. Leaves opposite, oblong, 6–15 x 3–5 cm, abruptly acuminate at apex. Flowers white in terminal panicles, with large conspicuous bracts turning creamy-white. Fruits oblong, 5-winged, upto 2.5 cm long.

Fls. & Frts. : Not recorded.

Distrib. : Buldhana.

Notes : This species has been reported here on the authority of Witt (*l.c.*).

TERMINALIA L. *nom. cons.*

- | | | |
|--|-----|---------------------|
| 1. Fruits winged; stalked glands on the leaves : | | |
| 2. Veins of the wings curving upwards | ... | <i>T. arjuna</i> |
| 2. Veins of the wings straight, horizontal | ... | <i>T. crenulata</i> |
| 1. Fruits not winged; glands absent | ... | <i>T. bellirica</i> |

Terminalia arjuna (Roxb. ex DC.) Wight & Arn. Prodr. 314. 1834; C. B. Cl. 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. 'Arjun sadada', 'Kahu'.

Large trees, 10–20 m tall; bark smooth, greenish-white, branches horizontal. Leaves elliptic-oblong, 5–10 x 3–8 cm, glabrous. Flowers creamy-white, in short axillary and terminal panicles; calyx campanulate, teeth triangular. Drupes ovoid, 3–4.5 x 2–2.5 cm, with 5 wings, dark-brown.

Fls. & Frts. : June–December.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2 : 17, t. 296. 1911; Matthew, Illus. Fl. Tamilnadu Carnatic t. 969 b. 1982.

Distrib. : Ambabarwa, Dongar Khandala, Gerumatergaon, Hingankheda, Mardadi, Warwand.

Notes : Common on river banks and along forest streams. This taxon now known as *T. cuneata* Roth.

Uses : The wood is used for carts and agricultural implements.

T. bellirica (Gaertn.) Roxb. Pl. Cor. t. 198. 1805; C. B. Cl. in Hook. f. Fl. Brit. India 2: 445. 1878; Cooke Fl. Pres. Bombay 1: 508. 1958 (Repr. ed.). *Myrobalanus bellirica* Gaertn. Fruct. 2: 90, t. 97. 1791. 'Behda'.

Large, deciduous trees, 8–15 m tall; stems often buttressed at base; branches horizontal. Leaves crowded at the ends of branchlets, elliptic-obovate or broadly elliptic, 10–21 x 6–15 cm, coriaceous; narrowed into petiole at base, obtuse or sub-acute at apex. Flowers white or greenish-yellow, in axillary spikes, longer than petioles; calyx pubescent outside, villous inside. Drupes sub-globose, 2.5–4 cm across, softly tomentose, obscurely angled.

Fls. & Frts. : June–December.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2 : 13, t. 294. 1911.

Distrib. : Bhadula near Warwand, Botha forests, Dongar Khandala, Gaumal forests of Bhingara, Loni near Lonar lake, Mardadi temple area.

Notes : Occasional in moist deciduous forests.

Uses : Fruits are used as tannins and in '*Triphla Churna*' i.e. laxative powder.

T. crenulata Roth, Nov. Pl. Sp. 380. 1821. *T. tomentosa* var. *crenulata* C.B. Cl. in Hook. f. Fl. Brit. India 2: 447. 1878. 'Ain'.

Trees, 3–10 m tall; bark thick, deeply cracked. Leaves ovate or elliptic-oblong or obovate, 9–17 x 5–7 cm, glabrous, coriaceous, cordate at base, subacute apex. Flowers greenish-yellow, in terminal, panicles and axillary spikes; calyx cup shaped, lobes acute, glabrous. Drupes globose, 3–4 cm across, including papery wings, coriaceous.

Fls. & Frts. : June–November.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2 : 18, t. 297. 1911.

Distrib. : Botha forest, Buldhana, Chikhali, Deulgaon Raja, Dongar Khandala, Loni, Pathardi forests.

Notes : Common in deciduous forests, along stream banks.

Uses : The bark and fruit is used for tanning and dyeing the nets of fishermen.

MYRTACEAE

SYZYGIUM Gaertn. *nom. cons.*

- | | | |
|---|-----|---------------------|
| 1. Trees more than 20 m tall; leaves more than 2.5 cm in breadth; | ... | <i>S. cumini</i> |
| 1. Trees less than 10 m tall; leaves less than 2.5 cm in breadth | ... | <i>S. heyneanum</i> |

Syzygium cumini (L.) Skeels in U.S. Dept. Agric. Bur. Pl. Ind. Bull. 248: 2. 1912. *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.). 'Jambhul'.

Evergreen trees, 20–25 m tall. Leaves lanceolate or elliptic-oblong, 4–13 x 3.5 cm, coriaceous, glabrous. Flowers white, in paniced-cymes on naked branches. Berries elliptic-oblong, variable in size and shape, dark purple.

Fls. & Frts. : March–June.

Illus. : Matthew, Illus. Fl. Tamilnādu Carnatic t. 271. 1982.

Distrib. : Borkhed, Gerumatergaon.

Notes : Occasional along dried streams.

Uses : Fruits are edible. The kernel is used in diabetes.

S. heyneanum Wall. ex Gamble, Fl. Pres. Madras 482. 1919 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.).

Large shrubs or small trees, 3–8 m tall. Leaves oblong-lanceolate, 5–10 x 1.5–3 cm, pellucid-dotted. Flowers white, in cymes, from axils of fallen leaves. Berries oblong or ellipsoid, 1–2 cm long.

Fls. & Frts. : December–June.

Illus. : Gandhi in Sald. & Nicols. Fl. Hassan Dt. 279, t.c.–cb. 1976.

Distrib. : Aampani forests.

Notes : Occasional along the dried streams.

CULTIVATED SPECIES

EUCALYPTUS L.' Her.

Eucalyptus camaldulensis Dehnh. Cat. Pl. Hort. Carnald. ed. 2, 20. 1832; Ashton in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 2: 462. 1981. 'Nilgiri'.

Aromatic trees, 8–12 m tall. Leaves lanceolate, 9–20 x 2–2.6 cm, gland dotted, glaucous. Flowers white, in axillary or terminal umbellate-cymes. Capsules globose or obovoid, sunk in woody hypanthium.

Fls. & Frts. : June–December.

Distrib. : Buldhana, Gerumatergaon, Lonar, Mehkar.

Notes : Planted in plains and to some extent on top of barren hills. Extensive plantation of this tree has been undertaken by State Forest Department under afforestation scheme in the district.

PSIDIUM L.

Psidium guajava L. Sp. Pl. 470. 1753; Duthie in Hook. f. Fl. Brit. India 2: 468. 1878; Cooke, Fl. Pes. Bombay 1: 529. 1958 (Repr. ed.), 'Peru'.

Small trees, 2–5 m tall. Leaves elliptic-oblong, 4–12 x 2–3.2 cm, coriaceous. Flowers white, on axillary peduncles. Berries obovoid-globose, very variable in size.

Fls. & Frts. : Mostly throughout the year.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 270. 1982.

Distrib. : Lonar lake.

Notes : Cultivated for its fruits.

Uses : Fruits edible. Leaf decoction is used to cure the pain in teeth.

LYTHRACEAE

1. Shrubs or trees :

2. Stamens 6–12 :

3. Sepals 6; petals 6; stamens 12 ... WOODFORDIA

3. Sepals 4; petals 4; stamens 6 ... LAWSONIA

2. Stamens indefinite ... LAGERSTROEMIA

1. Herbs :

- | | | |
|--|-----|----------|
| 4. Capsules regularly dehiscent into 2-4 valves | ... | RODALA |
| 4. Capsules indehiscent or irregularly dehiscent | ... | AMMANNIA |

AMMANNIA L.

- | | | |
|---|-----|----------------------|
| 1. Flowers on long pedicels; styles present | ... | <i>A. multiflora</i> |
| 1. Flowers sessile or subsessile; styles absent or minute | ... | <i>A. baccifera</i> |

Ammannia baccifera L. Sp. Pl. ed. 2, 175. 1762; C.B.Cl. in Hook. f. Fl. Brit. India 2: 569. 1879; Cooke, Fl. Pres. Bombay 1: 541. 1958 (Repr. ed.).

Erect, annual, glabrous herbs, 0.5-1 m tall. Leaves linear-oblong or oblong-lanceolate, 1-3 x .2 cm. Flowers red, sessile or subsessile, in dense, axillary fascicles. Capsules globose, 0.2-0.3 cm across.

Fls. & Frts. : June-December.

Illus. : Tadul. & Vendat. Handb. S. Indian Weeds. t. 68. 1955 (Repr. ed.).

Distrib. : Ambabarwa, Ayla Killa, Bedapani forests, Buldhana, Gaumal forests, Rajura, Sonala forests, Tarawadi.

Notes : Common weed of wet fields.

A. multiflora Roxb. Fl. Ind. 1: 447. 1820; C. B. Cl. in Hook. f. Fl. Brit. India 2: 570. 1879; Cooke, Fl. Pres. Bombay 1: 541. 1958 (Repr. ed.).

Reddish-brown, erect, annual herbs, 10-35 cm tall. Leaves linear-oblong or elliptic-oblong, 0.5-2.5 x 0.1-0.4 cm, chartaceous. Flowers purplish-red, in axillary cymes. Capsules globose, 0.1-0.2 cm across.

Fls. & Frts. : September-January.

Illus. : Ic. Roxb. Fasc. 7, t. 19. 1976 (Repr. ed.).

Distrib. : Saluja, Sonala forests.

Notes : Occasional in moist places.

LAGERSTROEMIA L.

- | | | |
|-----------------------------|-----|----------------------|
| 1. Trees; leaves decussate | ... | <i>L. parviflora</i> |
| 1. Shrubs; leaves alternate | ... | <i>L. indica</i> |

Lagerstroemia indica L. Syst. ed. 10 : 1076 & 1759; C.B. Cl. in Hook. f. Fl. Brit. India 2 : 575. 1879; Cooke, Fl. Pres. Bombay 1: 546. 1958 (Repr. ed.). 1969.

Glabrous shrubs with ascending branches. Leaves elliptic or oblong, 2–5 x 2–2.5 cm, glabrous. Flowers pink, in short, axillary and terminal cymes. Capsules subglobose, woody.

Fls. & Frts. : June–September.

Distrib. : Buldhana.

Notes : Planted in nurseries and gardens, also an escape at some places.

L. parviflora Roxb. Pl. Cor. t. 66 1795; C.B.Cl. in Hook. f. Fl. Brit. India 2: 575. 1879; Cooke Fl. Pres. Bombay 1: 545. 1958 (Repr. ed.). '*Bhondara*'.

Trees, 4–8 m tall. Leaves elliptic-oblong, 2.5–7.8 x 2–5 cm, hoary-tomentose beneath. Flowers white, in terminal and axillary panicle-cymes. Capsules ellipsoid, 2–3 x 1.5–2 cm, 3–4 valved.

Fls. & Frts. : June–October.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2 : 61, t. 323. 1911.

Distrib. : Deulgaon Raja, Gaumal forests, Mardadi temple area, Pathardi forests.

Notes : Common in deciduous forest area.

Uses : Bark and leaves are used in tanning industry.

LAWSONIA L.

Lawsonia inermis L. Sp. Pl. 349. 1753. *L. alba* Lamk. Encycl. 3: 106. 1789; C. B. Cl. in Hook. f. Fl. Brit. India 2: 573. 1879; Cooke, Fl. Pres. Bombay 1: 544. 1958 (Repr. ed.). 'Mehndi'.

Large, glabrous shrubs, 3–5 m tall. Leaves broadly lanceolate, 1.2–2.1 x 0.6–1 cm, glabrous. Flowers yellowish–white, in large terminal panicle–cymes or corymbosely branched panicles. Capsules globose, 0.2–0.4 cm across.

Fls. & Frts. : June–December.

Distrib. : Bawanbir, Buldhana, Lonar lake, Motala, Wasali.

Notes : Planted as hedges.

Uses : Powdered leaves are used to stain colour yellowish–red the finger nails, palm, beard.

ROOTALA L.

Rotala serpyllifolia (Roth) Bremek. in Acta Bot. Neerl. 3: 149. 1954; Cook in Boissiera 29: 61, f. 11 F–H. 1979. *Micranthus serpyllifolius* Roth, Nov. Pl. Sp. 282. 1821. *Ammannia tenuis* (Wight) C.B.Cl. in Hook. f. Fl. Brit. India 2: 567. 1879; Cooke, Fl. Pres. Bombay 1: 538. 1958 (Repr. ed.).

Tiny, erect, annual herbs, 4–15 cm high. Leaves broadly ovate to elliptic, 0.4–1 x 0.7 cm. Flowers reddish, in terminal spikes or spicate–racemes on filiform peduncles. Capsules ellipsoid, 0.1–0.2 cm long.

Fls. & Frts. : October–February.

Illus. : Cook, l.c., f. 11 F–H. 1979.

Distrib. : Aampani forests, Shimba river bed near Chunkhedi tribal village.

Notes : Common on wet rocks in river–beds.

WOODFORDIA Salisb.

Woodfordia fruticosa (L.) Kurz in J. As. Soc. Beng. 40: 56. 1871. *Lythrum fruticosum* L. Sp. Pl. ed. 2, 641. 1762. *Woodfordia floribunda* Salisb. Parad. London t. 42. 1806; C.B.Cl. in Hook. f. Fl. Brit. India 2; 572. 1879; Cooke, Fl. Pres. Bombay 1: 543, 1958 (Repr. ed.).

Scandent or straggling shrubs, 3–4 m tall. Leaves ovate-lanceolate, 3.8–7.7 x 1.5–2.5 cm, hoary and nigro-punctate beneath. Flowers red in axillary racemes. Capsules ellipsoid, 0.5–0.8 x 0.3–0.5 cm, enclosed by the persistent calyx-tube.

Fls. & Frts. : March–August.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2 : 59, t. 322. 1911.

Distrib. : Dhanori near Jalgaon Jamod, Wasali forests.

Notes : Frequent along dried forest streams.

CULTIVATED SPECIES

PUNICACEAE

PUNICA L.

Punica granatum L. Sp. Pl. 472. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 2 : 581. 1879; Cooke, Fl. Pres. Bombay 1: 548. 1958 (Repr. ed.) '*Dalimb*'.

Deciduous shrubs, 4–5 m tall. Leaves ovate or elliptic-oblong, 2–5 x 1–1.4 cm. Flowers bright red, attractive, extra-axillary, solitary. Berries obovate, fleshy.

Fls. & Frts. : August–November.

Distrib. : Lonar lake.

Notes : Planted along water channels.

Uses : Fruits are edible.

PASSIFLORACEAE

PASSIFLORA L.

Passiflora foetida L. Sp. Pl. 959. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 2: 599. 1879; Cooke, Fl. Pres. Bombay 1: 557. 1958 (Repr. ed.).

Herbaceous, foetid, slender, tendrilar climbers. Leaves 3-lobed, ovate-triangular, 2-10 x 1.3-9.9 cm, appressed-glandular hairy. Flowers white, axillary, solitary; calyx tube persistent. Fruits baccate, 2-4 x 2.2-5 cm.

Fls. & Frts. : March-October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 289. 1982.

Notes. : Occasional, in the rocky crevices of the bund walls.

Distrib. : Nalgangapur project area, Yelgaon lake.

CULTIVATED SPECIES

CARICACEAE

CARICA L.

Carica papaya L. Sp. Pl. 1036. 1753; Mast. in Hook. f. Fl. Brit. India 2 : 599. 1879; Cooke, Fl. Pres. Bombay 1: 557. 1958 (Repr. ed.). 'Papai'.

Small trees, monoecious or dioecious, soft wooded, 3-5 m tall, with milky latex. Leaves palminerved, palmately lobed, 25-55 cm wide, 7-9 lobed. Flowers dioecious; male flowers white, in drooping panicles, in the axils of upper leaves; female flowers yellowish, solitary or in clusters, in the upper leaf-axils, larger than the male flowers. Fruits variable in shape and size, normally 10-15 x 5-10 cm, 5 angled, fleshy.

Fls. & Frts. : Throughout the year.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 290. 1982.

Distrib. : Lonar lake.

Notes : Cultivated in kitchen gardens.

Uses : Fruits are edible.

CUCURBITACEAE

- | | | |
|-------------------------------------|-----|---------------|
| 1. Petals fimbriate | ... | TRICHOSANTHES |
| 1. Petals not fimbriate : | | |
| 2. Flowers white | ... | COCCINIA |
| 2. Flowers yellow : | | |
| 3. Fruits echinate | ... | MOMORDICA |
| 3. Fruits not echinate : | | |
| 4. Seeds with a transverse ridge | ... | DIPLOCYCLOS |
| 4. Seeds without transverse ridge : | | |
| 5. Seeds black | ... | CITRULLUS |
| 5. Seeds not black : | | |
| 6. Tendrils 2-5 branched | ... | CUCURBITA |
| 6. Tendrils unbranched : | | |
| 7. Berries red, operculate | ... | CORALLOCARPUS |
| 7. Berries not as above : | | |
| 8. Seeds compressed | ... | CUCUMIS |
| 8. Seeds turgid : | | |
| 9. Calyx glabrous | ... | SOLENA |
| 9. Calyx hairy | ... | MUKIA |

CITRULLUS Schrad. *nom. cons.*

Citrullus lanatus (Thunb.) Mastumura et Nakai in Cat. Sem. Hort. Bot. Univ. Tokyo 1920: 38. 1920; Hara in Taxon 18: 346. 1969; Purseglove in Trop. Fl. Cap. 13. 1974. *C. vulgaris* Schrad. ex Eckl. et. Zeyh. Enum. Pl. Afr. Austr. 279. 1836; C. B. Cl. in Hook. f. Fl. Brit. India 2: 621. 1879; Cooke, Fl. Pres. Bombay 1: 571. 1958 (Repr. ed.). 'Kalingad'.

Trailing, hispidly hairy, annual herbs. Leaves ovate in outline, 10–14 x 6–8 cm, 5–7 lobed; lobes again divided. Flowers yellow. Fruits subglobose or globose, fleshy, variable in size and shape.

Fls. & Frts. : March–June.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic t.* 292. 1982.

Distrib. : Lavhala, Nalgangapur.

Notes : Rarely cultivated in sandy river-beds, also as an escape at some places.

Uses : Fleshy pulp of the fruit is edible.

Coccinia Wight & Arn.

Coccinia grandis (L.) Voigt, Hort. Suburb. Calc. 59. 1845; Jeffrey in Kew Bull. 34: 794. 1980; Chakravarty in Fasc. Fl. India 11: 24. 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, 165: 1859; C.B.Cl. in Hook. f. Fl. Brit. India 2: 621. 1879. *Coccinea cordifolia* auct. non (L.) Cogn. 1881; Chakravarty in Rec. Bot. Surv. India 17: 117. 1959. 'Tondli'.

Scandent or prostrate, perennial herbs. Leaves 2–4 x 2.9–39 cm, 3–5 lobed or 5-angled, glabrous. Flowers white : peduncles of male flowers subfiliform; peduncles of female flowers slender. Fruits fusiform-ellipsoid, 2–5 x 1.4–2–5 cm, with red pulp.

Fls. & Frts. : June–October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic t.* 293. 1982.

Distrib. : Jalgoan Jamod.

Notes : A few in waste lands.

Uses : Young fruits are used as vegetable.

CORALLOCARPUS Welw. ex Hook. f.

Corallocarpus epigaeus (Rottl. et. Willd.) Hook. f. in Gen. Pl. 1: 831. 1862; C.B.Cl. in Hook. f. Fl. Brit. India 2: 628; Cooke, Fl. Pres. Bombay 1: 578. 1958. (Repr. ed.); Chakravarty in Rec. Bot. Surv. India 17: 171. 1959 in & Fasc. Fl. India 11: 28. 1982; Jeffrey in Kew Bull. 34: 792. 1980; *Bryonia epigaea* Willd. et. Rottl. Naturf. Fr. Berl. Neue Schr. 4: 223. 1803. '*Ranmirchi*'.

Weak, trailing or climbing, monoecious herbs, 2–3 cm long, with perennial tuberous root stock. Leaves variously, deeply 3–7 lobed, ovate to suborbicular in outline, 2–4 x 2.4–4 cm. Flowers yellowish green; females solitary; males racemose. Fruits ovoid–ellipsoid, 1.2–2.5 cm long, glabrous, circumscissile dehiscent in the middle.

Fls. & Frts. : August–December.

Illus. : Wight, Ic. t. 503. 1841; Ic. Roxb. Fasc. 8, t. 26. 1978. (Repr. ed.).

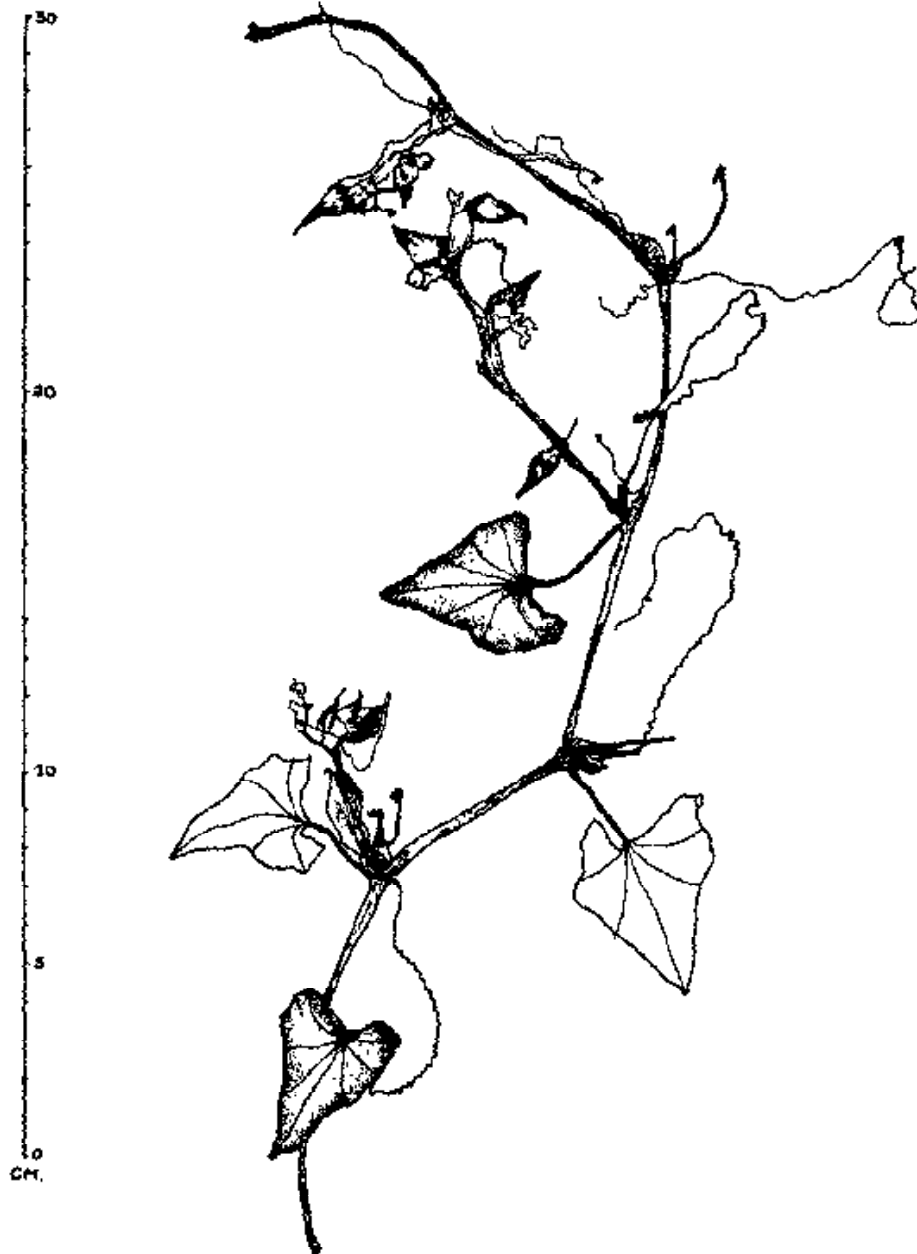
Distrib. : Gaumal forests, near tribal village.

Notes : Rare.

CUCUMIS L.

- | | | |
|--------------------------|-----|-----------------------|
| 1. Fruits setose | ... | <i>C. setosus</i> |
| 1. Fruits not setose : | | |
| 2. Fruits echinate | ... | <i>C. prophetarum</i> |
| 2. Fruits not echinate : | | |
| 3. Ovary hispidulous | ... | <i>C. sativus</i> |
| 3. Ovary softly hairy | ... | <i>C. melo</i> |

Cucumis melo L. Sp. Pl. 1011. 1753; Jeffrey in Kew Bull. 34: 793. 1980. *C. pubescens* Willd. Sp. Pl. 4: 614. 1805; C.B.Cl. in Hook. f. Fl. Brit. India 2: 619 1879. *C. trigonus* Roxb. Fl. Ind. 3: 722. 1832; C.B.Cl. in Hook. f. *l.c.*; Cooke Fl. Pres. Bombay 1: 569. 1958 (Repr. ed.). *C. melo* var. *agrestis* Naud. Ann. Sci. Nat. 4. 11: 73. 1859; Cooke, *l.c.*; Chakravarty in Rec. Surv. India 17: 103. 1959 & in Fasc. Fl. India 11: 35. 1982. *C. calosus* (Rottl.) Cogn. in Engl. Das. Pflanzenr. 88: 129. 1924; Chakravarty *l.c.* 100 & *l.c.* 31. '*Kamuni*'.



Corallocarpus epigaeus (Rottl. et Willd.) Hook. f.

One of the rare species of the district.

Creeping, hispid annuals, with angular stems. Leaves suborbicular, 2–7.1 x 2–6, hirsute. Flowers yellow; male flowers fascicled; female flowers solitary. Fruits variable in shape and size, generally oblong or obovoid, 2–4 x 1.2–2.8 cm, smooth.

Fls. & Frts. : September–January.

Illus. : Ic. Roxb. Fasc. 8. t. 19. 1978 (Repr. ed.); Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 296. 1982.

Distrib. : Raipur, Sonala.

Notes : Common on grassy hill slopes and along cultivated fields.

C. prophetarum L. Cent. Pl. 1: 33. 1755 & Amoen. Acad 4: 295. 1759; C.B. Cl. in Hook. f. Fl. Brit. India 2: 619. 1879; Cooke, Fl. Pres. Bombay 1: 570. 1958 (Repr. ed.); Jeffrey in Kew Bull. 34: 794. 1980; Chakravarty in Rec. Bot. Surv. India 17: 109. 1959 & in Fasc. Fl. India 11: 35. 1982.

Prostrate, monoecious herbs. Leaves broadly ovate, 1–3.2 x 1–2.2 cm, 3–5 lobed, scabridly hairy. Flowers yellowish; male flowers fascicled; female flowers axillary, solitary. Fruits ellipsoid-oblong, 3–4 x 2.2–3 cm, longitudinally striped with green and white.

Fls. & Frts. : July–October.

Distrib. : Lonar lake.

Notes : Occasional in forest edges.

C. sativus L. Sp. Pl. 1012. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 2: 620. 1879; Cooke, Fl. Pres. Bombay 1: 570. 1958 (Repr. ed.); Jeffrey in Kew Bull. 34: 794. 1980; Chakravarty in Rec. Bot. Surv. India 17: 105. 1959 & in Fasc. Fl. India. 11: 36. 1982. '*Kakdi*'.

Large, annual climbers, 3–4 m long, hirsute. Leaves broadly cordate-ovate, 2–16 x 2–11 cm, densely hairy. Flowers yellow; male flowers fascicled; female flowers axillary, solitary. Fruits oblong, 18–22 x 5–6 cm.

Fls. & Frts. : June–August.

Distrib. : Warwat Bakal.

Notes : Frequently cultivated, also as an escape.

Uses : Fruits are edible.

C. setosus Congn. in DC. Monogr. Phan. 3: 491. 1881; Chakravarty in Rec. Bot. Surv. India. 17: 106. 1959 & in Fasc. Fl. India. 11: 38. 1982; Jeffrey in Kew Bull. 34: 794. 1980.

Weak, twining annuals, 0.8–2.5 cm long. Leaves ovate-triangular, 2.8–4.6 x 4.7 cm, pubescent. Flowers yellow; male flowers fascicled; female flowers axillary, solitary. Fruits oblong, 2–2.5 x 0.8–1 cm, pubescent.

Fls. & Frts. : June–August.

Illus. : Chakravarty, *L.c.* 106, t. 44.

Distrib. : Loni.

Notes : Frequent on hill slopes.

Uses : Fruits are edible.

CUCURBITA L.

Cucurbita maxima Duch. ex Lamk. Encycl. 2: 151. 1786; C.B.Cl. in Hook. f. Fl. Brit. India 2: 622. 1879; Cooke, Fl. Pres. Bombay 1: 582. 1958 (Repr. ed.); Chakravarty in Rec. Bot. Surv. India 17: 123. 1959 & in Fasc. Fl. India 11: 40. 1982; Jeffrey in Kew Bull. 34: 799. 1980. '*Bhopla*'.

Prostrate or climbing annuals. Leaves reniform with 5 shallow lobes, 5–18 x 7–28 cm. Flowers yellow, axillary, large, 50–60 cm across. Fruits large and of various forms, generally globose, 20–50 cm across.

Fls. & Frts. : October–November.

Distrib. : Deulgaon Raja.

Notes : Cultivated for its fruits, found as an escape also.

Uses : Fruits are used as vegetable.

DIPLOCYCLOS (Endl.) Post & Ktze.

Diplocyclos palmatus (L.) Jeffrey in Kew Bull. 15: 352. 1962; Chakravarty in Fasc. Fl. India 11: 48. 1982. *Bryonia palmata* L. Sp. Pl. 1012. 1753 & *B. laciniosa* L. Sp. Pl. 1013. 1753, p.p.; C.B.Cl. in Hook. f. Fl. Brit. India 2: 622. 1879. *Bryonopsis laciniosa sensu* Naud. Ann. Sci. Nat. 4. 12: 141. 1859, p.p., auct. non L. ; Cooke, Fl. Pres. Bombay 1: 568. 1958 (Repr. ed.); Chakravarty in Rec. Bot. Surv. India 17: 135. 1959 & in Fasc. Fl. India 11: 48. 1982.

Weak, glabrous, climbing annuals. Leaves 10–15 x 8–10 cm, 3–5 lobed; lobes triangular, membranous, densely hairy. Flowers greenish yellow, both male and female flowers fascicled in the same axils. Fruits globose, 1–1.5 cm in diam, red with white stripes. Seeds pyriform, belted in the middle.

Fls. & Frts. : August–December.

Distrib. : Bibi.

Note : Common in hedges and around cultivated fields.

MOMORDICA L.

- | | | |
|---|-----|---------------------|
| 1. Male flowers with bract in middle of peduncle | ... | <i>M. charantia</i> |
| 1. Male flowers with bract at the tip of peduncle | ... | <i>M. dioica</i> |

Momordica charantia L. Sp. P. 1009. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 2: 616. 1879; Cooke, Fl. Pres. Bombay 1: 562. 1958 (Repr. ed.); Chakravarty in Rec. Surv. India 17: 88. 1959 & in Fasc. Fl. India 11: 89. 1982. 'Karle'.

Herbaceous climbers, 1–2.5 m long. Leaves reniform or suborbicular, 4–10 x 4–9.5 cm, 5–7 lobed, membranous, pubescent or glabrous. Flowers bright yellow, solitary, axillary, monoecious; female flower–peduncles bracteate at or near base. Fruits oblong–ellipsoid, 2.5–4 x 1–2.4 cm, softly echinate.

Fls. & Frts. : June–October.

Distrib. : Tunki.

Notes : Cultivated in kitchen gardens, found as an escape also.

Uses : Bitter fruits are used as vegetable, after washing or boiling in salt water to remove extra bitterness.

M. dioica Roxb. ex Willd. Sp. Pl. 4 : 605. 1805; C.B.Cl. in Hook. f. Fl. Brit. India 2: 617. 1879; Cooke. Fl. Pres. Bombay 1: 563. 1958 (Repr. ed.); Chakravarty in Rec. Bot. Surv. India 17: 91. 1959 & in Fasc. Fl. India 11 : 94. 1982; Jeffrey in Kew Bull. 34: 790. 1980.

Weak, trailing or climbing, perennials, with tuberous roots. Leaves ovate, 5-10 x 3-7.5 cm, generally 3-lobed, glabrous. Flowers yellow, solitary; dioecious, bract in male flowers below the flower & in female flowers near the base. Fruits ellipsoid, 2.5-6 x 2-3 cm, softly echinate.

Fls. & Frts. : August–November

Illus. : Wight, Ic. tt. 505 & 506. 1841; Ic. Roxb. Fasc. 8, t. 17. 1978 (Repr. ed.).

Distrib. : Sonala forests.

Notes : Occasional on hill slopes.

MUKIA Arn.

Mukia maderaspatana (L.) Roem. Syn. Pep. 47. 1847; Jeffrey in Kew Bull. 34 : 794. 1980. *Cucumis maderaspatenus* L. Sp. pl. 1012. 1753. *Melothria maderaspetana* (L.) Cogn. in DC. Monogr. Phan. 3: 623. 1881; Cooke, Fl. Pres. Bombay 1: 573. 1958 (Repr. ed.); Chakravarty in Rec. Bot. Surv. India 5 : 416. 1984. *Mukia scabrella* (L.f.) Arn. in Hook. J. Bot. 3 : 276. 1841; C.B.Cl. in Hook. f. Fl. Brit. India 2 : 623. 1879.

Weak, annual climbers, with slender, angular, hispid or scabrous stems. Leaves ovate or subdeltoid, 1.5-5 x 1.5-4.4 cm, 3-5 angled. Flowers yellow; male flowers in fascicles; female flowers solitary or subfascicled. Fruits globose, 0.5-0.9 cm across, with stripes.

Fls. & Frts. : June–October.

Illus. : Wight, Ic. t. 501. 1841.

Distrib. : Buldhana, Dongar Shewli.

Notes : Common in hedges along roadsides and cultivated fields. According to Jeffrey (Kew Bull. 15: 343. 1962) *Melothria* L. is a new world genus and is not represented from India by any wild species. He also separates all the species of *Melothria* into separate genera such as *Mukia* Arn., *Solena* Lour., *Zehneria* Endl. etc. on valid grounds which have been found to be appropriate. Hence, Jeffrey's treatment has been adopted here.

SOLENA LOUR.

Solena amplexicaulis (Lamk.) Gandhi in Sald. & Nicols. Fl. Hassan Dt. 179. 1976; Jeffrey in Kew Bull. 34 : 793. 1980. *Bryonia amplexicaulis* Lamk. Encycl. 1: 496. 1785. *Solena heterophylla* Lour. Fl. Cochinch. 1: 514. 1790. *Zehneria umbellata* Thw. Enum. Pl. Zeyl. 125. 1859; C.B.Cl. in Hook. f. Fl. Brit. India 2: 625. 1879, *p.p.* *Melothria heterophylla* (Lour.) Cogn. in DC. Monogr. Phan. 3: 618. 1881; Cooke, Fl. Pres. Bombay 1: 575. 1958 (Repr. ed.); Chakravarty in Rec. Bot. Surv. India 17: 159. 1959 & in Fasc. Fl. India 11 : 79. 1982. *M. amplexicaulis* (Lamk.) Cogn. in DC. Monogr. Phan. 3 : 621. 1881; Chakravarty, l.c. 146 & l.c. 77; Panigr. & Mishra in J. Econ. Tax. Bot. 5: 416. 1984. *M. angulata* Chakravarty in J. Bombay Nat. Hist. Soc. 5: 899. 1952 & in Rec. Bot. Surv. India 17: 165. 1959 & in Fasc. Fl. India 11 : 78. 1982.

Climbing, slender herbs. Leaves ovate or narrowly lanceolate, 2.8–12 x 1.5–8 cm, scabrid. Flowers yellow, dioecious; males 5–10, in subumbellate inflorescence at the ends of peduncles; females solitary. Fruits oblong-obovate, 3–5 x 2–5 cm, angled or ribbed.

Fls. & Frts. : June–September.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 303. 1982.

Distrib. : Loni.

Notes : Common in bushes on hill slopes. According to Jeffrey (Kew Bull. 15: 343. 1962) all the species of *Melothria* are segregated into separate genera on valid grounds. *Solena* is one of the genera. The genus *Solena* can be distinguished from *Mukia* by its triplicate anther cells and turgid subglobose seeds.

TRICHOSANTHES L.

Trichosanthes cucumerina L. Sp. Pl. 1008. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 2: 609. 1879; Cooke, Fl. Pres. Bombay 1: 560. 1958 (Repr. ed.); Chakravarty in Rec. Surv. India 17: 31. 1959 & in Fasc. Fl. India 11: 112. 1982; Jeffrey in Kew Bull. 34: 796. 1980.

Slender, climbing or spreading, scabrous herbs. Leaves orbicular-reniform or broadly ovate, 5-9 x 6-10 cm, 5-7 lobed, pubescent beneath. Flowers white, monoecious, with fimbriate petals; male flowers in axillary racemes; female flowers axillary, solitary. Fruits ovoid, fusiform, 5-6 x 3-4 cm.

Fls. & Frts. : June-October.

Illus : Maheshwari, Illus. Fl. Delhi t. 88. 1966.

Distrib. : Lonar lake.

Notes : Rare on hill slopes.

CULTIVATED SPECIES

CACTACEAE

OPUNTIA L.

Opuntia elatior Mill. Gard. Dict. ed. 8. No. 4. 1768. *O. dillenii* Grah. ex Dalz. & Gibs. Bombay Fl. Suppl. 39. 1861; C.B.Cl. in Hook. f. Fl. Brit. India 2: 657. 1879, p.p. *O. nigricans* Woodr. in Rec. Bot. Surv. India 1: 89. 1895; Cooke, Fl. Pres. Bombay 1: 587. 1958 (Repr. ed.); (non How. 1819). 'Nivdung', 'Nagphani'.

Large, much branched, armed shrubs, 1-3 m tall, stems terete; branches flat, green; internodes oblong-obovate, 15-20 x 7-17 cm, with strong divaricate spines. Flowers yellowish with a red tinge, with campanulate perianth. Fruits red, marked with the areoles, fleshy, 4-5 x 3-4 cm.

Fls. & Frts. : June-November.

Distrib. : Buldhana, Dongar Khandala, Lonar lake.

Notes : Common, raised as hedge along cultivated fields.

MOLLUGINACEAE

- | | | |
|---|-----|---------|
| 1. Prostrate herbs; flowers in axillary fascicles | ... | GLINUS |
| 1. Erect herbs; flowers in terminal cymes | ... | MOLLUGO |

GLINUS L.

This genus, formerly was kept in family Aizoaceae Ficoideae Juss.) J.G. Agardh.

Glinus lotoides L. Sp. Pl. 463. 1753; Baker in van Steenis, Fl. Males. 4. 269. 1951. *Mollugo lotoides* O. Ktze. Rev. Gen. Pl. 264. 1891. *M. hirta* Thunb. Prodr. Pl. Cap. 24. 1794; C.B.Cl. in Hook. f. Fl. Birt. India 2: 662. 1879; Cooke, Fl. Pres. Bombay 1 : 593. 1958 (Repr. ed.).

Radially spreading, prostrate, annual herbs. Leaves obovate or suborbicular, 0.4–2 x 0.3–0.5 cm, stellate-tomentose. Flowers greenish-white, in axillary fascicles. Capsules ovoid, 0.3–0.5 cm long, enclosed in persistent calyx.

Fls. & Frts. : January–May.

Illus. : Maheshwari, Illus. Fl. Delhi t. 90. 1966.

Distrib. : Nalgangapur, Sultanpur, Toradi.

Notes : Common in drying ditches.

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; C.B.Cl. in Hook. f. Fl. Brit. India 2: 663. 1879.

Erect annual herbs, 5–17 cm tall, glabrous. Leaves in whorls, linear-lanceolate, 1–2 x 0.3–0.5 cm, glabrous, sessile. Flowers white, in lax corymbose, terminal numerous, cymes. Capsules globose, glabrous.

Fls. & Frts. : July–December.

Distrib. : Sonala forests along Shimba river bank.

Notes : Common along river banks and streams. *Mollugo pentaphylla* L. & *M. stricta* L. have been traditionally treated as conspecific in most of the floras despite overlapping variations in the leaf shape and inflorescence characters, due to which Linnaeus segregated them.

AIZOACEAE

TRIANTHEMA L.

Trianthema portulacastrum L. Sp. Pl. 223. 1753; Baker in van Steenis Fl. Males. 4: 274. 1951. *T. monogyna* L. Mant. 69. 1767; C.B.Cl. in Hook. f. Fl. Brit. India 2: 660. 1879; Cooke, Fl. Pres. Bombay 1: 589. 1958 (Repr. ed.). 'Wasu'.

Subsucculent, prostrate or ascending herbs. Leaves subopposite, obovate or orbicular, 3–4.5 x 2–3 cm. Flowers bright pink, axillary, solitary. Capsules ovoid, circumscissile, glabrous.

Fls. & Frts. : June–August.

Distrib. : Lonar lake.

Notes : Rare on waste land.

APIACEAE

- | | | |
|--------------------------------------|-----|---------------|
| 1. Mericarps winged on margins | ... | ANETHUM |
| 1. Mericarps not winged on margins : | | |
| 2. Leaves with simple leaflets | ... | PIMPINELLA |
| 2. Leaves with divided leaflets | ... | TRACHYSpermum |

ANETHUM L.

Anethum graveolens L. Sp. Pl. 263. 1753. *Peucedanum graveolens* Hiern in Oliver, Fl. Trop. Africa 3: 19. 1871; C.B.Cl. in Hook. f. Fl. Brit. India 2: 709. 1879; Cooke, Fl. Pres. Bombay 1: 606. 1958 (Repr. ed.). 'Shepu'.

Erect, stout herbs, 0.5–1 m tall. Leaves pinnately compound or trifoliate, with narrowly dissected leaflets, 10–20 cm long. Flowers yellow, in large, terminal compound umbels. Fruits linear-oblong, with dorsal ribs thin and sharp, lateral with distinct narrow wings.

Fls. & Frts. : June–October.

Distrib. : Buldhana, Hiwarkheda, Lonar lake.

Notes : Cultivated for its leaves also found as an escape.

Uses : Leaves are used as vegetables.

CULTIVATED SPECIES

CORIANDRUM L.

Coriandrum sativum L. Sp. Pl. 256. 1753; C.B.Cl. in Hook. f. Fl. Brit. Ind. 2: 717. 1879; Cooke, Fl. Pres. Bombay 1: 609. 1958 (Repr. ed.). '*Kothimbir*'.

Erect, strong smelling, annual herbs, 10–40 cm tall, glabrous. Leaves pinnately or ternately decompound, glabrous; segments of the basal leaves broadly ovate, 2.5 x 2 cm; upper leaves dissected. Flowers white or pink, in terminal, compound umbels. Fruits subglobose or ovoid, ribbed.

Fls. & Frts. : July–September.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 316. 1982.

Distrib. : Nalgangapur.

Notes : Cultivated for aromatic leaves and fruits.

Uses : Leaves and fruits are used as condiment.

PIMPINELLA L.

- | | | |
|-----------------------------------|-----|----------------------|
| 1. Bracts present; fruits pilose | ... | <i>P. adscendens</i> |
| 1. Bracts absent; fruits glabrous | ... | <i>P. heyneana</i> |

Pimpinella adscendens Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2: 261. 1850; C.B.Cl. in Hook. f. Fl. Brit. India 2: 689. 1879; Cooke, Fl. Pres. Bombay 1: 603. 1958 (Repr. ed.).

Erect or ascending, annual herbs. Leaves mostly radical; leaflets imparipinnate, obovate or round-ovate, cauline leaves few, upper ones pinnatisect. Flowers white, in terminal compound umbels. Fruits ovoid, 0.1 cm long.

Fls. & Frts. : November–May.

Distrib. : Lonar lake.

Notes : Occasional on hill slopes.

P. heyneana (DC.) Kurz in J. As. Soc. Beng. 46 : 115. 1877; C.B.Cl. 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.

Erect, annual herbs, glabrous, 50–90 cm tall. Leaves 3-foliate; ultimate segments of lower cauline leaves ovate-lanceolate, 2.8–7.5 x 1–2.7 cm, pubescent. Flowers white, in compound umbels. Fruits ovoid, 0.1 cm across.

Fls. & Frts. : September–December.

Illus. : Gandhi in Sald. & Nicols. Fl. Hassan Dt. t. A–AC. 1976.

Distrib. : Ambabarwa, near Mangeri.

Notes : Occasional on hill tops.

TRACHYSPERMUM Link. *nom. cons.*

- | | | |
|---|-----|------------------------|
| 1. Diffuse herbs; leaves 2–3 pinnate; rays 4–12 | ... | <i>T. ammi</i> |
| 1. Erect herbs; leaves 2 pinnate; rays 3–6 | ... | <i>T. stictocarpum</i> |

Trachyspermum ammi (L.) Sprague in Kew Bull. 1929: 228. 1929. *Sison ammi* L. Sp. Pl. 252. 1753. *Carum copticum* (L.) Hiern, Fl. Trop. Afr. 3: 12. 1871; C.B.Cl. in Hook. f. Fl. Brit. India 2: 682. 1879; Cooke, Fl. Pres. Bombay 1 : 600. 1958 (Repr. ed.). 'Owa'.

Erect, annual herbs, 20–90 cm tall. Leaves 2–3 pinnate, 3–6 cm long; dissipated, ultimate segments linear. Flowers white, in terminal or axillary compound umbels. Fruits ovoid, 0.1–0.2 cm long, aromatic.

Fls. & Frts. : November–April.

Distrib. : Lonar lake, Toradi.

Notes : Occasional weed in barren fields.

T. strictocarpum (C.B.Cl.) Wolf in Engl. Pflanzenr. 43: 89. 1927; Sant. in Rec. Bot. Surv. India ed. 3, 16: 109. 1967; Rao et Hemadri in J. Bombay Nat. Hist. Soc. 67: 357. 1970. *Carum strictocarpum* C.B.Cl. in Hook. f. Fl. Brit. India 2: 681. 1879; Cooke Fl. Pres. Bombay 1: 600. 1958 (Repr. ed.). *C. strictocarpum* var. *herbecarpa* C.B.Cl. in Hook. f. L.c. 682; Cooke l. c. 603.

Erect, annual herbs, 30–60 cm tall. Leaves 2-pinnate and simple; leaflets cut deeply into linear-lanceolate segments. Flowers white, in axillary and terminal compound umbels. Fruits ovoid, 0.1–0.2 cm long.

Fls. & Frts. : September–February.

Distrib. : Aampani forest fields, Sindkhed Raja.

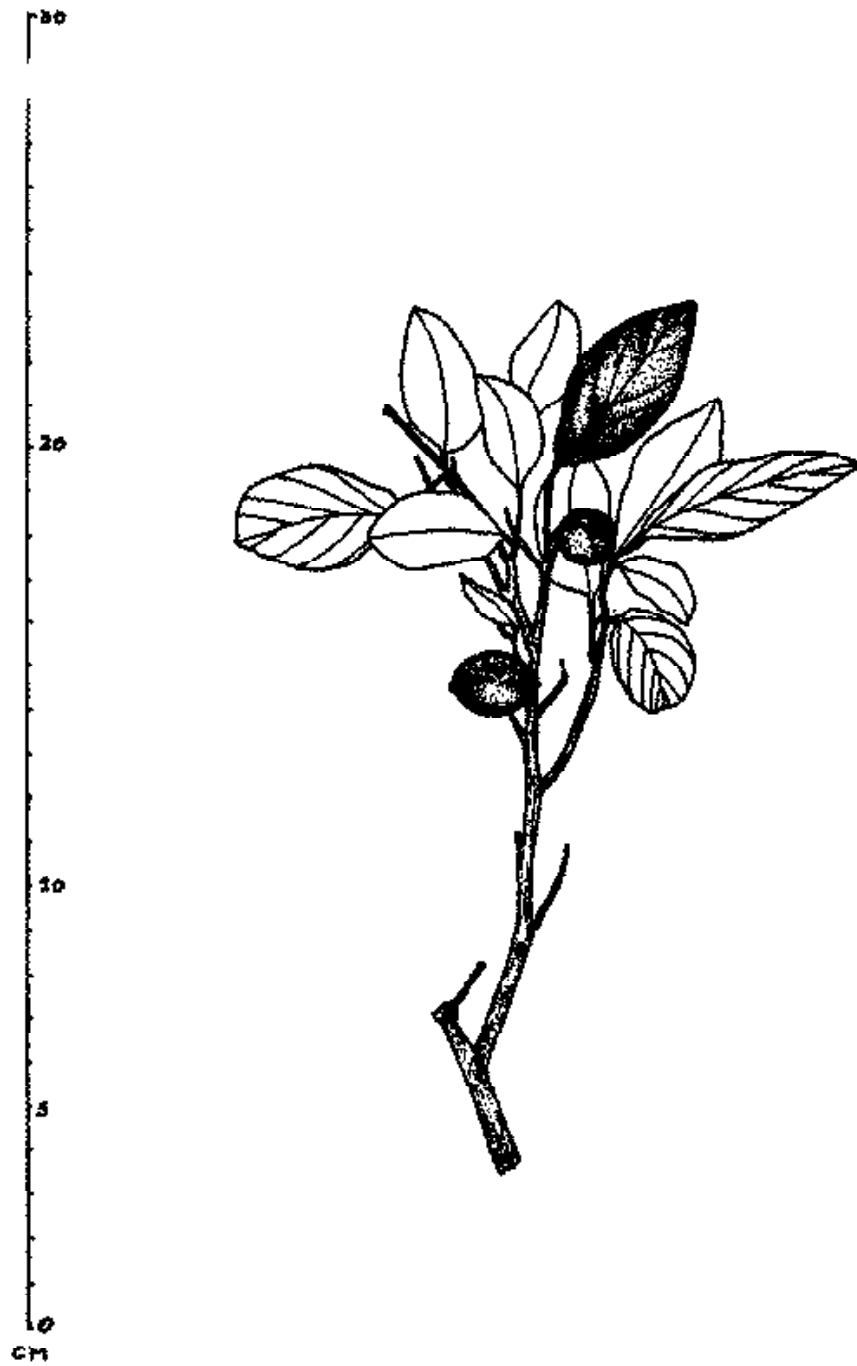
Notes : Common weed of cultivated fields.

ALANGIACEAE

ALANGIUM Lamk. *nom. cons.*

Alangium salvifolium (L.f.) Wang. in Engl. Pflanzenr. IV. 22ob. 41: 9, f. 2A–E. 1910. *Grewia salvifolia* L. f. Suppl. 409. 1781. *Alangium lamarchii* Thw. Enum. 133. 1859; C.B.Cl. in Hook. f. Fl. Brit. India 2: 741. 1879, *p.p.*; Cooke, Fl. Pres. Bombay 2: 1. 1958 (Repr. ed.); Matthew in Fasc. Fl. India 19: 4 1988. '*Katya-akul*'.

Large shrubs or small trees, 3–9 m tall, thorny. Leaves simple, elliptic-oblong, elliptic-lanceolate or oblong-lanceolate, 2.7–12.2 x 1.5–4.9 cm, glossy above, membranous, glabrescent or puberulous below. Flowers greenish-white, fascicled, axillary or on old wood. Berries globular, glabrous, crowned with persistent calyx-limb.



Alangium salvifolium (L.f.) Wang.
Dominant species of Lonar Lake.

Fls. & Frts. : February –June.

Distrib. : Lonar lake valley.

Notes : Rare in the region but locally abundant. One of the dominant species of the Lonar lake valley; elsewhere not seen.

RUBIACEAE

1. Plants armed :

- | | | |
|-------------------------------|-----|-------------|
| 2. Fruit a berry, 1–2 seeded | .. | CANTHIUM |
| 2. Fruit a drupe, many seeded | ... | CATUNAREGAM |

1. Plants unarmed :

3. Flowers in globose heads :

- | | | |
|--|-----|-----------|
| 4. Flowers cream-coloured; fruits capsular | ... | MITRAGYNA |
| 4. Flowers white; fruits syncarps | ... | MORINDA |

3. Flowers not in globose heads :

5. Ovules more than 2 in each locule :

- | | | |
|--|-----|----------|
| 6. Creeping or prostrate herbs | ... | DENTELLA |
| 6. Erect or diffuse herbs : | | |
| 7. Seeds few, plano-convex or globose | ... | NEANOTIS |
| 7. Seeds numerous, angular or subglobose | ... | HEDYOTIS |

5. Ovules solitary in each locule :

8. Trees or shrubs :

- | | | |
|--|-----|---------|
| 9. Flowers in helicoid cymes | ... | HAMELIA |
| 9. Flowers not as above, in corymbose clusters : | | |

- | | | |
|---------------------------------------|-----|-------|
| 10. Ovaries 2-locular; fruits berries | ... | IXORA |
|---------------------------------------|-----|-------|

- | | | |
|--|-----|---------------|
| 10. Ovaries 3–5-locular ;
fruits capsules | ... | SPERMADICTION |
|--|-----|---------------|

- | | | |
|------------|-----|------------|
| 8. Herbs ; | ... | SPERMACOCE |
|------------|-----|------------|

SPERMACOCE L.

- | | | |
|-----------------------------------|-----|-------------------|
| 1. Procumbent herbs; flowers blue | ... | <i>S. hispida</i> |
| 1. Erect herbs; flowers white | ... | <i>S. pusilla</i> |

Spermacoce hispida L. Sp. Pl. 102. 1753; Hook. f. Fl. Brit. India 3: 200. 1881; Cooke, Fl. Pres. Bombay 2: 53. 1958 (Repr. ed.). *Borreria articularis* (L.f.) F.N. Will in Bull. & Herb. Boiss. Ser. 2, 5: 956. 1905. *B. hispida* (L.) K. Schum. in Pflanzen. 4, 4: 144. 1891, *non* Spruce ex K. Schum. 1888.

Prostrate or procumbent, hispid, annual herbs; stem 10–30 cm. Leaves oblong-elliptic to lanceolate, 2–4.4 x 0.5–1.7 cm; stipules cupular, bristly. Flowers pale blue, or whitish-purple in axillary whorls. Capsules oblong-ellipsoid, 0.4–0.5 x 0.2 cm, hairy. Seeds brown.

Fls. & Frts. : September–December.

Distrib. : Raipur near Jalgaon Jamod.

Notes : Occasional along roadsides and cultivated fields.

S. pusilla Wall. in Roxb. Fl. India 1:379. 1820. *Borreria stricta* auct. mult. *non* (L.f.) K. Schum. in Engl. & Prantl, Pflanzen. 4, 4: 143. 1891, *non* Key 1818. *B. pusilla* (Wall.) DC Prodr. 4: 543. 1830; Gandhi in Sald. & Nicols. Fl. Hassan Dt. 574. 1976; Hemadri in Indian Forester 106: 702. 1980. *Spermacoce stricta non* L.f., 1781; Hook. f. Fl. Brit. India 3: 200. 1881; Cooke, Fl. Pres. Bombay 2: 52. 1958 (Repr. ed.).

Erect, scabrid, annual herbs, 10–40 cm tall. Leaves whorled, linear-lanceolate or lanceolate, 2–5 x 0.5–1 cm, glabrous or scabrid; stipules membranous, bristly. Flowers white, in whorls or in globose heads; calyx linear; corolla campanulate. Capsules ovoid, 0.2–0.3 cm, hairy in the upper half. Seeds black.

Fls. & Frts. : August–November.

Distrib. : Deulgaon Raja, Sindkhed Raja.

Notes : Common along cultivated fields and in grasslands.

CANTHIUM Lamk.

Canthium parviflorum Lamk. Encycl. Meth. 1 : 602. 1785; Hook. f. Fl. Brit. India 3 : 136. 1880. *Plectronia parviflora* Bedd. For. Man. in Fl. Sylv. CXXXIV-5. 1874; Cooke, Fl. Pres. Bombay 2: 35. 1958 (Repr. ed.).

Armed, stout shrubs, 1-2 m tall, profusely branched; spines straight. Leaves elliptic-ovate or orbicular, 1.5-3.5 x 1.2-4 cm. Flowers white, 4-merous, in axillary, peduncled cymes. Fruits globose or oblong-ellipsoid, 0.8-1.4 x 0.6-1.1 cm, yellowish when ripe.

Fls. & Frts. : April-July.

Distrib. : Lonar lake.

Notes : Common on the hill slopes.

CATUNAREGAM Wolf.

Catunaregam spinosa (Thunb.) Tirveng. in Taxon 27: 515. 1978 & in Bull. Mus. Natn. Hist. Paris 3e no. 521, Bot. 35 : 13. 1978. *Gardenia spinosa* Thunb. Diss. Gard. no. 7. 1780. *Randia dumetorum* (Retz.) Poir. in Lamk. Encycl. Suppl. 2: 829. 1811; Hook. f. Fl. Brit. India 3: 110. 1880, *p.p.*; Cooke, Fl. Pres. Bombay 2: 27. 1958 (Repr. ed.). *Xeromphis spinosa* (Thunb.) Keay in Bull. Jard. Bot. Etat. 28: 37. 1958; Maheshwari in Bull. Bot. Surv. India 3: 91. 1961.

Large shrubs or small trees, 4-6 m tall, armed with spines. Leaves obovate, 2.5-7.5 x 0.7-4 cm, fascicled on the suppressed branches. Flowers white, turning yellow, solitary or 2-3 together. Fruits globose, slightly longer than broad, 2-3 cm across, obscurely ribbed, yellowish.

Fls. & Frts. : July-December.

Illus. : Witth, Ic. t. 580. 1842; Talbot, For. Fl. Bombay Pres. & Sind 2: t. 341. 1909.

Distrib. : Lonar lake.

Notes : Frequent in edges of forests.

DENTELLA Forst. et Forst.

Dentella repens (L.) J.R. & G. Forst. Char. Gen. 26. t. 13. 1776; Hook. f. Fl. Brit. India 3: 42. 1880; Cooke, Fl. Pres. Bombay 2: 12. 1958 (Repr. ed.); Subram. & Sharma in Bull. Bot. Surv. India 10: 386 (1968) 1969. *Oldenlandia repens* L. Mant. Pl. 40. 1767.

Much branched, prostrate, annual herbs, rooting at nodes. Leaves lanceolate and spatulate, 0.4–0.6 x 0.1–0.2 cm, subsessile, fleshy. Flowers white, axillary, solitary, 0.1 cm across. Capsules globose, densely villous, 0.35 cm across, indehiscent.

Fls. & Frts. : August–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 330. 1982.

Distrib. : Nalgangapur, Rajura lake area, Toradi lake.

Notes : Common in moist areas like ponds, streams, riverbeds etc.

HAMELIA Jacq.

Hamelia patens Jacq. Enum. Syst. Pl. 16. 1760; Cooke, Fl. Pres. Bombay 2: 55. 1958. (Repr. ed.); Bor & Raiz. in Beautif. Ind. Clim. Shrubs. 96. 1954.

Shrubs, 1–3 cm tall. Leaves decussate to whorled, oblanceolate to obovate, 5.5–8.4 x 2.3 cm. Flowers scarlet, in terminal corymbose-cymes. Berries crowned by the discs.

Fls. & Frts. : Throughout the year.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 334. 1982.

Distrib. : Ayla killa.

Notes : Planted in the gardens, also found as an escape.

HEDYOTIS L.

- | | | |
|-------------------------------|-----|---------------------|
| 1. Capsules top flat | ... | <i>H. corymbosa</i> |
| 1. Capsules protruding at top | ... | <i>H. herbacea</i> |

Hedyotis corymbosa (L.) Lamk. Tab. Encycl. 1: 272. 1791; Rao et Hemadri in Indian For. 99 (6): 372. 1973. *Oldenlandia corymbosa* L. Sp. Pl. 119. 1753; Hook. f. Fl. Brit. India 3: 64. 1880; Cooke, Fl. Pres. Bombay 2: 15. 1958 (Repr. ed.).

Spreading or ascending or erect herbs, 10–30 cm tall. Leaves linear-lanceolate, 2–4.4 x 0.1–0.4 cm. Flowers white, in axillary pairs or 3–4 sometimes. Capsules globose, didymous, ca 0.2 cm across, somewhat compressed.

Fls. & Frts. : September–December.

Illus. : Maheshwari, Illus. Fl. Delhi t. 96. 1966.

Distrib. : Dongar shewli, Gandhali forest area near Loni.

Notes : Common weed along cultivated fields.

H. herbacea L. Sp. Pl. 102. 1753; Backer & Bakhuizen, Fl. Java 2: 286. 1965; Rao & Hemadri in Indian For. 99 (6): 372. 1973. *Oldenlandia herbacea* (L.) Roxb. Fl. Ind. 1: 424. 1820; Cooke, Fl. Pres. Bombay 2: 16. 1958 (Repr. ed.). *O. heynei* G. Don, Gen. Syst. 3: 531. 1834; Hook. f. Fl. Brit. India 3: 65. 1880.

Erect, slender, annual herbs, 10–30 cm tall, much branched, drying black. Leaves linear or linear-lanceolate, 1–3 x 0.1–0.3 cm. Flowers white or pinkish at the tip, axillary, solitary or 2–4 together; peducles slender. Capsules globose, 0.2–0.3 cm across, didymous.

Fls. & Frts. : July–December.

Distrib. : Ambabarwa valley.

Notes : Common on hill slopes and around cultivated fields.

IXORA L.

- | | | |
|--|-----|---------------------|
| 1. Flowers red or scarlet | ... | <i>I. coccinea</i> |
| 1. Flowers white : | | |
| 2. Flower-buds globose, corolla tube 0.4–0.5 cm long | ... | <i>I. brachiata</i> |
| 2. Flower-buds ellipsoid, corolla tube 0.8–1.2 cm long | ... | <i>I. arborea</i> |

Ixora arborea Roxb. ex Smith in Rees, Cycl. 19: 5. 1811. *I. parviflora* Vahl, Symb. Bot. 3: 11, t. 52. 1794, *non* Lamk. 1791; Hook f. Fl. Brit. India 3: 142. 1880; Cooke, Fl. Pres. Bombay 2: 39. 1958 (Repr. ed.). '*Lokhandi*'.

Shrubs or small trees, 2–3 m tall; bark brown, branches angled. Leaves opposite or in whorls, oblong or elliptic, 7.2–14.2 x 3.2–5.2 cm, coriaceous, glabrous; stipules ovate, cuspidate odorous. Flowers white, in terminal corymbose-cymes. Fruits globose, 0.6–0.7 cm across, didymous, black when mature.

Fls. & Frts. : January–June.

Illus. : Wight, Ic. t. 711. 1843; Talbot, For. Fl. Bombay Pres. & Sind 2: t. 350. 1911.

Distrib. : Borkhedi forests.

Notes : Common on hillocks near streams and forest lakes.

I. brachiata Roxb. Fl. Ind. 1: 391. 1820; Hook. f. Fl. Brit. India 3: 142. 1880; Cooke, Fl. Pres. Bombay 2: 39. 1958 (Repr. ed.).

Small trees, 4–6 m tall; bark smooth, grey. Leaves opposite, elliptic-oblong, 5–12.8 x 2.5–5.9 cm, glabrous; stipules ovate, cuspidate. Flowers white, odorous, in terminal, paniculate-cymes. Fruits globose, didymous, 0.4–0.8 cm across, dark purple when ripe.

Fls. & Frts. : February–June.

Illus. : Wight, Ic. t. 710. 1843.

Distrib. : Borkhedi forests.

Notes : Frequent on the hill slopes of the forests.

I. coccinea L. Sp. 110. 1753; Hook. f. Fl. Brit. India 3: 145. 1880; Cooke, Fl. pres. Bombay 2: 40. 1958 (Repr. ed.).

Glabrous undershrubs, 0.5–1.5 m tall. Leaves oblong, 5–10.6 x 3–5.8 cm, coriaceous, pale when dry. Flowers red or bright scarlet in terminal, subsessile corymb-like cymes; corolla-tube more than 3 cm long. Fruits globose, 0.5–0.6 cm across, purple when ripe.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Ic. t. 153. 1839.

Distrib. : Forest Nursery, Jalgaon Jamod, Buldhana.

Notes : Planted in gardens, also found as an escape.

MITRAGYNA Korth. *nom. cons.*

Mitragyna parvifolia (Roxb.) Korth. Obs. Naocl. Ind. 19. 1839; Cooke, Fl. Pres. Bombay 2: 8. 1958 (Repr. ed.); Ridsdale in Blumea 24: 63. 1978. *Nauclea parvifolia* Roxb. Pl. Cor. 1: 40, t. 52. 1795. *Stephegyne parvifolia* Korth. Verh. Nat. Ges. Bot. 161. 1840, *p.p.*; Hook. f. Fl. Brit. India 3: 25. 1880. 'Kalam', 'Kalamb'.

Large, deciduous trees, 5–8 m tall; bark whitish–grey. Leaves elliptic, obovate or suborbicular, 7–12 x 4–9 cm; stipules oblong, 0.8–1.0 cm long. Flowers greenish–yellow, in terminal 1.5–2.0 cm across heads. Capsules 0.2–0.3 cm long, distinctly ribbed.

Fls. & Frts. : July–December.

Illus. : Maheshwari, Illus. Fl. Delhi t. 97. 1966.

Distrib. : Borala near Warwand, Chinchpani forests, Dongar Khandala, Mardadi temple area.

Notes : Common in all forest ranges of the district.

MORINDA L.

Morinda pubescens Smith in Rees, Cycl. 24 n. 3. 1813; Verdc. in Kew Bull. 37: 543. 1983. *M. tinctoria* Roxb. var. *tomentosa* Hook. f. Fl. Brit. India 3: 165. 1880; Cooke, Fl. Pres. Bombay 2: 43. 1958 (Repr. ed.).

Large shrubs or small trees, 2–4 m tall; bark corky, grey. Leaves elliptic–oblong, obovate–oblong or oblong–lanceolate, 5–15 x 2–10 cm, tomentose beneath; stipules bifid. Flowers white, in dense, globose, peduncled heads, from axils of the leaves. Fruits globose or ellipsoid or irregularly globose, 2–3 cm across, fleshy.

Fls. & Frts. : June–September.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: t. 336. 1911.

Distrib. : Aampani forests, Botha forests, Lonar lake, Sindkhed Raja, Sutala near Khamgaon.

Notes : Common along lower hill slopes near streams.

NEANOTIS W. H. Lewis (*Anotis auct. non* DC.)

Neanotis hohenackeri Daniel & Vajr. in J. Econ. Tax. Bot. 3: 675. 1982. *Hedyotis foetida* Dalz. in Hook. Kew. J. 2: 134. 1850, *non* (Forst. f.) Spr. 1815. *Anotis foetida* (Dalz.) Hook. f. Fl. Brit. India 3: 74. 1880; Cooke Fl. Pres. Bombay 2: 22. 1958. (Repr. ed.). *Neanotis foetida* (Dalz.) W.H. Lewis in Ann. Missouri Bot. Gard. 53: 38. 1966, *nom. illegit.*

Erect or suberect, annual excessively branched herbs, 30–40 cm tall, branches angled. Leaves narrowly linear or linear-lanceolate, sessile, 1–2.8 x 0.1–0.5 cm. Flowers purple or pink in terminal cymes. Capsules globose, didymous, 0.2–0.3 cm across, 2-loculed, sessile.

Fls. & Frts. : August–December.

Distrib. : Lonar lake.

Notes : Common among grasses.

SPERMADICTYON Roxb.

Spermadictyon suaveolens Roxb. Pl. Cor. 3: 32. t. 236. 1815; Sant. & Merch. in Bull. Bot. Surv. India 3: 110. (1961) 1962. *Hamiltonia suaveolens* Roxb. Fl. Ind. 1: 554. 1832; Hook. f. Fl. Brit. India 3: 197. 1880; Cooke, Fl. Pres. Bombay 2: 51. 1958 (Repr. ed.).

Woody, bushy shrubs, 1–2 m tall; branches dichotomous, green. Leaves ovate or ovate-lanceolate, 3–10 x 2–5 cm, tomentose beneath. Flowers white or pale blue, terminal, trichotomous panicles in subglobose cymes. Capsules ellipsoid, 0.5 x 0.2 cm, 3 valved.

Fls. & Frts. : October–December.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: t. 364. 1911.

Distrib. : Gaumal forests.

Notes : Frequent on forest slopes.

ASTERACEAE

1. Florets all ligulate :
 2. Achenes columnar ; heads cylindric ... LAUNABA
 2. Achenes ovoid or obovoid;
heads ovoid or companulate ... SONCHUS
1. Florets all tubular or at least disc florets tabular :
 3. Fruits spinous :
 4. Achenes stellately arranged ... ACANTHOSPERMUM
 4. Achenes not as above, 2—enclosed in
spinescent fruit-case ... XANTHIUM
 3. Fruits not spinous :
 5. Heads with spinous tipped involucral bracts:
 6. Leaves spinous; florets white ... ECHINOPS
 6. Leaves not as above; florets bluish :
 7. Heads homogamous; achenes
smooth or faintly ribbed ... TRICHOLEPIS
 7. Heads heterogramous; achenes
strongly ribbed ... OLIGOCHAETA
 5. Heads not with spinous tipped bracts :
 8. Florets of two colours ... TRIDAX
 8. Florets of one colour :
 9. Florets white, bluish—white,
greenish—white or creamy—white :
 10. Heads 1— 2 flowered,
arranged in large clusters :
 11. Clusters of heads axillary ... CAESULIA
 11. Clusters of heads terminal ... LAGASCEA

10. Heads few to many flowered :
12. Heads heterogamous; outer florets ligulate, central tubular :
13. Leaves alternate, deeply lobed ... PARTHENIUM
13. Leaves opposite, entire :
14. Pappus of 2-5 hairs :
15. Achenes dimorphic
2-5 awned ... BLAINVILLEA
15. Achenes all alike,
awnless or shortely
1-awned ... ZINNIA
14. Pappus absent ... ECLIPTA
12. Heads homogamous; florets all tubular ... AGERATUM
9. Florets blue, purple, violet or brownish-red:
16. Heads homogamous :
17. Anthers tailed :
18. Leaves gland-dotted beneath;
achenes not ribbed ... EUPATORIUM
18. Leaves not gland-dotted
beneath; achenes ribbed ... GONIOCAULON
17. Anthers not tailed :
19. Leaves only cauline ... VERNONIA
19. Leaves both radical and
cauline ... EMILIA
16. Heads heterogamous :
20. Leaves pinnatifid; pappus
absent ... CYATHOCLINE
20. Leaves entire; pappus copious ... BIDENS
9. Flowers yellow, orange-yellow or brownish-yellow :
21. Leaves variously lobed, at times compound :

- | | | |
|---|-----|--------------|
| 22. Leaves alternate; leaf segments filiform | ... | GLOSSOCORDIA |
| 22. Leaves opposite; leaf segments not filiform | ... | BIDENS |
| 21. Leaves simple, undivided : | | |
| 23. Leaves lower or all opposite : | | |
| 24. Heads axillary, sessile | ... | FLAVERIA |
| 24. Heads terminal, if axillary not sessile | ... | GUIZOTIA |
| 23. Leaves alternate : | | |
| 25. Pappus absent or if present, minute, cupular : | | |
| 26. Pappus absent; heads nearly sessile; achenes 4-angled | ... | SCLEROCARPUS |
| 26. Pappus cupular; heads stalked; achenes flat or subterete | ... | GRANGEA |
| 25. Pappus present : | | |
| 27. Pappus hairs of ray florets 0; those of disc florets many | ... | VICOA |
| 27. Pappus hairs of ray florets and disc florets many : | | |
| 28. Ray florets ligulate, large | ... | PULICARIA |
| 28. Ray florets, filiform, large | ... | GNAPHALIUM |

ACANTHOSPERMUM Schrank.

Acanthospermum hispidum DC. Prodr. 5: 522. 1836.

Erect, hispid, annual herbs, 10–50 cm tall. Leaves obovate, narrowed at base, 4–10 x 3–6 cm. Heads yellow, axillary, solitary. Achenes 5, stellately arranged, prickly all over.

Fls. & Frts. : September–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 350. 1982.

Distrib. : Ambabarwa tribal village.

Notes : Frequent in open fields and on waste lands.

AGERATUM L.

***Ageratum conyzoides* L.** Sp. Pl. 838. 1753; Hook. f. *Fl. Brit. India* 3: 243. 1881; Cooke, *Fl. Pres. Bombay* 2: 70. 1958 (Repr. ed.); Naithani in Hajra *et al.* *Fasc. Fl. India* 12: 222. 1995.

Erect, hairy, annual herbs, 20–40 cm tall; stems hairy at nodes when young. Leaves ovate, 1.5–2.7 x 1–1.5 cm, hairy on both the sides. Heads white or bluish, in terminal corymbs. Achenes sharply angled, scabridly hairy along angles; pappus paleaceous, awned or aristate.

Fls. & Frts. : July–November.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 352. 1982.

Distrib. : Buldhana, Toradi nala.

Notes : Common weed on roadsides and in cultivated fields.

BIDENS L.

***Bidens biternata* (Lour.) Merr. & Sherff ex Sherff** in *Bot. Gaz.* 88: 283. 1929; Sant. in *Bull. Bot. Surv. India* 3: 12. (1961) 1962; Naithani in Hajra *et al.* *Fasc. Fl. India* 12: 367. 1995. *Coreopsis biternata* Lour. *Fl. Cochinch.* 508. 1790. *Bidens pilosa* auct. non L. 1753; Hook. f. *Fl. Brit. India* 3: 309. 1881; Cooke, *Fl. Pres. Bombay* 2: 101. 1958 (Repr. ed.).

Erect, annual herbs, 25–75 cm tall; stems grooved. Leaves pinnately compound; leaflets variable in size, ultimate ones ovate, acute. Heads yellow, leaf-opposed, 1–1.3 cm across. Achenes linear, 1.2–1.5 cm long; pappus hispid, bristly.

Fls. & Frts. : September–December.

Distrib. : Lonar lake.

Notes : Frequent in cultivated fields.

BLAINVILLEA Cass.

Blainvillea acmella (L.) Philipson in *Blumea* 6: 350. 1950. *Verbesina acmella* L. Sp. Pl. 901. 1753. Naithani in Hajra *et al.* Fasc. Fl. India 12: 381. 1995. *Blainvillea latifolia* (L.f.) DC. in Wight, Contrib. Bot. Ind. 17. 1834; Hook. f. Fl. Brit. India 3: 305. 1881. *B. rhomboidea* Cass. Dic. Sci. Nat. 29: 494. 1823; Cooke, Fl. Pres. Bombay 2: 97. 1958 (Repr. ed.).

Erect, hispid, annual herbs, 30–60 cm tall. Leaves ovate, ovate-lanceolate or ovate-rhomboid, 4–12 x 3–6 cm, hispid. Heads yellow or white, 1–1.2 cm across, in terminal cymes. Achenes trigonous in female florets, and compressed in bisexual florets, 0.5–1 cm, hispidulous near the top; pappus absent or of 2–5 bristles or scales.

Fls. & Frts. : August–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 356. 1982.

Distrib. : Udhera tank near Sindkhed Raja.

Notes : Common on hill slopes.

BLUMEA DC. *nom. cons.*

1. Heads few :

- | | | |
|--|-----|---------------------|
| 2. Heads solitary, peduncled at the ends of branches | ... | <i>B. bifoliata</i> |
| 2. Heads in axillary and terminal corymbs | ... | <i>B. eriantha</i> |

1. Heads many :

- | | | |
|--|-----|--------------------------|
| 3. Heads arranged in spiciform cymes or panicles | ... | <i>B. solidaginoides</i> |
| 3. Heads in peduncled open corymbs | ... | <i>B. membranacea</i> |

Blumea bifoliata (L.) DC. in Wight, Contrib. Bot. India 14. 1834; Hook. f. Fl. Brit. India 3: 261. 1881; Cooke, Fl. Pres. Bombay 2: 75. 1958 (Repr. ed.); Randeria in *Blumea* 10: 288. 1960; Kumar & Pant in Hajra *et al.* Fasc. Fl. India 13: 120. 1995.

Erect, or decumbent herbs, 20–40 cm tall, hairy. Leaves elliptic-oblong to oblanceolate, 2–4 x 0.5–1 cm, tomentose. Heads yellow, axillary, solitary, 1–1.2 cm across. Achenes minute, hairy.

Fls. & Frts. : September–December.

Distrib. : Lonar lake valley.

Notes : Occasional on hill slopes.

B. eriantha DC. in Wight, Contrib. Bot. India 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; Pant in Hajra *et al.* Fasc. Fl. India 13: 122. 1995.

Erect, annual herbs, 30–90 cm tall. Leaves; lower leaves obovate; upper leaves elliptic-oblong, 2–6.8 x 1–2 cm, silky hairy. Heads yellow, on weak branches, 0.5–0.7 cm across. Achenes ca 0.1 cm long, angled; pappus white, longer than achenes.

Fls. & Frts. : January – June.

Distrib. : Aampani forests.

Notes : Frequent on hill tops and slopes.

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; Kumar & Pant in Hajra *et al.* Fasc. Fl. India 13: 134. 1995.

Erect, annual, aromatic herbs, 20–90 cm tall; stem grooved, glabrous. Leaves obovate-lanceolate in outline, often lyrate and dissected, lower ones 5.8 x 1.5 and upper ones 1.5 x 0.6 cm, membranous. Heads yellow, numerous, in open panicles, 0.4–0.6 cm across. Achenes 0.1 cm long, ribbed and hairy; pappus white, 0.3–0.4 cm long.

Fls. & Frts. : January–April.

Distrib. : Buldhana–Ajantja Road, 3rd km stone.

Notes : Common at foot hills around villages.

B. solidaginoides (Poir.) DC. Prodr. 5: 443. 1836. *Gnaphalium solidaginoides* Poir. Encycl. Bot. Suppl. 2: 805. 1811. *Blumea mollis* (D. Don) Merr. in Philip. J. Sci. Bot. 5: 395. 1910; *Randeria* in *Blumea* 10: 261. 1960; Kumar & Pant in Hajra *et al.* Fasc. Fl. India 13: 135. 1995. *Erigeron molle* D. Don, Prodr. Fl. Nepal 172. 1825. *Blumea 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, thinly glandular-pubescent, 30–60 cm tall. Leaves elliptic, elliptic-lanceolate or obovate, 3–10 x 1.5–5 cm, membranous. Heads purple, 0.4–0.5 cm across in spiciform panicles. Achenes elliptic-obovate, 4–5 angled.

Fls. & Frts. : January–April.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 357. 1982.

Distrib. : Buldhana–Raipur Road.

Notes : Common along cultivated fields and roadsides.

CAESULIA Roxb.

Caesulia axillaris Roxb. Pl. Cor. 1 : 64, t. 93. 1795; Hook. f. Fl. Brit. India 3: 291. 1881; Cooke, Fl. Pres. Bombay 2: 92. 1958 (Repr. ed.); Kumar & Pant in Hajra *et al.* Fasc. Fl. India 13: 3. 1995.

Fleshy, erect, glabrous. annual herbs, 30–80 cm tall. Leaves linear-lanceolate 5–12 x 1–2 cm. Heads white or pale blue, globose, 3–4 together in a compound heads, ca 0.1 cm across. Achenes flat, obovate, 0.2–0.3 cm across.

Fls. & Frts. : October–January.

Illus. : Wight, Ic. t. 1102, 1846.

Distrib. : Udhera tank, Sindkhed Raja.

Notes : Common weed in moist areas.

CYATHOCLINE Cass.

Cyathocline purpurea (D. Don) O. Ktze. Rev. Gen. Pl. 338. 1891. *Tanacetum purpureum* Buch.-Ham. ex D. Don, Prodr. Fl. Nepal 181. 1825; Hook. f. Fl. Brit. India 3: 246. 1881; Cooke, Fl. Pres. Bombay 2: 71. 1958 (Repr. ed.).

Erect, aromatic, annual, fleshy herbs, 20–40 cm tall; branched from base. Leaves oblanceolate in outline, 6–12 x 2.4 cm, lyrate or variously irregularly lobed. Heads purple, rounded, 0.3–0.4 cm across in terminal corymbose-panicles. Achenes minute, oblong-ellipsoid, shining and smooth.

Fls. & Frts. : November–March.

Illus. : Wight, Ic. t. 1140. 1846.

Distrib. : Aampani forests, Hajampani forests.

ECHINOPS L.

Echinops echinatus Roxb. Fl. Ind. 3: 447. 1832; Hook. f. Fl. Brit. India 3: 358. 1881; Cooke, Fl. Pres. Bombay 2: 112. 1958 (Repr. ed.).

Cottony woolly, erect, annual herbs, 10–30 cm tall. Leaves lyrate-sinuate with spinous-tipped lobes, 2–10 cm long. Heads, solitary, white, 0.3–0.4 cm across, spinous. Achenes obconical, 0.3–0.4 cm long, villous; pappus short, yellow, forming a short cylndric brush above achenes.

Fls. & Frts. : October–March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 364. 1982.

Distrib. : Both a forest road, Yelgaon village, near Buldhana.

Notes : Common along roadsides and on waste lands.

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 prostrata* (L.) L. Mant. 2: 286. 1771; Sant. in J. Bombay Nat. Hist. Soc. 54: 476. 1957; Naithani in Hajra *et al.* Fasc. Fl. India 12 : 391. 1995. *Verbesina prostrata* L. Sp. Pl. 902. 1753. *Eclipta erecta* L. Mant. 2: 286. 1771; Cooke, Fl. Pres. Bombay 2 : 95. 1958 (Repr. ed.) 'Maka'.

Erect or prostrate herbs, often rooting at nodes. Leaves oblong-lanceolate or oblong-elliptic, 7–9 x 0.8–1 cm, strigose. Heads white, axillary peduncled, 0.7–1.2 cm across. Achenes cuneate, 0.2 cm long, glabrous; pappus inconspicuous.

Fls. & Frts. : Throughout the year.

Illus. : Tadulingam & Venkatanarayana, Hand. S. Indian Weeds t. 92. 1955 (Repr. ed.).

Distrib. : Bibi near Sultanpur, Buldhana, Gandhali forests near Loni, Toradi forests lake.

Notes. : Common weed of cultivated fields and muddy places.

EMILIA Cass.

Emilia sonchifolia (L.) DC. ex Wight, Contrib. Bot. Ind. 24. 1834; Hook; f. Fl. Brit. India 3: 336. 1881; Cooke, Fl. Pres. Bombay 2: 107. 1958 (Repr. ed.); Kumar & Pant in Hajra *et al.* Fasc. Fl. India 13: 212. 1995. *Cacalia sonchifolia* L. Sp. Pl. 835. 1753.

Erect, weak herbs, 15–30 cm tall. Leaves radical and cauline, 2–7 x 0.5–2 cm; lower petioled, lyrate-pinnatifid. Heads pink-purple, cylindrical, few in terminal corymbs. Achenes 0.2–0.3 cm long, scabrid along ribs; pappus copious, white 0.5–0.7 cm long.

Fls. & Frts. : August–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 367. 1982.

Distrib. : Ambabarwa tribal fields.

Notes : Common weed of waste lands and cultivated fields.

EUPATORIUM L.

Eupatorium triplinerve Vahl, Symb. Bot. 3: 97. 1794; Cooke, Fl. Pres. Bombay 2: 123. 1958 (Repr. ed.); Naithani in Hajra *et al.* Fasc. Fl. India 12: 356. 1995.

Erect, much branched, annual herbs, 20–10 cm tall. Leaves lanceolate, 3–5.5 x 0.5–1.5 cm. Heads purple, in corymbs, at the ends of branches. Achenes oblong to oblanceolate, 0.4–0.5 cm long, 4-ribbed.

Fls. & Frts. : Throughout the year.

Distrib. : Buldhana.

Notes : Grown as hedge plant in gardens.

FLAVERIA A. Juss.

Flaveria trinervia (Spr.) C. Mohr. in Contrib. U. S. Natl. Herb. 6: 810. 1901; Powell in Ann. Missouri Bot. Gard. 65: 628. 1928. *Oedera trinervia* Spr. Bot. Gard. Halle 63. 1800. *Flaveria contrayerba* auct. non Pers. 1807; Cooke, Fl. Pres. Bombay 2: 125. 1958 (Repr. ed.).

Erect, annual herbs, 10–50 cm tall. Leaves elliptic-lanceolate, 1.5–2.2 x 0.2–0.3 cm. Heads yellow, axillary, with leafy involucre, 0.6–1.2 cm across. Achenes flat, 0.2–0.3 long, ribbed; pappus absent.

Fls. & Frts. : June–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 370. 1982.

Distrib. : Buldhana, Hatni, Mehkar, Pimpalgaon.

Notes : Common weed along roadsides and cultivated fields.

GLOSSOCARDIA Cass.

Glossocardia bosvallea (L.f.) DC. in Wight, Contrib. Bot. Ind. 19. 1834. *Verbesina bosvallea* L. f. Suppl. 379. 1781. *Glossocardia linearifolia* Cass. in Dict. Sci. Nat. 19: 62. 1821; Hook. f. Fl. Brit. India 3: 308. 1881; Cooke, Fl. Pres. Bombay 2: 100. 1958 (Repr. ed.); Naithan in Hajra *et al.* Fasc. Fl. India 12: 391. 1995. 'Khadak shepu'.

Prostrate or erect, small, annual herbs, 10–20 cm tall, profusely branched. Leaves pinnatisect, segments linear, 1.5–3 cm long. Heads yellow, ellipsoid, 0.6–1 cm long. Achenes oblong, flat, 0.6–0.8 cm long, villous on the angles; pappus awns glabrous or setose.

Fls. & Frts. : August–October.

Illus. : Maheshwari, *Illus.* Fl. Delhi t. 109. 1966.

Distrib. : Deulgaon Raja, Loni Budruk.

Notes : Common on rocky soil amidst grasses.

GNAPHALIUM L.

Gnaphalium polycaulon Pers. Syn. Pl. 2: 421. 1807; Grierson in Notes Roy. Bot. Gard. Edinb. 31: 137. 1972; Rao & Jain in Indian Forester 105: 567. 1979; Kumar & Pant in Harjra *et al.* Fasc. Fl. India 13: 1995. *G. indicum auct. non* L. 1753; Hook. f. Fl. Brit. India 3: 289. 1881; Cooke, Fl. Pres. Bombay 2: 87. 1958 (Repr. ed.).

Prostrate or suberect, annual herbs, 10–20 cm tall, densely white-tomentose. Leaves linear, obovate or spatulate, 1–3 x 0.3–1.2 cm, densely woolly below. Heads yellowish, 0.2–0.3 cm across, in terminal spicate leafy clusters. Achenes minute, elliptic-oblong, papillose.

Fls. & Frts. : December–March.

Illus. : Matthew, *Illus.* Fl. Tamilnadu Carnatic t. 375. 1982.

Distrib. : Nalgangapur project area, Rajura lake area, Toradi forest lake.

Notes : Very common along clayey river beds in dense mats.

GONIOCAULON Cass.

Goniocaulon indicum (Klein ex Willd.) C. B. Cl. Comp. Ind. 236. 1876; C. Jeffrey in Kew Bull. 22: 134. 1958; Shah & Yogi in J. Bombay Nat. Hist. Soc. 69: 446. 1972. *Serratula indica* Klein ex Willd. Sp. Pl. 3: 1642. 1803. *Goniocaulon glabrum* Cass. in Bull. Soc. Phlom. 1817: 34. 1817; Hook. f. Fl. Brit. India 3: 377. 1881; Cooke, Fl. Pres. Bombay 2: 113. 1958 (Repr. ed.).

Erect, annual herbs, 30–90 cm tall. Leaves oblong-obovate or linear, 5–12 x 1–2.5 cm. Heads rose coloured, 0.2–0.3 cm long, subcylindric. Achenes 1.4–1.6 cm long, globose, closely ribbed; pappus paleaceous.

Fls. & Frts. : November–February.

Illus. : Wight, Ic. t. 479. 1841.

Distrib. : Ambabarwa tribal village fields.

Notes : Common weed in cultivated fields.

Uses : Entire plant is used as good fodder for cattle.

GRANGEA Adans.

Grangea maderaspatana (L.) Poir. in Lamk. Encycl. Suppl. 2: 825. 1812; Hook. f. Fl. India 3: 247. 1881; Cooke, Fl. Pres. Bombay 2: 72. 1958 (Repr. ed.). *Artemisia madraspatana* L. Sp. Pl. ed. 2. 1190. 1763.

Prostrate or procumbent, glandular-pubescent herbs, 20–30 cm long. Leaves oblanceolate, 1.5–9.8 x 0.5–1.5 cm, sinuately pinnatifid, lobed, pubescent. Heads bright yellow, 0.7–1.5 cm across, solitary, axillary and terminal or leaf opposed. Achenes 0.1–0.2 cm long, glandular-pubescent; pappus shortly tubular.

Fls. & Frts. : October–March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 374. 1982.

Distrib. : Nalgangapur project area.

Notes : Very common along river beds.

GUIZOTIA Cass.

Guizotia abyssinica (L.f.) Cass. in F. Cuv. Dict. Sci. Nat. 59: 248. 1829; Hook. f. Fl. Brit. India 3: 308. 1881; Cooke, Fl. Pres. Bombay 2: 125. 1958 (Repr. ed.); Purseglove in Trop. Crops, Dict. 65. 1977; Naithani in Hajra *et al.* Fasc. Fl. India 12: 395. 1995. *Polymnia abyssinica* L. f. Suppl. 383. 1781. 'Karala'.

Erect, hirsute, annual herbs, 20–90 cm tall. Leaves lanceolate, 2.5–8.5 x 0.8–2.5 cm, membranous. Heads yellow, 1.5–2.5 cm across, terminal. Achenes oblong, 0.4–0.5 cm long, faintly striate; pappus absent.

Fls. & Frts. : August–January.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 375. 1982.

Distrib. : Lonar lake, Waghadi village.

Notes : Cultivated, but sometimes found as an escape.

LAGASCEA Cav. *nom. cons.*

Lagascea mollis Cav. Anal. Cienc. Nat. 6: 332, t. 44. 1803; Hook. f. Fl. Brit. India 3: 302. 1881; Cooke, Fl. Pres. Bombay 2: 93. 1958 (Repr. ed.); Naithani in Hajra *et al.* Fasc. Fl. India 12: 396. 1995.

Erect, or ascending, much branched, perennial herbs, 20–60 cm long; stems and branches striate, tomentose. Leaves rhomboid–ovate, upper surface coarsely hairy, densely silky beneath. Heads white, 1–2 cm across. Achenes cuneate, 0.2–0.5 cm long, dorsally, compressed; pappus capious, fimbriate.

Fls. & Frts. : June–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 378. 1982.

Distrib. : Buldhana, Hiwarkheda village. Lonar lake.

Notes : Very common weed on waste lands and in cultivated fields, also along roadsides and streams.

LAUNAEA Cass.

Launaea procumbens (Roxb.) Ramayya & Rajagopal in Kew Bull. 23: 465. 1969; Naithani in Hajra *et al.* Fasc. Fl. India 12: 308. 1995. *Prenanthes procumbens* Roxb. Fl. Ind. 3: 404. 1832. *Launaea nudicaulis sensu auct. plur.* (India), *non* (L.) Hook. f. *sensu stricto* Fl. Brit. India 3: 416. 1881; Cooke, Fl. Pres. Bombay 2: 122. 1958 (Repr. ed.). 'Pathri.

Prostrate, multicauline, perennial herbs, 10–25 cm tall; stems erect or trailing. Leaves obovate-oblong or spatulate, 5–12 x 2–3 cm, pinnatifid, or pinnately lobed, glaucous beneath. Heads yellow, 1.5 cm long, in terminal, subracemose inflorescence. Achenes cylindrical 0.3–0.4 cm long; pappus copious.

Fls. & Frts. : September–March.

Illus. : Maheshwari, Illus. Fl. Delhi t. 99. 1966.

Distrib. : Ambabarwa, Lonar lake, Lavhala near Mehkar, Warwat Bakal.

Notes : Common weed along roadsides and cultivated fields.

OLIGOCHAETA C. Koch

Oligochaeta ramosa (Roxb.) Wagen. in Veroff. Geobot. Inst. Rubel 37: 323. 1962. *Cardus ramosus* Roxb. Fl. Ind. 3: 407. 1832. *Volutarella divaricata* Bth. & Hook. f. Fl. Brit. India 3: 383. 1881; Cooke, Fl. Pres. Bombay 2: 115. 1958 (Repr. ed.). *Amberboa ramosa* (Roxb.) Jeffery in Sci. 3: 29. 1959.

Diffuse or suberect herbs, 10–45 cm tall; stems much branched, nearly glabrous. Leaves obovate-oblong, 0.5–7 x 0.2–3 cm, scabrid beneath. Heads purple, solitary, terminal. Achenes obconical or cuneate, 0.4–0.5 cm long, angular, punctuate between ribs.

Fls. & Frts. : More or less throughout the year.

Distrib. : Borkhedi, Shimba river bank, near tribal village.

Notes : Frequent weed in waste places and cultivated fields. A disputed taxon treated under various genera like *Centaurea*, *Cardus*, *Tricholepis*, *Volutarella* and *Amberboa* etc. Wigenitz (*l.c.*) is the last one to propose under yet another genus *Oligochaeta*.

PARTHENIUM L.

Parthenium hysterophorus L. Sp. Pl. 988. 1s753; Rolla Rao in J. Bombay Nat. Hist. Soc. 54: 218. 1956; Naithani in Hajra *et al.* Fasc. Fl. India 12: 406. 1995. '*Chatak-chandani*'.

Erect, annual herbs, 1–1.5 m tall. Leaves irregularly pinnatifid, the lobes variously dissected, appressed hairy. Heads white, star shaped, 0.2–0.3 cm across in terminal panicles. Achenes obovate, compressed, puberulous along the sides, 0.2 cm long.

Fls. & Frts. : Throughout the year.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 382. 1982.

Distrib. : Sutala near Khamgaon.

Notes : Common weed along the roadsides and in waste lands. Native of Tropical America, popularly known as 'Congress Gawat' in Marathi. This neophyte is unintentionally introduced by man in India. First noticed in Pune, in 1956, in the form of stray plants on rubbish heaps.

PULICARIA Gaertn.

Pulicaria wightana (DC). C.B.Cl. Comp. Ind. 128. 1876; Hook. f. *Fl. Brit. India* 3: 298. 1881; Cooke, *Fl. Pres. Bombay* 2: 90. 1958 (Repr. ed.); Kumar & Pant in Hajra *et al.* Fasc. Fl. India 13: 40. 1995. *Poloa wightiana* DC. in *Arob. Bot. (Paris)* 2: 514. 1833.

Erect, annual herbs, branched above the middle, angled. Leaves linear-oblong or oblanceolate 1.5–3.5 x 0.4–0.5 cm, sessile, amplexicaule at base. Heads yellow, 1.5–2.5 cm across, solitary on long, leafy peduncles. Achenes oblong, angled or ribbed, 0.1–0.2 cm long, sparsely hairy; pappus 2-striate.

Fls. & Frts. : September–March.

Illus. : Wight, *Ic.* t. 1089. 1846.

Distrib. : Buldhana, Deulgaon Raja, Lonar lake, Lavhala near Mehkar.

Notes : Common along roadsides, cultivated fields and in open grasslands.

SCLEROCARPUS Jacq.

Sclerocarpus africanus Jacq. Ic. Pl. Rar. 1: 17, t. 176. 1782; Hook. f. Fl. Brit. India 3: 305. 1881; Cooke, Fl. Pres. Bombay 2: 96. 1958 (Repr. ed.); Naithani in Hajra *et al.* Fasc. Fl. India 12. 427. 1995.

Erect, annual herbs, 20–50 cm tall; stems and branches hispid, slender. Leaves ovate or ovate-oblong, 3.5–8 x 1.5–3 cm, appressed hairy. Heads yellow, 0.5–1 cm across, solitary, terminal or leaf opposed. Achenses ovoid, 0.4–0.7 cm long, slightly compressed, hairy on the back and the neck.

Fls. & Frts. : August–October.

Illus. : Jacq. l.c. 1782.

Distrib. : Sonala forests.

Notes : Frequent along river beds.

SONCHUS L.

- | | | |
|---|-----|----------------------|
| 1. Auricles of cauline leaves acute; involucrel
bracts glandular hairy | ... | <i>S. wightianus</i> |
| 1. Auricles of cauline leaves obtuse;
involucrel bracts glabrous | ... | <i>S. oleraceus</i> |

Sonchus oleraceus L. Sp. Pl. 194. 1753; Hook. f. Fl. Brit. India 3: 414. 1881; Cooke, Fl. Pres. Bombay 2: 119. 1958 (Repr. ed.); Matthew in Rec. Bot. Surv. India 20: 138. 1969; Grierson, in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 273. 1980.

Erect herbs, 50–80 cm tall, with hollow and glaucous stems. Leaves variable in shape and size, usually oblong-obovate, 4–15 x 1.5–4.5 cm, pinnatifid, glabrous. Heads campanulate, yellow 1–1.5 cm long, in terminal, many-flowered umbellate-cymes. Achenes obconical, 0.2–0.3 cm long, compressed.

Fls. & Frts. : September–March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 385. 1982.

Distrib. : Buldhana, Buldhana–Ajantha Road, Pimpalgaon.

Notes : Common weed in cultivated fields and waste lands.

S. wightianus DC. Prodr. 7: 187. 1838; Cooke, Fl. Pres. Bombay 2: 120. 1958 (Repr. ed.); Matthew in Rec. Bot. Surv. India 20: 138. 1969. Grierson in Dassan. & Fosb. Rev. Handb. Fl. Ceylon. 1: 414. 1981.

Erect, perennial herbs, 50–80 cm tall; stems glabrous or glabrescent, branched. Leaves oblanceolate, elliptic-oblong or lyrate-pinnatifid, glabrous. Heads aggregated in umbels, pale yellow, in terminal, irregular, dense, umbellate-cymes, 1–1.5 cm across. Achenes obconical, 0.2–0.3 cm long, compressed.

Fls. & Frts. : March–July.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 385. 1982.

Distrib. : Buldhana–Raipur Road, 2nd km stone.

Notes : Frequent along roadsides and around cultivated fields.

TRICHOLEPIS DC.

- | | | |
|--|-----|----------------------|
| 1. Erect plants; heads glabrous | ... | <i>T. glaberrima</i> |
| 1. Diffused plants; heads woolly pubescent | ... | <i>T. radicans</i> |

Tricholepis glaberrima DC. Prodr. 6: 564. 1837; Hook. f. Fl. Brit. India 3: 381. 1881; Cooke, Fl. Pres. Bombay 2: 114. 1958 (Repr. ed.); Naithani in Hajra *et al.* Fasc. Fl. India 12: 222. 1995.

Erect herbs, 0.5–1.5 m tall; stems and branches glabrous, ribbed. Leaves lanceolate or linear-lanceolate, 2.5–9 x 0.5–1 cm, nigro-punctuate. Heads purple, ovoid, 1.5–2 cm across, solitary, axillary and terminal. Achenes oblong, 0.4–0.5 cm long, glabrous; pappus yellowish, 0.35–0.4 cm long.

Fls. & Frts. : September–December.

Distrib. : Deulgaon Raja, Deulgaon Sakharasa, Lavhala near Mehkar.

Notes : Occasional along forest edges.

T. radicans (Roxb.) DC. Prodr. 6: 564. 1838; Hook. f. Fl. Brit. India 3: 381. 1881; Cooke, Fl. Pres. Bombay 2: 114. 1958 (Repr. ed.); Naithani in Hajra *et al.* Fasc. Fl. India 12: 223. 1995. *Carduus radicans* Roxb. Fl. Ind. 3: 408. 1832.

Erect or suberect, weak, glabrescent, divaricately branched, annual herbs, 20–40 cm tall. Leaves 1.5–4 x 0.5–1 cm; lower leaves obovate; cauline leaves oblong. Heads purple, on solitary peduncles, cylindrical. Achenes oblong, 0.5–1 cm long, faintly striate; pappus yellowish, 0.45 cm long.

Fls. & Frts. : September–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 390. 1982.

Distrib. : Borkhedi near forest Nursely.

Notes : Frequent in cultivated fields.

TRIDAX L.

Tridax procumbens L. Sp. Pl. 900. 1753; Hook. f. *Fl. Brit. India* 3: 311. 1881; Cooke, *Fl. Pres. Bombay* 2: 102. 1958 (Repr. ed.); Grierson in Dassan. & Fosb. *Rev. Handb. Fl. Ceylon*. 1: 232. 1982. '*Dagadipala*'.

Erect or procumbent–ascending, perennial herbs; stems and branches hairy. Leaves ovate–lanceolate, 2–5 x 0.5–1.8 cm, appressed hairy. Heads yellow with red tinge, 1.5–2.0 cm across, solitary on 10–20 cm long, hirsute peduncles. Achenes oblong, 0.2–0.3 cm long, densely hairy; pappus paleaceous.

Fls. & Frts. : Throughout the year.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 391. 1982.

Distrib. : Gondankheda, Gaumal Tribal village.

Notes : Very common and abundant in waste lands and on hill slopes.

Uses : Juice of leaves is used to cure wounds and cuts.

VERNONIA Schreb. *nom. cons.*

Vernonia cinerea (L.) Less. in *Linnaea* 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.

Erect or decumbent-ascending, annual herbs, 30–80 cm tall; stems and branches striate, appressed hairy. Leaves ovate, elliptic or lanceolate, 2–5 x 1–3 cm, glabrescent above, densely hairy beneath. Heads pink, 0.5–0.8 cm across, in terminal, paniculate-cymes. Achenes oblong, 0.1 x 0.1 cm, angled, hairy on angles; pappus plumose.

Fls. & Frts. : August–March.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 101. 1966.

Distrib. : Ayla killa, Bhingara forests, Botha forests, Buldhana, Chinchpani forests, Jammu nala, Warwat Bakal.

Notes : Common weed along roadsides.

VICOA Cass.

Vicoa indica (L.) DC. in Wight, *Contrib. Bot. Ind.* 10. 1834; *Sant. Rec. Bot. Surv. India* 16, 132. 1967. *Inula indica* L. *Sp. Pl.* ed. 2. 1236. 1762. *Vicoa auriculata* Cass. *Ann. Sci. Nat. Ser. 1*, 17: 418. 1929; Hook. f. *Fl. Brit. India* 3: 297. 1881; Cooke, *Fl. Pres. Bombay* 2: 88. 1958 (Repr. ed.).

Erect, suffruticose, perennial herbs, 30–90 cm tall; stems striate, branching in the upper part. Leaves linear or linear-lanceolate, 1.5–3 x 0.5–1 cm, appressed hairy, deflexed. Heads yellow, 0.5–1.2 cm across, terminal, on long peduncles. Achenes 0.1–0.2 cm long, brown pubescent; pappus 0.2–0.3 cm long, white.

Fls. & Frts. : December–February.

Illus. : Wight, *Ic.* t. 1148. 1846.

Distrib. : Bedapani hills, Gaumal hills, Hiwarkheda village fields.

Notes : Common on hill slopes and in cotton fields. This taxon presently also known as *Pentanema indica* (L.) Ling.

XANTHIUM L.

Xanthium strumarium L. Sp. Pl. 987. 1753; Hook. f. Fl. Brit. India 3: 303. 1881; Cooke, Fl. Pres. Bombay 2: 94. 1958 (Repr. ed.); Naithani in Hajra *et al.* Fasc. Fl. India. 12: 427. 1995.

Erect, suffruticose, annual herbs, 30–120 cm tall. Leaves broadly ovate-triangular, sometimes 3-lobed, 4–7.5 x 3.5–7.5 cm, appressed hairy. Heads greenish-yellow, in terminal and axillary racemes, 0.4–0.8 cm across, globose. Fruits ellipsoid, 1.5 cm long, echinate enclosing achenes. Achenes oblong-ovoid, 0.8–1 cm long, compressed, glabrous.

Fls. & Frts. : September–November.

Illus. : Wight, Ic. t. 1104. 1846.

Distrib. : Nalgangapur, Purna river bank near Mehkar, Satgaon Bhusari, Sonapalli project area, Toradi village, Udhera tank.

Notes : Common weed along roadsides and nearby villages.

ZINNIA L. *nom. cons.*

Zinnia elegans Jacq. Ic. Pl. Rar. 3: t. 589. 1793; Cooke, Fl. Pres. Bombay 2: 124. 1958 (Repr. ed.); Torres in Brittonia 15: 15. 1963.

Erect, weak, hispid, annual herbs, 50–80 cm tall. Leaves ovate to elliptic, 3–6.2 x 3–3.5 cm, gland dotted. Heads with ray florets pink and disc florets yellow. Ray achenes oblanceolate to cuneate, dorsally compressed; disc achenes laterally compressed.

Fls. & Frts. : August–October.

Illus. : Jacq. Ic. 1793

Distrib. : Wasali forests.

Notes : Very common and abundant on open hill slopes and at the foot hills. It is a native of Mexico grown in gardens but this plant has naturalised and spread much in the district.

PLUMBAGINACEAE

PLUMBAGO L.

Plumbago zeylanica L. Sp. Pl. 151. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 3: 480. 1882; Cooke, Fl. Pres. Bombay 2: 136. 1958 (Repr. ed.). '*Chitrak*'.

Erect, sometimes scandent undershrubs, perennial, 1–1.5 m tall. Leaves ovate-oblong, 3–7 x 2–3.5 cm, glabrous. Flowers white, in long terminal spikes. Capsules oblong, 0.5–0.8 cm long, 5-valved circumscissile.

Fls. & Frts. : September–December.

Illus. : Maheshwari, Illus. Fl. Delhi t. 166. 1966.

Distrib. : Chinchpani forests, near Hanuman temple, Sonali village, near Mehkar, Wasali forests.

Notes : Common on hill slopes among bushes.

Uses : Roots are used in rheumatism, skin diseases and diarrhoea.

PRIMULACEAE

ANAGALLIS L.

Anagallis arvensis L. Sp. Pl. 148. 1753; Hook. f. Fl. Brit. India 3: 506. 1882; Cooke, Fl. Pres. Bombay 2: 139. 1958 (Repr. ed.); Taylor in Kew Bull. 1955: 329. 1955.

Erect, 15–30 cm tall. Leaves ovate-elliptic, 0.8–1 x 0.2–0.3 cm. Flowers blue, axillary, solitary on capillary pedicels. Capsules globose, 0.2–0.3 cm across. Seeds brown, triangular.

Fls. & Frts. : December–March.

Illus. : Maheshwari, Illus. Fl. Delhi t. 117. 1966.

Distrib. : Buldhana–Ajantha Road, 3rd km stone, Pimpalgaon–Dhad Road.

Notes : Frequent in cultivated fields. Weed with very attractive flowers.

SAPOTACEAE

- | | | |
|---|-----|----------|
| 1. Stamens 8; anthers glabrous | ... | MIMUSOPS |
| 1. Stamens 15-25; anthers hairy on back | ... | MADHUCA |

MADHUCA J. F. Gmel.

Madhuca longfolia (Koen.) MacBrde var. **latifolia** (Roxb.) Chevalier in Rev. Bot. Appl. 23: 149. 1943; Oza in Indian Forester 97: 652. 1971. *Bassia latifolia* Roxb. Pl. Cor. 1: 20. 1795; C.B.Cl. in Hook. f. Fl. Brit. India 3: 544. 1882; Cooke, Fl. Pres. Bombay 2: 152. 1958 (Repr. ed.). 'Mahuwa'.

Medium sized trees, 6-10 m tall with milky latex; branches spreading. Leaves clustered at branch endings, elliptic or elliptic-oblong, 3-8 x 2-2.5 cm. Flowers creamy-white, in dense, axillary fascicles. Berries ovoid, 2.5-3.5 x 1.5-2 cm, clothed with tomentum.

Fls. & Frts. : March-June.

Illus. : Talbot, For. Fl. Bombay Pres. Sind 2: 157, t. 372. 1911.

Distrib. : Anjanu Budruk.

Notes : Occasional in deciduous forests.

MIMUSOPS L.

Mimusops elengi L. Sp. Pl. 349. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 3: 548. 1882; Cooke, Fl. Pres. Bombay 2: 155. 1958 (Repr. ed.). 'Bakul'.

Medium-sized, evergreen trees, 6-15 m tall. Leaves elliptic or elliptic-lanceolate, 5-10 x 3-4 cm, glabrous, coriaceous. Flowers whitish, axillary, solitary or in fascicles, fragrant. Berries ovoid, 2-2.5 x 1-1.2 cm, yellowish-brown when ripe.

Fls. & Frts. : March-October.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 162, t. 371. 1911; Matthew, Illus. Fl. Tamilnadu Carnatic t. 414. 1982.

Distrib. : Buldhana, Lonar lake.

Notes : Planted in gardens and along roads.

Uses : Fragrant flowers are used for distilling perfumes.

EBENACEAE

DIOSPYROS L.

Diospyros melanoxylon Roxb. Pl. Cor. 1: 36, t. 46. 1795; C.B.Cl. in Hook. f. Fl. Brit. India 3: 564. 1882; Cooke, Fl. Pres. Bombay 2: 159. 1958 (Repr. ed.). '*Tendu*', '*Tembhurni*'.

Medium-sized, deciduous trees, 5–15 m tall. Leaves elliptic or elliptic-oblong, 4–12 x 2.5–5.5 cm, hairy beneath. Flowers white; male flowers in drooping paniced-cymes; female flowers solitary. Drupes ovoid or subglobose, 2.5 x 2.5 cm, yellowish when ripe.

Fls. & Frts. : March–August.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 972 b. 1982.

Distrib. : Dongar Shewli, Mardadi temple area.

Notes : Occasional in the district, but locally ample in deciduous forests.

OLEACEAE

- | | | |
|---|-----|------------|
| 1. Scandent shrubs; fruits fleshy | ... | JASMINUM |
| 1. Erect shrubs or small trees; fruits capsular | ... | NYCTANTHES |

JASMINUM L.

- | | | |
|--------------------------------------|-----|-----------------------|
| 1. Leaves simple; calyx hairy | ... | <i>J. multiflorum</i> |
| 1. Leaves compound; calyx glabrous : | | |
| 2. Flowers in terminal clusters | ... | <i>J. officinale</i> |
| 2. Flowers in axillary cymes | ... | <i>J. azoricum</i> |

Jasminum azoricum L. Sp. Pl. 7. 1753; Backer & Bakh. f. Fl. Java 2: 217. 1965. *J. flexile* Vahl, Symb. Bot. 3: 1. 1794; C.B.Cl. in Hook. f. Fl. Brit. India 3: 601. 1882; Cooke, Fl. Pres. Bombay 2: 175. 1958 (Repr. ed.). 'Jui'.

Glabrous, scandent shrubs; branches glabrous. Leaves 3-foliate, drying yellow; leaflets ovate, ovate-lanceolate, 1.5–5.5 x 1–2.7 cm, glabrous. Flowers white in terminal and axillary paniculate-cymes. Berries oblong or ovoid, 1.2–0.5 cm, dark purple when mature.

Fls. & Frts : Throught the year.

Illus. : Wight, Ic. t. 1253. 1848.

Distrib. : Buldhana.

Notes : Ornamental plant, seldom an escape.

J. multiflorum (Burm. f.) Andr. Bot. Repr. 8, t. 496. 1801. *Nyctanthes multiflora* Burm. f. Fl. Ind. 5, t. 3, f. 1. 1768. *Jasminum pubescens* Willd. Sp. Pl. 1 : 37. 1797; C.B.Cl. in Hook. f. Fl. Brit. India 3 : 592. 1882; Cooke, Fl. Pres. Bombay 2: 173. 1958 (Repr. ed.). 'Kund'.

Scandent shrubs; young branches and parts silky pubescent. Leaves ovate, 4–7 x 2.4 cm, appressed-silky hairy. Flowers white, in terminal and axillary, dense terminal capitate-cymes. Fruits globose, 0.5–0.6 cm across, surrounded by persistent calyx, black when ripe.

Fls. & Frts. : Throughout the year.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 188, t. 335. 1911.

Distrib. : Buldhana–Raipur Road, 2nd km stone.

Notes : Cultivated for flowers.

J. officinale L. Sp. Pl. 7. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 3: 603. 1882; Cooke. Fl. Pres. Bombay 2: 175. 1958 (Repr. ed.). 'Chameli,' 'Jai'.

Large, scandent shrubs. Leaves imparipinnate; leaflets 3–7, ovate or elliptic, 0.8–1.2 cm long. Flowers white in terminal clusters, fragrant.

Fls. & Frts. : June–November.

Distrib. : Yelgaon lake area.

Notes : Cultivated as ornamental plants in gardens.

NYCTANTHES L.

Nyctanthes arbor-tristis L. Sp. Pl. 5. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 3: 603. 1882; Cooke, Fl. Pres. Bombay 2: 176. 1958 (Repr. ed.). '*Parijata*'.

Bushy shrubs or small trees; with drooping, quadrangular branchlets, with stiff hairs. Leaves ovate, 5–10 x 2–5.5 cm, scabrid above, densely pubescent beneath. Flowers white, fragrant with orange-red corolla tubes in terminal long peduncled cymes. Capsules obcordate or nearly orbicular, 1–1.5 x 1 cm, compressed, 2-seeded.

Fls. & Frts. : June–November

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 192, t. 387. 1911.

Distrib. : Aampani forests, Buldhana, Ghatbori, Jamod forests, Wasali forests.

Notes : Common in the district, locally abundant.

SALVADORACEAE

SALVADORA L.

Salvadora persica L. Sp. Pl. 122. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 3: 619. 1882; Cooke, Fl. Pres. Bombay 2: 182. 1958 (Repr. ed.).

Small, evergreen trees, 2–4 m tall; stem bark whitish-yellow, rugose, branches drooping. Leaves elliptic-oblong, 3–5 x 1.5–2.5 cm, fleshy, glabrous. Flowers yellowish-green, in axillary and terminal, long panicles. Drupes globose, 0.2–0.3 cm across, glabrous, red when ripe.

Fls. & Frts. : December–April.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 425. 1982.

Distrib. : Motala.

Notes : Occasional along forest streams.

APOCYNACEAE

1. Anthers adhering to the stigma by a point on the connective; anther cells produced downwards into a subulate empty spur ... NERIUM
1. Anthers not attached to the stigma, anther cells not spurred :
 2. Armed, scandent, woody shrubs ... CARISSA
 2. Unarmed shrubs or trees :
 3. Corolla with coronary scales; anthers exerted ... WRIGHTIA
 3. Corolla without coronary scales; anthers included ... ERVATAMIA

CARISSA L. *nom. cons.*

1. Leaves elliptic or obovate; berries ellipsoid ... *C. congesta*
1. Leaves elliptic-ovate; berries globose ... *C. spinarum*

Carissa congesta Wight, Ic. t. 1289. 1848. *C. carandas* auct. non. L. 1761; Hook. f. Fl. Brit. India 3: 630. 1882, p.p.; Cooke, Fl. pres. Bombay 2: 186. 1958 (Repr. ed.). '*Karwand*'.

Bushy, spiny shrubs, 1–2 m tall, with milky latex. Leaves elliptic or obovate, 4.5–6.5 x 1.5–4.5 cm, glabrous. Flowers white, in terminal and axillary, corymbose-cymes. Fruits ellipsoid, 1–1.5 x 0.8–1 cm, raw fruits with milky latex.

Fls. & Frts. : March–May.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 429. 1982.

Distrib. : Mardadi temple valley, Buldhana Range.

Notes : Common in deciduous forests. *Carissa carandas* L. with which the present species has been confused by earlier authors is confined to South India only and does not grow in Maharashtra State.

Uses : Ripe fruits are edible.

C. spinarum L. Mant. Pl. 559. 1771; Hook. f. Fl. Brit. India 3: 631. 1882; Cooke, Fl. Pres. Bombay 2: 187. 1958 (Repr. ed.); Witt., List. 51. 1908.

Evergreen thorny shrubs; young parts pubescent. Leaves ovate, 2–4 x 1.5–2 cm, smooth. Flowers white, sweet-scented, star shaped, in corymbose-cymes. Fruits ovoid or subglobose, 0.6 cm across, dark purple when ripe.

Fls. & Frts. : March–April.

Distrib. : Buldhana.

Notes : Common on black soil. This species has been reported here on the authority of Witt (*l.c.*).

WRIGHTIA R. Br.

- | | | |
|---|-----|---------------------|
| 1. Fruits of two distinct pendulous folicles, cohering at tips,
white tubercles absent | ... | <i>W. tinctoria</i> |
| 1. Fruits with two coherent folicles,
rough with white tubercles | ... | <i>W. arborea</i> |

Wrightia arborea (Dennst.) Mabberly in Taxon 26: 533. 1977. *Peripolaca arborea* Dennst. Schlüssel 13, 23, 25. 1818 & in Forst. Allg. Deutsch. Gaerten.–Mag. 3 : 32, 41, 83. 1818. *Wrightia tomentosa* R. & S. Veg. ed. Nov. 4: 414. 1819; Hook. f. Fl. Brit. India 3: 653. 1882; Cooke, Fl. Pres. Bombay 2: 199. 1958 (Repr. ed.).

Small trees, 4–7 m tall. Leaves elliptic-oblong, 8–13 x 3–6 cm, tomentose on the both sides. Flowers greenish-white, in short, dense, erect, terminal, tomentose cymes. Fruits cylindric stout, 25–28 x 1–1.5 cm, laterally compressed. Seeds 1.2–1.6 cm long, comose.

Fls. & Frts. : February–June.

Illus. : Wight, Ic. t. 443. 1840.

Distrib. : Chinchpani forests.

Notes : Occasional on hill slopes. Latex of *W. arborea* is yellowish and that of *W. tinctoria* in pure white.

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.); Witt., List 226. 1908. '*Dudhi*'.

Deciduous small trees, 2–8 m tall, with milky latex. Leaves elliptic or oblong-lanceolate, 5–12 x 1.5–3 cm, glabrous. Flowers white, in terminal and axillary, cymose-panicles. Follicles linear-cylindrical, 20–40 cm long, terate, glabrous.

Fls. & Frts. : June–September.

Illus. : Wight, Ic. t. 444. 1841; Talbot, For. Fl. Bombay Pres. & Sind 2: 223, t. 400. 1911.

Distrib. : Aampani forests, Bedapani forests, Buldhana, Chinchpani forests, Loni, near Lonar lake, Nimghad hills, Visapur.

Notes : Occasional in the district but locally abundant.

CULTIVATED SPECIES

CASCABELA L. *nom. cons.*

Cascabela thevetia (L.) Lippold in Feddes, Rep. 91: 52. 1980. *Cerbera thevetia* L. Sp. Pl. 209. 1753. *Thevetia peruviana* (Pers.) Merr. in Phil. Journ. Sci. Bot. 9: 130. 1914. *Cerbera peruvina* Pers. Syn. Pl. 1: 267. 1805. *Thevetia neriifolia* Juss. ex Steud. Nom. (Ed. 2) 2: 680. 1841; Cooke, Fl. Pres. Bombay 2: 207. 1958 (Repr. ed.). '*Biti*'.

Large shrubs or small trees, evergreen, 3–5 m tall; branches glabrous. Leaves linear-lanceolate, 4–12 x 0.5–1.2 cm, glabrous. Flowers yellow, in axillary, few-flowered cymes. Drupes ellipsoid-oblong, 4-angled, glabrous.

Fls. & Frts. : Throughout the year.

Distrib. : Wasali village.

Notes : Common on the roadsides.

Uses : Children play with seeds.

EVARTAMIA Stapf

Ervatamia divaricata (L.) Burkill in Rec. Bot. Surv. India 10: 320. 1925. *Nerium divaricatum* L. Sp. Pl. 209. 1753. *Tabernamoentana coronaria* (Jacq.) Willd. Enum. Hort. Berol. 275. 1809; Hook. f. Fl. Brit. India 3: 646. 1882. *Ervatamia coronaria* (Jacq.) Stapf in Oliv. Fl. Trop. Afr. 4(1): 127. 1902; Cooke, Fl. Pres. Bombay 2: 197. 1958 (Repr. ed.). 'Tagar'.

Bushy shrubs, 1-2 m tall; much branched. Leaves elliptic-lanceolate, 3-5-9.5 x 1-4 cm, glabrous. Flowers white, in terminal, paniculate-cymes. Fruits not seen.

Fls. : Mostly through the year.

Distrib. : Buldhana.

Notes : A favourite garden plant grown for its sweet-scented flowers.

Uses : Flowers are used for workshop purposes.

NERIUM L.

Nerium indicum Mill. Gard. Dict. ed. 8, no. 2, 1768; Bor & Raiz. Beautif. Ind. Cl. Shr. 199. 1954. *N. odorum* Soland. in Ait. Hort. Kew ed. 1, 1 : 297. 1789; Hook. f. Fl. Brit. India 3 : 655. 1882; Cooke, Fl. Pres. Bombay 2 : 206. 1958 (Repr. ed.). 'Kanhher'.

Erect, profusely branched shrubs, 2-4 m tall. Leaves linear-lanceolate, 10-12 x 1.5-2 cm, sparsely hairy beneath. Flowers rose or white, in cymose-panicles, fragrant. Follicles linear-oblong, ribbed.

Fls. & Frts. : Throughout the year.

Distrib. : Buldhana, Khamgaon.

Notes : Planted in gardens. It is a native of Western Himalayas and Nepal, grown in gardens.

PERIPLOCACEAE

- | | | |
|-------------------------------------|-----|--------------|
| 1. Corolla lobes imbricate in buds: | | |
| 2. Corolla small, greenish | ... | CRYPTOLEPIS |
| 2. Corolla large, purple | ... | CRYPTOSTEGIA |
| 1. Corolla lobes valvate in buds | ... | HEMIDESMUS |

CRYPTOLEPIS R. Br.

Cryptolepis buchanani R. & S. 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. 'Kawli'.

Perennial, woody, twining, large shrubs, with milky latex; bark smooth. Leaves elliptic-oblong or oblong-lanceolate, 6-11 x 3-5.8 cm, thick, green above, whitish beneath. Flowers greenish-yellow, in short paniculate-cymes. Follicles narrowly deltoid-conicle, 6-10 x 0.5-1 cm, glabrous. Seeds compressed, comose.

Illus. : Talbot, For. Bombay Pres. & Sing 2: 236 & 237, tt. 406 & 407. 1911.

Distrib. : Loni near Lonar, Yelgaon.

Notes : Common in hedges along roadsides and bushes along hill tracts. It is always seen that this plant climbs on spiny bushes or small trees like *Carissa congesta*, *Acacia nilotica*, ssp. *indica*, *Lantana camara* etc.

CRYPTOSTEGIA R. Br.

Cryptostegia grandiflora R. Br. Bot. Reg. t. 435. 1820; Hook. f. Fl. Brit. India 4: 6. 1883; Cooke, Fl. Pres. Bombay 2: 245. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. No. 4: 93. 1962.

Large, woody climbers, latex milky. Leaves elliptic-oblong, 5-10 x 3-4 cm, coriaceous, glabrous. Flowers light rose-purple, in terminal trichotomous-cymes. Follicles 3-gonous, ovate, 8-12 x 2-2.5 cm, divaricate.

Fls. & Frts. : More or less throughout the year.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: tt. 404 & 405. 1911.

Distrib. : Buldhana, a nala near Motala.

Notes : Planted in hedges. A native of tropical Africa, was introduced into India during the last century but its cultivation was expanded on a large scale during World War II for experimenting on rubber production from its latex. The plant is now running wild around villages.

HEMIDESMUS R. Br.

Hemidesmus indicus (L.) R. Br. in Ait. 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. 19. 1753. '*Anant-mul*'.

Weak, petrennial, trailing and twining undershrubs, 2–3 m long. Leaves variable in shape and size, generally elliptic-oblong, elliptic-lanceolate, 3–9 x 0.5–3 cm, glabrous. Flowers greenish-purple, in axillary, subsessile fascicles. Follicles cylindric, 10–15 x 0.4–0.5 cm, striate. Seeds elliptic-oblong, compressed, upto 1 cm long.

Fls. & Frts. : Talbot, For. Fl. Bombay Pres. & Sind 2: 233, t. 403. 1911.

Illus. : August–February.

Distrib. : Botha forests, on way to Khamgaon, Buldhana, Sindkhed Raja.

Notes : Common on the hill slopes and also trailing on the ground.

ASCLEPIADACEAE

1. Erect herbs or shrubs :

- | | | |
|---|-----|------------|
| 2. Succulent herbs with 4-gonous stems;
anthers without appendages | ... | CARALLUMA |
| 2. Pubescent shrubs with terete stems; anthers with
short, broad and membranous appendages | ... | CALOTROPIS |

1. Twining undershrubs :

3. Corona single :

- | | | |
|---|-----|-----------|
| 4. Corona completely adnate to the
staminal column | ... | TYLOPHORA |
| 4. Corona free at the apex of staminal column | ... | WATTAKAKA |

3. Corona double :

- | | | |
|---------------------------|-----|------------|
| 5. Follicles echinate | ... | PERGULARIA |
| 5. Follicles not echinate | ... | LEPTADENIA |

CALOTROPIS R. Br.

- | | | |
|---|-----|--------------------|
| 1. Lobes of corona narrow, shorter than the staminal column | ... | <i>C. gigantea</i> |
| 1. Lobes of corona broad, equalling or exceeding the
staminal column | ... | <i>C. procera</i> |

Calotropis gigantea (L.) R. Br. in Ait. 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. 'Rui'.

Erect, perennial shrubs, profusely branched, 1-2 m tall. Leaves elliptic-oblong or obovate-oblong, 10-20 x 3-9 cm, fine cottony tomentose on either sides. Flowers bluish-purple or white, in umbellate or sub-corymbose-cymes. Follicles 9.5 x 4.5 cm, in pairs, fleshy.

Fls. & Frts. : Throughout the year.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 240, t. 408. 1911.

Distrib. : Mehkar-Janephal Road, Nandura, Jalgaon lake.

Notes : Common along waste lands and in cultivated fields. It is always seen that this plant propagates vigorously in moist clayey soil.

Uses : The milky latex is applied for curing tooth-ache.

C. procera (Ait.) R. Br. in Ait. Hort. Kew ed. 2, 2: 78. 1811; Hook. f. Fl. Brit. India 4: 18. 1883; Cooke, Fl. Pres. Bombay 2: 215. 1958 (Repr. ed.); Sant. & Irani in Univ. Bombay Bot. Mem. No. 4: 19. 1962. *Asclepia procera* Ait. Hort. Kew ed. 1, 1: 305. 1789.

Erect, perennial shrubs, 1–2 m tall, with milky latex. Leaves broadly ovate or elliptic-obovate, 7–7.5 x 5–5.5 cm, glabrous. Flowers white with purple tips in lateral or terminal corymbs. Follicles paired, falcately ellipsoid or ovate, 5–9 x 4–6 cm, glaucous.

Fls. & Frts. : Throughout the year.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: t. 410. 1911; Maheshwari Illus. Fl. Delhi t. 1966.

Distrib. : Jalgaon–Jamod.

Notes : Common weed of waste lands.

CARALLUMA R. Br.

Caralluma adscendens (Roxb.) R. Br. var. **fimbriata** (Wall.) Grav. & Mayur in Bull. Madras Govt. Mus. n.s. Nat. Hist. Sect. 4 (1): 12. 1931; Sant. & Irani in Univ. Bombay Bot. Mem. No. 4: 1, t. 1. 1962. *C. fimbriata* Wall Pl. As. Rar. 1: 7, t. 8, pl. 1830; Hook. f. Fl. Brit. India 4: 77. 1883; Cooke, Fl. Pres. Bombay 2: 244. 1958 (Repr. ed.). '*Makadshing*'.

Perennial, fleshy, diffusely branched herbs; stems 4-angled. Leaves minute, on young shoots. Flowers purple, terminal on the branch endings, solitary or 2–3 together. Follicles not seen.

Fls. : December.

Illus. : Sant. & Irani l.c.

Distrib. : Lonar lake,

Notes : Rare, on the hill slopes, under the bushes.

LEPTADENIA R. Br.

Leptadenia reticulata (Retz.) Wight & Arn. in Wight, Contrib. Bot. India 47. 1834; Hook. f. Fl. Brit. India 4: 63. 1883; Cooke, Fl. Pres. Bombay 2: 237. 1958 (Repr. ed.); Sant. & Irani in Univ. Bot. Mem. No. 4: 28. 1962. *Cynanchum reticulata* Retz. Obs. Bot. 2: 15. 1781.

Twining shrubs, 4–6 m long, with watery sap; bark deeply fissured. Leaves ovate, 3–6.5 x 1.5–3 cm, thin, glabrous. Flowers greenish, in cymes and sub-umbels. Follicles oblong-lanceolate, 5–7 x 3–5 cm, with a thick curved beak, dark green. Seeds 1 cm long, with 3–4 cm long coma.

Fls. & Frts. : July–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 449. 1982.

Distrib. : Sangrampur, near Jalgoan Jamod.

Notes : Common along roadsides and on the field hedges. Generally growing in association with *Pergularia daemia* (Forssk.) Chiov. and with only one follicle, though almost all species of Asclepiadace bear follicles in pairs.

PERGULARIA L.

Pergularia daemia (Forssk.) Choiv. Res. Sc. Miss. Stefan.-Paoli Somal. Ital. 1: 115. 1916; Sant. & Irani in Univ. Bombay Bot. Mem. No. 4: 74. 1962. *Asclepias daemia* Forssk. Fl. Aeg.-Arab. 51. 1775. *Daemia extensa* R. Br. Mem. Wern. Soc. 5: 50. 1811; Hook. f. Fl. Brit. India 4: 20. 1883; Cooke, Fl. Pres. Bombay 2: 219. 1958 (Repr. ed.).

Perennial, weak twiners, 4–6 m long, with milky latex. Leaves broadly ovate or suborbicular, 1.5–6.5 x 1.5–5.6 cm, densely hairy beneath. Flowers greenish-white, in subumbellate, drooping cymes. Follicles 2, lanceolate, 7–8 x 1.1–1.5 cm, curved and softly echinate all over. Seeds pale brown, ovate-oblong, with 2–2.5 cm long coma.

Fls. & Frts. : August–December.

Illus. : Wight, Ic. t. 596. 1842; Talbot, For. Fl. Bombay Pres. & Sind 2: 244, t. 412. 1911.

Distrib. : On way to Buldhana near Jalgaon Jamod.

Notes : Occasional in hedges around villages and along roadsides.

TYLOPHORA R. Br.

Tylophora indica (Burm. f.) Merr. in Phillip. Journ. Sci. 19: 373. 1921; Sant. & Irani in Univ. Bombay Bot. Mem. No. 4: 88, t. 12. 1962. *Cynanchum indicum* Burn. f. Fl. Ind. 70. 1768. *Tylophora asthamatica* 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.).

Twining, perennial, suffrutescent herbs or undershrubs with creeping rootstock. Leaves ovate-oblong or broadly ovate, 4-6 x 3-4.5 cm, glabrous. Flowers greenish-white, in axillary umbellate-cymes. Follicles lanceolate, 3-5 x 0.5-1 cm, finely striate. Seeds ovate with 2-2.5 cm long coma.

Fls. & Frts. : June-October.

Illus. : Wight, Ic. t. 1277. 1848.

Distrib. : Sonala, near Khamgaon, Sonala, near Shimba river.

Notes : Occasional in deciduous forests at the foot hills.

Uses : Leaves are used to cure bronchial asthma, relief is partly to permanent. Botanical Survey of India, Western Circle, Pune, has given leaves to about 10,000 patients since 1975 for the treatment of asthma, 80%-90% patients got relief. These leaves are also used against cold and fever.

WATTAKAKA Hassk.

Wattakaka volubilis (L.f.) Stapf in Curtis, Bot. Mag. sub-t. 8976. 1923. *Asclepias volubilis* L.f. Suppl. 170. 1781. *Dregea volubilis* (L.f.) Bth. ex Hook. f. Fl. Brit. India 4: 46. 1883; Sant. & Irani in Univ. Bombay Mem. No. 4: 42, t. 6. 1962. *Marsdenia volubilis* (L.f.) Cooke, Fl. Pres. Bombay 2: 166. 1904 [2: 203. 1958. (Repr. ed.).

Woody, exensve climbers with watery sap; young parts pubescent. Leaves broadly ovate or sub-orbicular, 7-15 x 5-10 cm, glabrous. Flowers greenish in lateral pendulous umbels. Follicles ovoid, 6.9 x 2-3 cm, tapering to a blunt point, velvety when young rugosely striate when dry.

Fls. & Frts. : March-October.

Illus. : Wight, Ic. t. 586. 1842; Talbot, For. Fl. Pres. Bombay & Sind 2: tt. 417 & 418. 1911; Maheshwari, *Illus. Fl. Delhi* t. 126. 1966.

Distrib. : Lonar lake.

Notes : Frequent in deciduous forests. During the exploration, it is observed that this twiner generally climbs up to the top of trees like *Tectona grandis* L.f., *Hardwickia binata* Roxb. while other species of *Asclepiadaceae* climb up on shrubs or on hedges.

LOGANIACEAE

CYNOCOTONUM Gmel.

Cynoctonum mitreola (L.) Britton in Mem. Torr. Bot. Cl. 5: 258. 1894; Sant. & Wagh in Bull. Bot. Surv. India 5: 106. (1963) 1964. *Ophiorrhiza mitreola* L. Sp. Pl. 150. 1753. *Mitreola oldenlandioides* G. Don, Gard. Dict. 4: 172. 1837, *nom illeg*; C.B.Cl. in Hook. f. Fl. Brit. India 4: 79. 1883; Cooke, Fl. Pres. Bombay 2: 246. 1958 (Repr. ed.).

Annual, slender herbs, 15-25 cm tall. Leaves ovate-elliptic or elliptic-lanceolate, 2-6.5 x 1-2.5 cm, glabrous. Flowers white, in axillary and terminal dichotomous cymes. Capsules 0.4-0.5 cm long, 2-horned, wedge shaped.

Fls. & Frts. : Septemebr-October.

Illus. : Wight, Ic. t. 1600. 1850.

Distrib. : Shimba river bank.

Notes : Rare along river bank.

GENTIANACEAE

- 1. Stigma entire :
 - 2. Ovary 2-celled; stamens connivent around style, exserted ... EXACUM
 - 2. Ovary 1-celled; stamens away from style, included ... ENICOSTEMA
- 1. Stigmas 2-lobed :
 - 3. Corolla lobes with glandular nectaries at base ... SWERTIA
 - 3. Corolla lobes without glandular nectaries at base ... CANSCORA

CANSCORA Lamk.

Canscora diffusa (Vahl) R. Br. Prodr. 451. 1810 (in Obs.); C.B.Cl. in Hook. f. Fl. Brit. India 4: 103. 1883; Cooke, Fl. Pres. Bombay 2: 257. 1958 (Repr. ed.). *Gentiansa diffusa* Vahl, Symb. Bot. 3: 47. 1794.

Erect, much branched, annual herbs, 25–30 cm tall; stems obscurely winged. Leaves broadly ovate, 0.5–1.1 x 0.4–0.9 cm, glabrous. Flowers rosy-purple, in terminal paniculate-cymes. Capsules narrowly 0.5–0.7 cm long, glabrous, smooth.

Fls. & Frts. : September–February.

Illus. : Wight, Ic. t. 1327. 1848.

Distrib. : Aampani forests, Ambabarwa, Ayla Killa, Bhingara forests, Gaumal, Rajura lake, Shimba river, Sonala, Toradi.

Notes : Very common throughout the district, in damp places.

ENICOSTEMA Bl.

Enicostema hyssopifolium (Willd.) Verdoorn in Bothalia 7: 462. 1961. *E. littorale auct. non* Bl. 1826; C.B.Cl. in Hook. f. Fl. Brit. India 4: 101. 1883; Cooke, Fl. Pres. Bombay 2: 225. 1958. (Repr. ed.). *Enicostema axillare* (Lamk.) Raynal in Adansonia 9: 75. 1969.

Erect, perennial herbs, 10–15 cm tall; stems simple or branched from base. Leaves linear or linear-oblong, 2–5 x 0.1–0.5 cm, 3-nerved. Flowers white, in axillary clusters. Capsules elliptic-subglobose, 0.2–0.3 cm long, apiculate with remains of style.

Fls. & Frts. : August–December.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 129. 1966.

Distrib. : Botha forests, Deulgaon Raja, Lonar lake, Toradi.

Notes : Common in open grasslands. The generic name of this taxon is conserved (I.C.B.N. 1966), where its spelling is given as '*Enicostema*' and hence followed here instead of '*Enicostemma*'.

EXACUM L.

Exacum pedunculatum L. Sp. Pl. 112. 1753; C.B.Cl. in Hook. f. *Fl. Brit. India* 4: 97. 1883; Cooke, *Fl. Pres. Bombay* 2: 253. 1958 (Repr. ed.).

Erect, annual herbs, 5–10 cm tall, stems quadrangular, branched above. Leaves elliptic-oblong or oblong-lanceolate, 1–4.8 x 0.3–0.5 cm, 3-nerved, sessile. Flowers blue in terminal and axillary cymes. Capsules globose, 0.3–0.4 cm across, smooth, shining.

Fls. & Frts. : September–November.

Illus. : Wight, *Ic. t.* 336. 1840; Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 464. 1982.

Distrib. : Ayla killa, Dongar Shewli, Rajura lake, Torad forests.

Notes : Common in drying moist places.

SWERTIA L.

Swertia minor (Griseb.) Knobl. in *Bot. Centrabl.* 60: 321. 1894; Cooke, *Fl. Pres. Bombay* 2: 259. 1958 (Repr. ed.). *Pleurogyne minor* (Griseb.) C.B.Cl. in Hook. f. *Fl. Brit. India* 4: 120. 1883.

Small, erect, annual herbs, 10–15 cm tall; stems angled. Leaves ovate, 0.5–1 x 0.3–0.5 cm, obscurely 3-nerved, membranous, glabrous. Flowers bluish-purple, in leafy paniculate-cymes. Capsules ovoid, 0.4–0.5 cm long.

Fls. & Frts. : June–September.

Illus. : Wight, Ic. t. 1332. 1848.

Distrib. : Rajura lake, near Jalgaon Jamod.

Notes : Rare in the drying beds of lakes.

BORAGINACEAE

TRICHODESMA R. Br. *nom. cons.*

Trichodesma sedwickianum Bajerjee in Bull. Bot. Soc. Bengal 16: 10. 1962; Banerjee & Pramanik in Bull. Bot. Surv. India 17: 116 (1975) 1978. *T. amplexicaule* DC. Prodr. 10: 172. 1846, *non* Roth, 1821; C.B.Cl. in Hook. f. Fl. Brit. India 4: 153. 1883, *p.p.* *T. indicum* R. Br. var. *amplexicaule* (DC) Cooke, Fl. Pres. Bombay 2: 215. 1904, 2: 282. 1958 (Repr. ed.). *p.p.*

Erect or suberect herbs, 20–45 cm tall; branches grey hairy. Leaves sessile, ovate-oblong, 2–8 x 0.5–3.5 cm, scabrous on both sides. Flowers white, blue or pink with a blue tinge, solitary or few flowered in terminal and leaf-opposed cymes. Nutlets pyramidal, 0.3–0.5 x 0.2–0.3 cm, smooth on dorsal surface, rugose on ventral.

Fls. & Frts. : June–September.

Illus. : Banerjee & Pramanik, l.c. 117. t. A–D.

Distrib. : Buldhana, Dongaon near Mehkar, Hiwarkhed, Lonar lake.

Notes : Very common in the plain along roadsides. Until very recently this plant was known by the name *Trichodesma amplexicaule* DC. But since this name is preoccupied by Roth's plant, should be rejected being a later homonym and a new name should be given. Banerjee (*l.c.*) rightly named it *T. sedgwickianum* in recognition of Sedwick's critical study of the specimen who doubted it, to be different from Roth's plant.

HELIOTROPIACEAE

HELIOTROPIMUM L.

Heliotropium supinum L. Sp. Pl. 130. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 4: 149. 1883; Cooke, Fl. Pres. Bombay 2: 275. 1958 (Repr. ed.).

Prostrate, softly villous herbs, 10–25 cm long; branching from base, thickly clothed with soft white hairs. Leaves obovate or ovate-elliptic, 0.4–0.5 cm, appressed hairy. Flowers white, terminal or lateral branches, in densely villous, scorpioid cymes. Nutlets 4, rounded, slightly pubescent, 0.4–0.5 cm long, dark brown, tuberculate on back.

Fls. & Frts. : July–October.

Illus. : Maheshwari, Illus. Fl. Delhi t. 132. 1966.

Distrib. : Buldhana, Rajura lake, Sultanpur, Toradi forests.

Notes : Common weed of cultivated fields and drying reservoirs.

EHRETIACEAE

ROTULA Lour.

Rotula aquatica Lour. Fl. Cochinch. 121. 1790. *Rhabdia lycicoides* Mart. Nov. Gen. Sp. 2: 137. t. 195. 1826; C.B.Cl. in Hook. f. Fl. Brit. India 4: 145. 1883; Cooke, Fl. Pres. Bombay 2 : 272. 1958 (Repr. ed.).

Small, stunted, woody, perennial undershrubs, with 20–40 cm tall and erect clumps, branches black. Leaves oblong-obovate, 1–2 x 0.3–0.5 cm, crowded or fasciculate. Flowers pink-purple, axillary, solitary or few-flowered cymes. Drupes globose, 0.2–0.25 cm across, tipped with remains of the styles, 4-lobed.

Fls. & Frts. : July–November.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 474. 1982.

Distrib. : Wan project valley, Sonala Forest Range, near Hanuman Hill Temple.

Notes : Rare, on the rocky bed of river.

CORDIACEAE

CORDIA L.

- | | | |
|--|-----|---------------------|
| 1. Leaves alternate, palmately nerved;
filaments hairy at base | ... | <i>C. dichotoma</i> |
| 1. Leaves opposite or subopposite, pinnately nerved;
filaments glabrous | ... | <i>C. gharaf</i> |

Cordia dichotoma Forst. f. Prodr. 18. 1786; Kazmi in J. Arnold Arbor. 51: 141. 1970. *C. obliqua* Willd. Phytogr. 4, t. 4. 1794; C.B.Cl. in Hook. f. Fl. Brit. India 4: 137. 1883, excl. vars. *C. myxa* auct. plur. non. L. 1753; C.B.Cl. in Hook. f. l.c. 136; Cooke, Fl. Pres. Bombay 2: 265. 1958 (Repr. ed.). 'Bhokar', 'Tupgeel'.

Medium sized trees, 8–10 m tall; young parts glabrous. Leaves broadly ovate to elliptic, 4–14 x 3–9 cm, upper surface scabrous, paler beneath. Flowers white, polygamous, (bisexual and male) in axillary and terminal cymose-panicles. Drupes ovoid, 1.2–2 cm across, fleshy with sticky pulp.

Fls. & Frts. : March–June.

Illus. : Wight, Ic. t. 159. 1839.

Distrib. : Nandura on way to Jalgaon Jamod.

Notes : Occasional.

Uses : Fruits are used in pickles.

C. gharaf (Forssk.) Ehernb. & Asch. in Bitzung. Bericht. Ges. Naturf. Fl. Berlin 46 1879; Sant. & Wagh in Bull. Bot. Surv. India 5: 106. 1964; Kazmi in J. Arnold Arbor. 51: 140. 1970. *Cornus gharaf* Forssk. Fl. Aeg.–Arab. 94. 1775. *Cordia rothii* R. & S. Syst. Veg. 4: 798. 1819; C.B.Cl. in Hook. f. Fl. Brt. India 4: 138. 1883, Cooke, Fl. Pres. Bombay 2: 268. 1958 (Repr. ed.). 'Gondani'.

Large shrubs, or small trees, 2–6 m tall, young parts pubescent. Leaves oblanceolate-oblong, 4–11.8 x 1–3.5 cm, scabrous above, pubescent beneath. Flowers white, in short, lateral and terminal trichotomously branched cymes. Drupes ovoid, 1–1.2 cm long, glabrous, longitudinally striate, reddish-brown when ripe.

Fls. & Frts. : March–June.

Illus. : Wight, c. t. 1379. 1848.

Distrib. : Lonar lake, Lonar village.

Notes : Rare and scanty around lakes and along roadsides.

CONVOLVULACEAE

1. Pollen spinulose :
 2. Capsules opening by valves or irregularly dehiscent ... IPOMOEAE
 2. Fruits indehiscent :
 3. Flowers pink; corolla tubular; stigmas globose ... ARGYREIA
 3. Flowers white; corolla hypocrateriform; stigmas linear ... RIVEA
1. Pollen not spinulose :
 4. Styles usually two ... EVOLVULUS
 4. Styles only one :
 5. Leaves hastate; flowers pink ... CONVOLVULUS
 5. Leaves cordate; flowers white or yellow ... MERREMIA

ARGYREIA Lour.

Argyreia strigosa (Roth) Sant. & Patel in Trans. Bose Res. Inst. Calcutta 2: 41. 1958. *Ipomoea strigosa* Roth, Nov. Pl. Sp. 113. 1821. *Lettsomia setosa* Roxb. Fl. Ind. 1: 490. 1832; C.B.Cl. in Hook. f. Fl. Brt. India 4: 194. 1883; Cooke, Fl. Pres. Bombay 2: 330. 1958. (Repr. ed.); Witt. List. 58. 1908.

Large, straggling and twining shrubs; young parts strigosely hairy. Leaves broadly ovate, 10–12 x 9–11 cm, glabrous above, appressed hairy beneath. Flowers pink, in dense hairy, corymbose-cymes. Capsules ovoid, 0.4–0.5 cm long, enclosed by accrescent calyx, hairy.

Fls. & Frts. : October–December.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: t. 430. 1911.

Distrib. : Buldhana, Witt (*l.c.*); Loni, near Lonar lake.

Notes : Rare around lakes.

CONVOLVULUS L.

***Convolvulus arvensis* L.** Sp. Pl. 153. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 2: 219. 1883; Cooke, Fl. Pres. Bombay 2: 203. 1958 (Repr. ed.).

Weak, annual, glabrous, trailing or twining herbs, with creeping root stock. Leaves triangular in outline, oblong, 1.2–3.4 x 0.2–0.5 cm, glabrous. Flowers pink-rosy, axillary, solitary, or 2–3 flowered, on 3–5 cm long peduncles. Capsules globose, 0.5–0.7 cm long, glabrous.

Fls. & Frts. : December–June.

Distrib. : Pimpalgaon village fields.

Notes : Common weed in cultivated fields.

EVOLVULUS L.

***Evolvulus alsinoides* (L.) L.** Sp. Pl. ed. 2: 392. 1762; C.B.Cl. in Hook. f. Fl. Brit. India 4: 220. 1883; Cooke, Fl. Pres. Bombay 2: 297. 1958 (Repr. ed.). *Convolvulus alsinoides* L. Sp. Pl. 157. 1753.

Prostrate, much branched herbs, with densely hairy stems, root stock woody; stems and branches appressed silky pubescent. Leaves elliptic-oblong, 0.4–1.5 x 0.2–0.5 cm, densely appressed hairy. Flowers light blue, solitary, axillary or in pairs on filiform peduncles. Capsules globose-ovoid, 4-valved, 4-seeded, glabrous.

Fls. & Frts. : June–October.

Illus. : Maheshwari, Illus. Fl. Delhi t. 136. 1966; Matthew, Illus. Fl. Tamilnadu Carnatic t. 479. 1982.

Distrib. : Ayala killa, Lonar lake, on way to Mehkar near Undri.

Notes : Common in plains, all over the area under study.

Uses : Leaves used in chronic bronchitis and asthma.

IPOMOEA L. *nom. cons.*

- | | | |
|---|-----|---|
| 1. Calyx lobes cordate at the base | ... | <i>I. sinensis</i> |
| 1. Calyx lobes not as above : | | |
| 2. Seeds glabrous | ... | <i>I. nil</i> |
| 2. Seeds hairy : | | |
| 3. Corolla glabrous on the outer surface, scarlet | ... | <i>I. hederifolia</i> |
| 3. Corolla hairy on the outer surface; not scarlet : | | |
| 4. Corolla creamy-white with purple base; capsules glabrous | ... | <i>I. obscura</i> |
| 4. Corolla pink, purple or blue; capsules hairy : | | |
| 5. Shrubs or woody twiners | ... | <i>I. carnea</i>
spp. <i>fistulosa</i> |
| 5. Prostrate or twining herbs : | | |
| 6. Sepals recurved at fruiting stage | ... | <i>I. eriocarpa</i> |
| 6. Sepals erect at fruiting stage : | | |
| 7. Capsules ovoid, 4-celled | ... | <i>I. mauritiana</i> |
| 7. Capsules subglobose, 2-celled | ... | <i>I. cairica</i> |

Ipomoea cairica (L.) Sweet, Hort. Brit. 287. 1827; Ooststr. in Steenis, Fl. Males. 1, 4: 478. 1953. *Convolvulus cairicus* L. Syst. Nat. ed. 10, 922. 1759. *Ipomoea palmata* Forssk. Fl. Aeg.-Arab. 43. 1775; C.B.Cl. in Hook. f. Fl. Brit. India 4: 214. 1883; Cooke, Fl. Pres. Bombay 2: 319. 1958 (Repr. ed.). 'Garvel'.

Extensive, perennial, glabrous climbers; stems and branches lenticellate. Leaves palmately divided into 5-7 elliptic-lanceolate, oblanceolate or ovate lobes, 2.5-4 x 2.5-4.5 cm. Flowers dull violet, in few-flowered axillary cymes. Capsules subglobose, 0.8-1 cm in across, 2-celled.

Fls. & Frts. : October-June.

Distrib. : Buldhana, Lonar lake.

Notes. : Planted along the hedges of gardens; also found as an escape in some places.

I. eriocarpa R. Br. Prodr. 484. 1810; C.B.Cl. in Hook. f. Fl. Brit. India 4: 204. 1883; Cooke, Fl. Pres. Bombay 2: 312. 1958 (Repr. ed.).

Weak, trailing or twining, annual herbs, clothed with appressed or spreading hairs. Leaves ovate-cordate or linear-oblong, 1.5–8.7 x 1–3.5 cm, appressed hairy on the both sides. Flowers white, throat purple or pink, in axillary cymes. Capsules globose, 0.6 x 0.4 cm, 4-valved, densely hispid on the upper half.

Fls. & Frts. : September–October.

Illus. : Oostroom in Steenis, Fl. Males. Ser. 1, 4 : 462. f. 35. 1953.

Distrib. : Lonar lake, Nalgangapur, Waghadi village.

Notes : Common on the open, grassy hillocks.

I. carnea Jacq. ssp. **fistulosa** (Mast. ex Choisy) Austin in Taxon 26: 237. 1977. *I. carnea* auct. non Jacq. 1760; Cooke, Fl. Pres. Bombay 2: 321. 1958 (Repr. ed.). *I. crasicaulis* (Bth.) Rob. in Proc. Amer. Acad. Arts. 51: 530. 1916. 'Besharam'.

Large, suberect, straggling shrubs, woody at base; branches pubescent or glabrous. Leaves broadly ovate or ovate-lanceolate, 5–12 x 3–10 cm, thinly pubescent beneath. Flowers light-pink, in axillary paniculate-cymes. Fruits not seen.

Fls. & Frts. : Throughout the year.

Distrib. : Dongar Khandala, Shara on way to Lonar, Toradi near forests, Warwand near forests, Yelgaon lake area.

Notes : One of the very common plants. Native of S. America, rapidly propagating and spreading. It is observed that, it is gradually replacing forest hedges near the human habitations, near marshy places.

I. hederifolia L. Syst. Nat. ed. 10: 925. 1759. *I. coccinea* auct. non L. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 4: 199. 1883. *Quamoclit coccinea* Moench. Method. 433. 1795; Cooke, Fl. Pres. Bombay 2 : 330. 1958 (Repr. ed.).

Annual twining undershrubs, 4–5 m long. Leaves ovate, 4–6 x 2.5 cm, cordate at the base, glabrous. Flowers red, in terminal lax, umbellate-cymes. Capsules ovoid or globose, 0.7–0.8 cm long, 4-valved, glabrous.

Fls. & Frts. : September–November.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 481. 1982.

Distrib. : Pipri village, Songaon forests.

Notes : Few plants along forest edges on *Acacia* sp. A native of tropical America introduced into Indian gardens and is now found running wild in a few places, in the edges along Songaon forests.

I. mauritiana Jacq. Coll. 4: 216. 1791; Ooststr. in Steenis, *Fl. Males.* Ser. 1, 4: 483. f. 55. 1953; Shah in *J. Bombay Nat. Hist. Soc.* 66: 232. 1969. *I. digitata* auct. non L. 1759; C.B.Cl. in Hook. f. *Fl. Brit. India* 4: 202. 1883; Cooke, *Fl. Pres. Bombay* 2: 318. 1958 (Repr. ed.).

Strong, woody, perennial, large twiners; stems woody at base, tuberous roots. Leaves shallowly or deeply 5–7 lobed; lobes ovate-lanceolate, 10–11.5 x 1.12 cm, glabrous. Flowers pale purple or rose-pink in axillary, corymbose-cymes. Capsules ovoid, 4-valved, 2-celled.

Fls. & Frts. : March–September.

Illus. : Ooststr. in Steenis, *l.c.*

Distrib. : Lonar lake valley.

Notes : Rare in valleys.

I. nil (L.) Roth, *Cat. Bot.* 1: 36. 1797; Ooststr. in Steenis, *Fl. Male.* Ser. 1, 4: 465. 1953. *Convolvulus nil* L. *Sp. Pl.* ed. 2: 219. 1762. *I. hederacea* auct. non Jacq. 1786; C.B.Cl. in Hook. f. *Fl. Brit. India* 4: 199. 1883; Cooke, *Fl. Pres. Bombay* 2: 321. 1958 (Repe. ed.).

Herbaceous, twining annuals; stems clothed with spreading hairs. Leaves ovate, entire or more often 3 lobed, 4.2–9.3 x 4–9 cm, hairy on both the sides. Flowers blue, solitary or in 2–3 flowered-cymes. Capsules ovoid or globose, 0.7–1 cm long, 4-valved.

Fls. & Frts. : November–March.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 145. 1966.

Distrib. : Garipiti forest village, Kherda Budruk near Bibi.

Notes : Common on *Lantana* bushes, along roadsides.

I. obscura (L.) Ker.-Gawl. in *Bot. Reg.* t. 239. 1817; C.B.Cl. in *Hook. f. Fl. Brit. India* 4 : 207. 1883; Cooke, *Fl. Pres. Bombay* 2: 317. 1958 (Repr. ed.). *Convolvulus obscurus* L. *Sp. Pl.* ed. 2, 1 : 220. 1762.

Annual, herbaceous, twiners with brownish hairy stems. Leaves broadly ovate or orbicular, 4–5 x 3.5–7 cm, glabrous or sparsely hairy. Flowers pale yellow or white, solitary or few-flowered cymes, axillary. Capsules ovoid, 0.8–1.2 cm long, 4-valved, glabrous, apiculate.

Fls. & Frts. : July–December.

Illus. : Oostestr, in Steenis, *Fl. Males.* 1. 4: 471. fig. 44. 1953.

Distrib. : Buldhana, Rohinkheda forests, Visapur.

Notes : Common on *Lantana* bushes and on field edges. According to Clarke (*l.c.*) and Cooke (*l.c.*) colour of flower is white or yellow, but all the specimens collected by the first author, have white flowers only.

I. sinensis (Desv.) Choisy in *Mem. Phys. Soc. Geneve* 6: 459. 1834. *Convolvulus sinensis* Desv. in *Lamk. Encycl.* 3: 557. 1791. *Ipomoea calycina* (Choisy) C.B.Cl. in *Hook. f. Fl. Brit. India* 4: 201. 1883; Cooke, *Fl. Pres. Bombay* 2: 311. 1958 (Repr. ed.).

Weak twiners or trailing herbs, thinly hairy. Leaves ovate with cordate base, 2.5–5 x 1–3.5 cm, appressed hairy beneath, glabrous above. Flowers white, in 1–3 flowered axillary cymes. Capsules 0.6–1.0 cm long, globose or ovoid, glabrous. Seeds oblong, villous.

Fls. & Frts. : October–November.

Illus. : Wight, *Ic.* t. 833. 1844.

Distrib. : On way to Bibi.

Notes : Frequent along roadsides and forest paths.

MERREMIA Dennst. ex Endl. *nom. cons.*

1. Leaves reniform; inner sepals 2-lobed at apex ... *M. gangetica*
1. Leaves 5-lobed; inner sepals entire at apex :
 2. Leaflets and outer sepals hairy; peduncles eglandular ... *M. aegyptia*
 2. Leaflets and outer sepals glabrous;
peduncles glandular at tips ... *M. quinquefolia*

Merremia aegyptia (L.) Urb. Symb. Antill. 4: 505. 1910; Ooststr. in Steenis, Fl. Males. 1, 4: 448. 1953. *Ipomoea aegyptia* L. Sp. Pl. 162. 1753. *I. pentaphylla* (L.) Jacq. Coll. Bot. 2: 297. 1788; G.B.Cl. in Hook. f. Fl. Brit. India 4: 202. 1883. *Merremia pentaphylla* (L.) Hall. f. in Bot. Jahrb. Syst. 16: 552. 1893; Cooke, Fl. Pres. Bombay 2: 308. 1958 (Repr. ed.).

Perennial, twining herbs; stems hirsute with yellow-brown patent hairs. Leaves palmately compound with 5 leaflets; leaflets broadly lanceolate, 5-8 x 2-3 cm, appressed hairy on both sides. Flowers creamy-white, few in fulvous hairy racemose-cymes. Capsules ovoid, 4-valved, 4-celled, hairy.

Fls. & Frts. : September-December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 483. 1982.

Distrib. : Sonapalli forests, Ambabarwa Reserve.

Notes : Rare, on *Vitex* shrubs.

M. gangetica (L.) Cufod. in Bull. Jard. Bot. Jahrb. Brux. Suppl. 31: 743. 1961. *Convolvulus gangeticus* L. Cent. Pl. 2: 9. 1756. *Evolvulus emarginatus* Burm. f. Fl. Ind. 77, t. 30, f. 1. 1768. *Ipomoea reniformis* Choisy in Mem. Soc. Phys. Geneve. 6 : 446. 1883; C.B.Cl. in Hook. f. Fl. Brit. India 4: 206. 1883. *Merremia emarginata* (Burm. f.) Hall. f. in Bot. Jahrb. 16: 552. 1893; Cooke, Fl. Pres. Bombay 2: 305. 1958 (Repr. ed.).

Prostrate, creeping herbs with filiform stems; rooting at nodes clothed with scattered soft hairs. Leaves orbicular to reniform, 0.5-2.6 x 0.8-3.2 cm, glabrous or sparsely hairy. Flowers yellow, axillary, 1-3 flowered. Capsules globose, 0.3 x 0.4 cm, glabrous.

Fls. & Frts. : October–December.

Distrib. : Nalagangapur project areas.

Notes : Often in water logged places.

M. quinquefolia (L.) Hall. f. in Bot. Jahrb. 16: 552. 1893; Oostestr. in Steenis, Fl. Males. Ser. I, 4: 446. 1953. *Ipomoea quinquefolia* L. Sp. Pl. 162. 1753.

Large, twining, glabrous, perennials. Leaves palmately compound; leaflets elliptic-lanceolate, 2–5 x 0.5–1.5 cm, glabrous. Flowers creamy-white, axillary, solitary or in few flowered-cymes. Capsules ovoid, 0.7–0.8 cm across, glabrous.

Fls. & Frts. : September–January.

Distrib. : Gumti village near Jalgaon Jamod, Lonar lake valley.

Notes : Occasional, escape from gardens. Native of West Indies, planted in gardens, but running wild in some places.

RIVEA Choisy

Rivea hypocrateriformis (Desv.) Choisy in Mem. Soc. Phys. Geneve 6: 408. 1833; C.B.Cl. in Hook. f. Fl. Brit. India 4: 184. 1883; Cooke, Fl. Pres. Bombay 2: 323. 1958 (Repr. ed.); Witt. List. 217. 1908. '*Phanda*'.

Large, stout, twining, silky or white hairy shrubs. Leaves orbicular or reniform with cordate base, 1–3 x 2–3.5 cm, appressed-silky hairy beneath. Flowers white, 1–3 in axillary cymes, fragrant, open at night. Capsules ovoid or ellipsoid, glabrous.

Fls. & Frts. : July–October.

Illus. : Talbot For. Fl. Pres. Bombay & Sind 2: 283, t. 427. 1911; Maheshwari, Illus. Fl. Delhi t. 137. 1966.

Distrib. : Buldhana, Both forests, Ghatbori forests, Matala.

Notes : Common throughout the district, locally abundant at some places.

CUSCUTACEAE

CUSCUTA L.

- | | | |
|--|-----|---------------------|
| 1. Styles 2, elongate, slender; stigmas capitate | ... | <i>C. chinensis</i> |
| 1. Style 1, short, stout; stigmas ovoid, thick, fleshy | ... | <i>C. reflexa</i> |

Cuscuta chinensis Lamk. Encycl. 2: 229. 1786; C.B.Cl. in Hook. f. Fl. Brit. India 4: 226. 1883; Cooke, Fl. Pres. Bombay 2: 293. 1958 (Repr. ed.).

Leafless, twining, yellowish, filiform, stem parasites, much branched forming a tangled mass. Flowers pale yellow or white, solitary or in stalked cymes or clusters. Capsules depressed-globose, 0.2–0.3 cm across, glabrous.

Fls. & Frts. : August–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 478. 1982.

Distrib. : Nandura near railway gate, Kherda Budruk.

Notes. : Occasional on *Tectona grandis* L. f. It is noticed that this species is gradually spreading in Ghatbori forest range, away from the human habitations, elsewhere not seen in the district.

C. reflexa Roxb. Pl. Cor. 2: 3, t. 104. 1798; C.B.Cl. in Hook. f. Fl. Brit. India 4: 226. 1883; Cooke, Fl. Pres. Bombay 2: 292. 1958 (Repr. ed.). 'Amarvel'.

Stem parasites with greenish-yellow, leafless, twining and hanging pale yellow, fleshy stems. Flowers white or creamy-white, solitary or in umbellate clusters in short racemes. Capsules globose 0.5–0.8 cm across, glabrous, circumscissile near the base.

Fls. & Frts. : December–March.

Illus. : Collett, Fl. Siml. 340, f. 107. 1902.

Distrib. : Sonati village fields near Mehkar.

Notes : Occasional on bushes.

SOLANACEAE

- | | | | |
|----|--|-----|--------------|
| 1. | Fruit a spiny capsule | ... | DATURA |
| 1. | Fruit a berry : | | |
| 2. | Anthers not connivent around the style,
dehiscing longitudinally : | | |
| 3. | Fruiting calyx accrescent enclosing the berry : | | |
| 4. | Flowers solitary, pedicellate | ... | PHYSALIS |
| 4. | Flowers in clusters, sessile | ... | WITHANIA |
| 3. | Fruiting calyx not inflated; berries not
enclosed in the persistent calyx | ... | CAPSICUM |
| 2. | Anthers connivent around style; dehiscing by pores : | | |
| 5. | Anthers opening by apical pores | ... | SOLANUM |
| 5. | Anthers opening by longitudinal slits | ... | LYCOPERSICUM |

CAPSICUM L.

Capsicum annum L. Sp. Pl. 188. 173; Cooke, Fl. Pres. Bombay 2: 347. 1958 (Repr. ed.); Deb in J. Econ. Tax. Bot. 1: 35. 1980. 'Mirchi'.

Annuals or biennials, woody, erect herbs. Leaves ovate-lanceolate, 3-5.5 x 1-1.5 cm, glabrous. Flowers white, 1-3 on lateral branches. Fruits linear, 8-8.5 x 0.6-0.8 cm, narrowed at the tip, shiny.

Fls. & Frts. : June-August.

Distrib. : Dhage nala near Warwat.

Notes : Cultivated throughout the district, also found as an escape. People of Buldhana district, eat comparatively much chillies, not only in form of powder, adding in other vegetables and curries but it is interesting to note that they prepare vegetable of common chillies adding red chilli powder.

Use s: A tropical American species cultivated for its spicy fruits.

DATURA L.

1. Capsules ovate; spines limited, woody, unequal in length ... *D. ferox*
1. Capsules globose, spines numerous, spinous or tubercled ... *D. inoxia*

Detura ferox L. Amoen. Acad. 3: 403. 1756; Blakeslee, Genus *Datura* 21-22 fig. 4. 1959; Haegi in Austr. J. Bot. 24: 415-435. 1976; Bhandari & Mehta in J. Bombay Nat. Hist. Soc. 76: 550-551 fig. 5. 1980.

Bushy undershrubs, 1-1.5 m tall, much branched. Leaves ovate in outline, 5-12 x 3.5-11.5 cm, margins shallowly many angled or lobed, glabrous. Flowers white, axillary, solitary. Capsules ovate, 2-3.5 cm across, with strong, woody, limited unequal spines.

Fls. & Frts. : August-February.

Illus. : Bhandari & Mehta *l.c.* Fig. 5. 1980.

Distrib. : Bibi village near the bridge.

Notes : Rare along roadsides. This plant is a native of China, so far it has been reported in India from Rajasthan and from Akola district and Pune district in Maharashtra and its collection from Buldhana district indicates that there is possibility of its occurrence in other districts in Maharashtra State.

D. inoxia Mill. Gard. Dict. ed. 8, No. 5. 1768; Blakeslee Genus *Datura* 28. 1959; Deb in J. Econ. Tax. Bot. 1 : 37. 1980. *D. metel auct. non* L. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 4 : 243. 1883; Cooke, Fl. Pres. Bombay 2 : 344. 1958 (Repr. ed.). '*Dhotra*'.

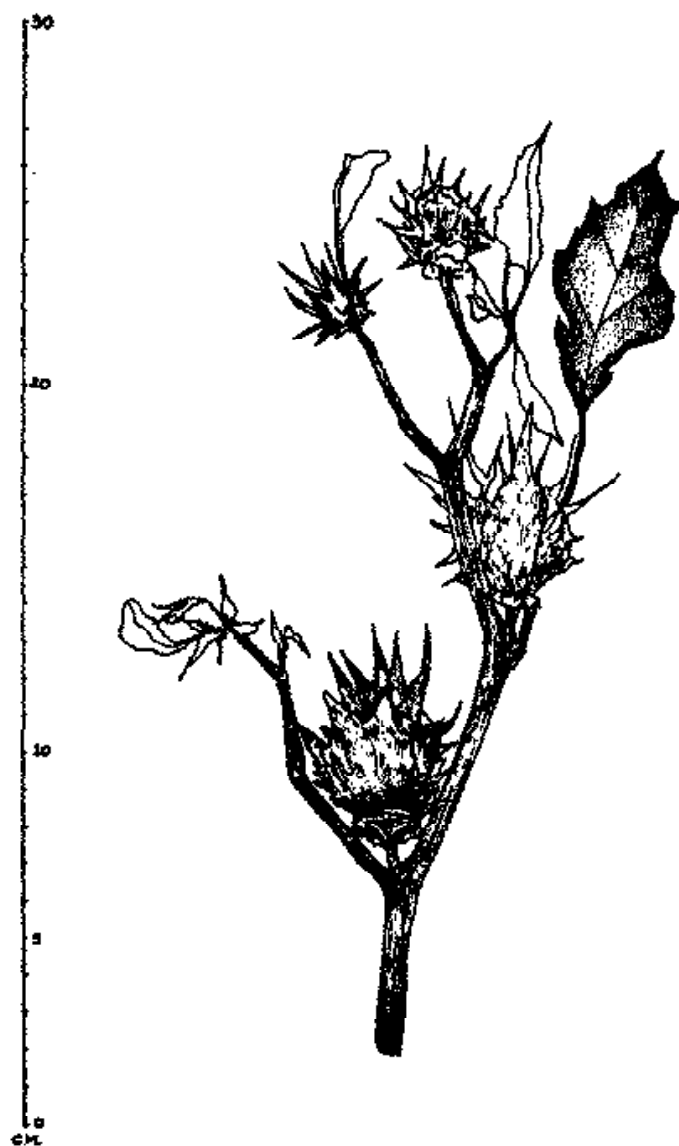
Erect, much branched, tomentose, undershrubs, 60-100 cm tall. Leaves ovate in outline, unequal sided, entire, 9 x 2-4.5 cm, appressedly hairy. Flowers white, axillary, solitary. Capsules globose, 2-3 cm across, clothed with weak spines, with persistent saucer-like calyx at base.

Fls. & Frts. : June-December.

Illus. : Blakeslee, *l.c.* f. 10.

Distrib. : Buldhana, Hiwra village, Lonar lake, Purna river bank, near bridge, on way to Nandura.

Notes : Very common around the villages and in rubbish.



Datura ferox L.

One of the rare species of the district.

LYCOPERSICON Mill.

Lycopersicon lycopersicum (L.) Karsten, Deutsch. Fl. 966. 1855; Deb in J. Econ. Tax. Bot. 1: 4. 1980. *Solanum lycopersicum* L. Sp. Pl. 185. 1753. *Lycopersicon esculentum* Mill. Gard Dict. ed. 8 No. 2. 1768; C.B.Cl. in Hook. f. Fl. Brit. India 4: 237. 1883; Cooke, Fl. Pres. Bombay 2: 345. 1958 (Repr. ed.). 'Tamata'.

Erect, glandular hairy herbs. Leaves pinnatisect, 5-10 cm long; lobes ovate-elliptic or elliptic-oblong. Flowers yellow, in small leaf-opposed cymes. Berries globose, sometimes ellipsoid, 2-5 cm across, glabrous.

Fls. & Frts. : Throughout the year.

Illus. : Bailey, Man. Cult. Pl. 866. f. 178. B.-Ba-Bd-1949.

Distrib. : Raipur gardens.

Notes. : Cultivated for its edible fruits, which are used variously.

PHYSALIS L.

Physalis minima L. Sp. Pl. 183. 1753; C.B.Cl. in Hook. f. Fl. Brit. India. 4: 238. 1883; Cooke, Fl. Pres. Bombay 2: 340. 1958 (Repr. ed.); Deb in J. Econ. Tax. Bot. 1: 43. 1980.

Soft, erect or suberect, annual herbs; stems pubescent, profusely branched. Leaves ovate, elliptic to elliptic-oblong, 2-5.5 x 1.5-4.5 cm, membranous, sparsely pubescent or glabrous. Flowers yellow, axillary, solitary. Berries subglobose, 1-2 cm long, enveloped in bladder-like calyx.

Fls. & Frts. : June-October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 490. 1982.

Notes : Common weed around cultivated fields and waste places.

SOLANUM L.

- | | | |
|---------------------------------|-----|------------------|
| 1. Unarmed herbs | ... | <i>S. nigrum</i> |
| 1. Armed herbs or undershrubs : | | |

- | | | | |
|----|-----------------------------|-----|----------------------|
| 1. | Diffuse or procumbent herbs | ... | <i>S. surattense</i> |
| 2. | Erect undershrubs : | | |
| 3. | Flowers bisexual | ... | <i>S. anguivi</i> |
| 3. | Flowers unisexual | ... | <i>S. incanum</i> |

Solanum anguivi Lamk. Tap. Ency cl. Meth. Bot. 2: 23. 1794; Hepper in Bot. J. Linn. Soc. 76: 290. 1978. *S. indicum auct. non* L. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 4: 234. 1883; Cooke, Fl. Pres. Bombay 2: 336. 1958 (Repr. ed.); Deb in J. Econ. Tax. Bot. 1: 47 1980. 'Ringani'.

Erect, much branched, prickly, woolly-tomentose herbs or undershrubs. Leaves broadly elliptic or elliptic-oblong or ovate, 3-9 x 1-5 cm, prickly on nerves. Flowers purple-violet, in extra-axillary, leaf-opposed, racemose-cymes. Berries globose, 0.5-1.1 cm across, yellow-red when ripe.

Fls. & Frts. : More or less throughout the year.

Illus. : Maheshwari, Illus. Fl. Delhi t. 151. 1966.

Distrib. : Buldhana, Chinchpani forests, Dongar Khandala, Loni Gawali.

Notes. : Common in waste, dry places. Report of the committee for Spermatophyta; 25 (Taxon 32 : 279. 1983) gave consent to proposals 456 and 457 viz. rejection of *Solanum indicum* L. and *S. sodomium* L. proposed by F.N. Hepper (Taxon 27 : 555. 1978) with fuller documentation (Bot. J. Linn. Soc. 76 : 287-292. 1978). Since the name *S. indicum* L. (1753) belongs to the species known as *S. ferox* L., the plant hitherto called *S. indicum* is, therefore, needing a new name. According to synonymy given by Hepper the correct name for this species is *S. anguivi* Lamk.

S. incanum L. Sp. Pl. 188. 1753; Cooke, Fl. Pres. Bombay 2: 337. 1958 (Repr. ed.). *S. coagulans* Forssk. Fl. Aeg.-Arab. 47. 1775; C.B.Cl. in Hook. f. Fl. Brit. India 4: 236. 1883.

Erect, prickly and stellate-tomentose undershrubs. Leaves ovate-elliptic, sinuately lobed, 4-9 x 2-5 cm, stellate pubescent, sparsely prickly on nerves. Flowers purple, axillary, on paired peduncles. Berries globose or sub-globose, 1.5-2.5 cm across, yellow.

Fls. & Frts. : December–June.

Distrib. : Botha forests.

Notes : Rare in the edges of forests. Deb in J. Econ. Tax. Bot. 1: 49. 1960; Khan *et al.* in Sci. & Cult. 41: 592. 1977; Arora & Hardas in J. Bombay Nat. Hist. Soc. 73 (2) : 423. 1977 treated *S. incanum* L. as *S. melongena* L. var. *incanum* (L.) O. Ktze. But we have considered here *S. incanum* L. as an independent species, because *S. melongena* L. is a cultivated species whereas *S. incanum* L. is a wild one.

S. nigrum L. Sp. Pl. 186. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 4: 229. 1883; Cooke, Fl. Pres. Bombay 2: 332. 1958 (Repr. ed.); Deb. in J. Econ. Tax. Bot. 1: 49. 1980. '*Kanguni*'.

Erect or sub-erect, annual herbs, 30–100 tall; stems green, much branched. Leaves broadly ovate, thinly hairy beneath. Flowers white in extra-axillary 3–8 flowered umbellate-cymes. Berries globose, 0.5–0.7 cm across, glabrous, blackish-purple when ripe.

Fls. & Frts. : October–June.

Illus. : Wight, Ic. t. 344. 1840.

Distrib. : Buldhana–Motala Road, 3rd km stone, Gaumal forest village fields, Lahvala on way to Mehkar.

Notes : Common weed, growing around cultivated fields and on waste lands.

S. surattense Burm. f. Fl. Ind. 57. 1768; Merr. in Philipp. J. Sci. 19: 377. 1921; Deb. in J. Econ. Tax. Bot. 1: 51. 1980. *S. xanthocarpum* Schrad. & Wendl. Sert. Hannov 1: 8, t. 2. 1795; C.B.Cl. in Hook. f. Fl. Brit. India 4: 236. 1883; Cooke, Fl. Pres. Bombay 2: 335. 1958 (Repr. ed.).

Profusely branched, perennial, prostrate, or decumbent-ascending herbs. Leaves ovate-elliptic in outline, 4–8 x 2–5 cm, stellately pubescent on both the sides, prickly on nerves. Flowers purple, in extra-axillary, few-flowered cymes. Berries globose, 1–1.5 cm across, glabrous, yellow when ripe.

Fls. & Frts. : December–June.

Illus. : Maheshwari, Illus, Fl. Delhi t. 150. 1966.

Distrib. : Nalgangapur project area, Purna river bank near bridge on way to Nandura, Rajura lake, Toradi village nala.

Notes : Common on dried river beds and streams and along roadsides. This taxon is also known as *Solanum virginianum* L.

WITHANIA Pauq. *nom. cons.*

Withania somnifera (L.) Dunal in DC. Prodr. 13 : 453. 1852; C.B.Cl. in Hook. f. Fl. Brit. India 4: 239. 1883; Cooke, Fl. Pres. Bombay 2: 341. 1958 (Repr. ed.); Deb in J. Econ. Tax. Bot. 1: 52. 1980. *Physalis somnifera* L. Sp. Pl. 182. 1753. 'Aashand'.

Erect, perennial, hairy tomentose undershrubs. Leaves ovate, 4–8 x 2–4 cm, appressed hairy. Flowers greenish–yellow, 1–5 together in a sessile or subsessile, umbellate–cymes. Berries globose, 0.5–0.8 cm across, smooth, obscurely 5–angled, enclosed in inflated calyx, red at maturity

Fls. & Frts. : June–September.

Illus. : Maheshwari, Illus. Fl. Delhi t. 149. 1966; Matthew, Illus. Fl. Tamilnadu Carnatic t. t.492. 1982.

Distrib. : Taroda village near Shegaon.

Notes : Rare, on waste lands.

SCROPHULARIACEAE

- | | | |
|--|-----|-----------|
| 1. Leaves all alternate; corolla tube short | ... | VERBASCUM |
| 1. Leaves all, or at least lower opposite; corolla tube elongate : | | |
| 2. Plants semi or total parasites : | | |
| 3. Leaves much dissected | ... | SOPUBIA |
| 3. Leaves entire, seldom scaly | ... | STRIGA |
| 2. Plants not parasitic : | | |
| 4. Corolla distinctly bilabiate | ... | STEMODIA |
| 4. Corolla not bilabiate | ... | BACOPA |

BACOPA Aubl. *nom. cons.*

Bacopa monnieri (L.) Pennell in Proc. Acad. Nat. Sci. Philad. 98: 94. 1946; Philcox in Kew Bull. 33: 679. 1979. *Lysimachia monnieri* L. in Torner, Cent. Pl. 2, t. 9. 1756. *Herpestis monnieri* (L.) Kunth, Nov. Gen. & Sp. 2: 336. 1818, *nom. illegit.*; Hook f. Fl. Brit. India 4: 272. 1884. *Monniera cuneifolia* Mich. Fl. Bor. Amer. 2: 22. 1803; Cooke, Fl. Pres. Bombay 2: 356. 1958 (Repr. ed.).

Fleshy, prostrate, glabrous herbs, rooting at nodes. Leaves obovate-oblong, 0.8–0.9 x 0.2–0.3 cm, sessile or subsessile. Flowers blue or purple on slender, solitary, axillary peduncles. Capsules ovoid-ellipsoid, 0.4–0.5 cm long, 2-valved. Seeds oblong, striate.

Fls. & Frts. : December–June.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 494. 1982.

Distrib. : Changephal village, Toradi mala, Warwat-wahegaon Road, near Shegaon.

Notes : Common along wet beds of rivers and streams.

SOPUBIA Ham. ex D. Don

Sopuba 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. Cent. Pl. 21. 1756.

Erect, glabrous, much branched, annual herbs. Leaves pinnatisect; segments filiform, 2–4 cm long, glabrous. Flowers pink, axillary, solitary or in terminal racemes. Capsules ovoid, 0.5–0.6 cm long, 2 valved, glabrous, with furrow on each face.

Fls. & Frts. : June–December.

Illus. : Fyson, Fl. Nilgiri, Pulney Hill tops 2: t. 199. 1915 (Repr. ed. 1974).

Distrib. : Buldhana, Udhera tank, Sindkhed Raja.

Notes : Common among grasses, in moist situations.

STEMODIA L. *nom. cons.*

Stemodia viscosa Roxb. Pl. Cor. 2: 33 t. 163. 1798; Hook. f. Fl. Brit. India 4: 265. 1884; Cooke, Fl. Pres. Bombays 2: 359. 1958 (Repr. ed.).

Erect, or suberect, much branched, viscidly pubescent herbs. Leaves elliptic-oblong or obovate, 1.5–4.5 x 0.8–1.1 cm, semi-amplexicaule. Flowers violet-blue, axillary, solitary or in terminal few-flowered racemes. Capsules ovoid, 0.4–0.5 cm long, 4-valved.

Fls. & Frts. : October–March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 506. 1982.

Distrib. : Nalgangapur project area, Toradi nala..

Notes : Occasional in drying moist-grounds.

STRIGA Lour.

Striga densiflora (Bth.) Bth. Comp. Bot. Mag. 1: 363. 1836; Hook. f. Fl. Brit. India 4: 299. 1884; Fl. Pres. Bombay 2: 375 1958 (Repr. ed.). *Buchnera densiflora* Bth. Scroph. Ind. 41. 1835.

Erect, scabridly hairy, annual, root parasites, Leaves linear-oblong, 1.5–2.5 x 0.1 cm, sessile. Flowers white, axillary, solitary, in the axils of floral bracts. Capsules 0.2–0.4 cm long, 2-valved, glabrous, included in calyx.

Fls. & Frts. : September–December.

Distrib. : Ayla Killa, Bhingara forests near Madhya Pradesh and Maharashtra boundary, Buldhana, Rajura lake, Sultanpur.

Notes : Common herb, parasitizing on roots of grasses.

VERBASCUM L.

Verbascum chinense (L.) Sant. Fl. Purandhar 90. 1958 & in Rec. Bot. Surv. India 16: 17, (ed. 3) 1967. *Scrophularia chinensis* L. Mant. 2: 50. 1771. *Celsia coromandeliana* Vahl, Symb. Bot 3: 79. 1794; Hook. f. Fl. Brit. India 4: 251. 1884; Cooke, Fl. Pres. Bombay 2: 353. 1958 (Repr. ed.).

Erect, glandular-hairy, annual herbs, 30–80 cm tall. Leaves radical, 4.5–7 x 2–3 cm, lyrate-pinnatifid, sessile. Flowers yellow, axillary, solitary or in few-flowered, leafy racemess. Capsules subglobose, 0.4–0.5 cm long, 2-valved. Seeds oblong, truncate, warted.

Fls. & Frts. : March–June.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 495. 1982.

Distrib. : Buldhana–Ajantha Road, 3rd km stone, Chinchpani forests, Rajura lake.

Notes : Common weed along roadsides and cultivated fields.

BIGNONIACEAE

DOLICHANDRONE (Fenzl) Seem. *nom. cons.*

Dolichandrone falcata Seem. in *J. Bot.* 8: 381. 1870; C.B.Cl. in Hook. f. *Fl. Brit. India* 4: 380. 1884; Cooke, *Fl. Pres. Bombay* 2: 404. 1958 (Repr. ed.). '*Medshing*'.

Small, deciduous trees, 5–10 m tall; young parts pubescent. Leaves simply pinnate; leaflets obovate or suborbicular, 1–3 x 0.5–2.8 cm, pubescent. Flowers white, in few-flowered racemes. Capsules flat, 20–30 x 1.5–2 cm, falcately curved. Seeds rectanguler, winged at both ends.

Fls. : March–June. *Frts* : September–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 512 1982.

Distrib. : Yelgaon village.

Notes : Frequent on hill slopes.

CULTIVATED SPECIES

JACARANDA Juss.

Jacaranda mimosifolia D. Don, *Bot. Reg.* 8: t. 631. 1822; Blatter *et al.* in *Beautif. Ind. Trees* ed. 2: 93. 1954; Matthew in *Rec. Bot. Serv. India* 20. 173. 1969. *J. ovalifolia* R. Br. in *Bot. Mag.* t. 2327. 1822.

Trees, 5–12 m tall. Leaves pinnately compound; leaflets 14–24 pairs, elliptic-oblong or rhomboid-oblong, 0.4–1.2 x 0.2–0.4 cm, glabrous. Flowers blue, in terminal, pyramidal panicles.

Fls. : March–May; *Frts.* : Not seen.

Distrib. : Buldhana–Ajantia Road, near T.B. Hospital.

Notes : Planted in gardens and along roadsides.

KIGELIA Cand.

Kigelia africans (Lamk.) Bth. in Hook. Niger. Fl. 463. 1849; van. Steenis, Fl. Males. Ser. I, 8: 183. 1977. *Bignonia africana* Lamk. Encycl. 1: 424. 1785. *Kigelia pinnata* DC. Prodr. 9: 247. 1845. 'Gorakh chinch'.

Evergreen trees, 10–15 m tall. Leaves imparipinnate; leaflets elliptic-oblong or obovate-oblong, 5–8 x 2.5–4.2 cm, glabrous or thinly pubescent. Flowers deep red, in lax, pendulous racemes. Fruits sausage-shaped, 20–30 x 8–15 cm, indehiscent.

Fls. & Frts. : February–June.

Distrib. : Buldhana–Malkapur Road, near S.T. Stand.

Notes : Rare, along road sides.

TECOMA Juss.

Tecoma stans (L.) Kunth, Nov. Gen. Pl. 3: 144. 1819; Matthew in Rec. Bot. Surv. India 20: 175. 1969. *Bignonia stans* L. Sp. Pl. ed. 2: 871. 1763. *Stenolobium stans* (L.) Seem. in J. Bot. 1: 88. 1863; Cooke, Fl. Pres. Bombay 2: 410. 1958 (Repr. ed.).

Large shrubs or small trees, 2–4 m tall. Leaves imparipinnate; leaflets lanceolate, 6–10 x 1.5–2 cm, entire with toothed margins. Flowers yellow, in simple or paniced–racemes. Capsules linear, 11–20 x 0.5–0.6 m, compressed.

Fls. & Frts. : September–February.

Distrib. : Bibi near Sultanpur, Buldhana near Ganesh Temple.

Notes : Common, introduced plants.

MARTYNIACEAE

MARTYNIA L.

Martynia annua L. Sp. Pl. 618. 1753; Backer in van Steenis, Fl. Males. Ser. 4: 221. 1951. *M. diandra* Gloxin. Obs. 14, t. 1. 1785; C.B.Cl. in Hook. f. Fl. Brit. India 4: 386. 1884; Cooke, Fl. Pres. Bombay 2: 414. 1958 (Repr. ed.). '*Winchu*'.

Glandular hairy, annual, viscid herbs or undershrubs, 0.5–1.5 m tall. Leaves broadly ovate or suborbicular, 3.5–12.5 x 3–14 cm, silky, densely viscid pubescent. Flowers rosy, drooping, in short axillary and terminal racemes. Fruits ovoid, 2.5–3.5 x 1–1.5 cm, laterally compressed with a curved beak, mesocarp woody, with 2 sharp up-curved hooks, enclosing the seed.

Fls. & Frts. : September–December.

Illus. : Maheshwari, Illus. Fl. Delhi t. 162. 1966; Matthew, Illus. Fl. Tamilnadu Carnatic t. 515. 1982.

Distrib. : Sindhked Raja, Sonapalli forests.

Notes : Common along roadsides and waste lands. Native of Mexico, one of the very common weeds of the district.

PEDALIACEAE

SESAMUM L.

Sesamum indicum L. Sp. Pl. 634. 1753; C.B.Cl. 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. '*Rantil*'.

Erect, glandular-pubescent, strongly smelling annual herbs. Lower leaves long petioled, trifoliate or palmatisect; upper leaves short petioled, ovate-lanceolate or oblong. Flowers pink, axillary, solitary, emitting a strong unpleasant odour. Capsules oblong, 2–3 x 0.5–0.7 cm, quadrangular, 2-valved, hairy.

Fls. & Frts. : September–November.

Illus. : Wight, Illus. Ind. Bot. t. 163. 1850; Nair, l.c. figs 1–9.

Distrib. : Sindkhed Raja.

Notes : Cultivated for its seeds and also found as an escape. Seeds yield an oil known as '*Til Oil*' which is used in cooking. The cake obtained after removing the oil, is eaten by cattle.

ACANTHACEAE

- | | | | |
|-----|---|-----|----------------|
| 1. | Corolla without an upper lip, lower lip 3-lobed | ... | BLEPHARIS |
| 1. | Corolla 2-lipped or with 5 subequal lobes : | | |
| 2. | Corolla lobes twisted in bud : | | |
| 3. | Ovules more than 2 in each cell;
capsules 6 or more seeded : | | |
| 4. | Corolla distinctly 2-lipped | ... | HYGROPHILA |
| 4. | Corolla of 5 subequal lobes : | | |
| 5. | Flowers in pedunculate cymes | ... | RUELLIA |
| 5. | Flowers sessile or subsessile,
axillary and terminal : | | |
| 6. | Inflorescence axillary; flowers
solitary or 2-3 together | ... | DIPTERACANTHUS |
| 6. | Inflorescence axillary and /
or terminal : | | |
| 7. | Inflorescence a capituliform
compound spike, surrounded
by 4-outer bracts | ... | GANTELBUA |
| 7. | Inflorescence a short compact
spike surrounded by bracts
of one kind | ... | HEMIGRAPHIS |
| 3. | Ovules 2 in each cell; capsules 4-or less seeded | ... | ERANTHEMUM |
| 2. | Corolla lobes imbricate in bud : | | |
| 8. | Ovules 3-10 in each locule; capsules 4 or more seeded ; | | |
| 9. | Flowers in one sided racemes or terminal panicles : | | |
| 10. | Capsules ovoid, 4-seeded | ... | INDONEESIELLA |

- | | | |
|--|-----|--------------|
| 10. Capsules elliptic, 8-12 seeded | ... | ANDROGRAPHIS |
| 9. Flowers clustered in midst of axillary cladodes | ... | HAPLANTHODES |
| 8. Ovules 2, rarely in each locule : | | |
| 11. Corolla lobes subequal | ... | BARLERIA |
| 11. Corolla distinctly 2-lipped : | | |
| 12. Stamens 4; bracts spinous-tipped | ... | LEPIDAGATHIS |
| 12. Stamens 2; bracts not spinous-tipped: | | |
| 13. Anther cells parallel | ... | PERISTROPHE |
| 13. Anther cells superposed : | | |
| 14. Bracts dimorphic | ... | RUNGIA |
| 14. Bracts not dimorphic : | | |
| 15. Anther cells with a basal spur-like appendage | ... | JUSTICIA |
| 15. Anther cells not spurred at base | ... | ADHATODA |

ADHATODA Mill.

Adhatoda zeylanica Medik. Hist. & Commentat. Acad. Sci. Theod. Palat. 6: 393. 1790. *Justicia adhatoda* L. Sp. Pl. 15. 1753; Stern in J. Arnold Arb. 52 (3): 640. 1971. *Adhatoda vasica* Nees in Wall. Pl. As. Rar. 4: 103. 1832; C.B.Cl. in Hook. f. Fl. Brit. India 4 : 540. 1885; Cooke, Fl. Pres. Bombay 2: 493. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 92. 1952. 'Adulsa'.

Evergreen, erect, bushy shrubs with short internodes; branches thickened above the nodes. Leaves elliptic-lanceolate, 10-19 x 3-7 cm, glabrous. Flowers white; in axillary and terminal spikes. Capsules clavate, 1.5-2 cm long, pubescent, 4-seeded. Seeds orbicular-oblong, tuberculate.

Fls. & Frts. : More or less throughout the year.

Illus. : Matthew, Illus. Fl. Tamlnadu Carnatic t. 519. 1982.

Distrib. : Bawanbir, Lonar lake, Pathardi forests.

Notes : Frequent along hill slopes.

Uses : Leaves are used in cough and bronchial asthma.

ANDROGRAPHIS Wall. ex Nees

Andrographis paniculata (Burm. f.) Wall. ex Nees in Wall. Pl. As. Rar. 3: 116. 1832; C.B.Cl. 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.

Erect, stout, branched, rigid, annual herbs; branches angled. Leaves elliptic-lanceolate, 2.5–8 x 1.5–2 cm, glabrous. Flowers whitish with purple streaks, axillary, solitary. Capsules linear-oblong, 0.8–1.5 cm long, glabrous.

Fls. & Frts. : October–December.

Distrib. : Dongar Shewli.

Notes : Frequent on the forest edges.

BARLERIA L.

- | | | |
|--|-----|---------------------|
| 1. Plants armed with intra-petiolar spines | ... | <i>B. prionitis</i> |
| 1. Plants not armed: | | |
| 2. Outer sepals spinous-tipped | ... | <i>B. cristata</i> |
| 2. Outer sepals not spinous-tipped | ... | <i>B. gibsoni</i> |

Barleria cristata L. Sp. Pl. 636. 1753; Hook, f. Fl. Brit. India 4: 488. 1884; Cooke, Fl. Pres. Bombay 2: 460. 1958 (Repr. ed.); Witt. List 65. 1908; Sant. in Univ. Bombay Bot. Mem. No. 2, 59. 1952.

Perennial herbs or undershrubs, 40–70 cm tall; stems and branches appressed hairy. Leaves ovate-elliptic, elliptic-oblong or lanceolate, 4–14 x 1–4.2 cm, appressed hairy, bristle-tipped. Flowers blue-purple, in axillary and terminal racemes. Capsules ellipsoid, 1–1.5 cm long, glabrous, 4 seeded.

Fls. & Frts. : September–March.

Distrib. : Buldhana, Chinchpani forests, Parthardi forests, Shiwni lake near Deulgaon Raja, Sonala forest range.

Notes : Very common and throughout the district. It is always seen that these plants grow more vigorously in shady, moist places.

B. gibsoni Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2: 339. 1850; C.B.Cl. Hook. f. Fl. Brit. India 4: 487. 1884; Cooke, Fl. Pres. Bombay 2: 464. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 62. 1952.

Perennial, undershrubs, 0.5–1 m tall. Leaves ovate, 5–10 x 4–6 cm, glabrous. Flowers pink or purple, in terminal spikes, also axillary, solitary; bracts ovate-elliptic, 3.5–4 x 1.5–2 cm. Capsules 2–2.5 cm long, oblong-acuminate, glabrous.

Fls. & Frts. : September–December.

Illus. : Sant. (l.c.) t. opp. p. 92. 1952.

Distrib. : Wasali forests.

Notes : Occasional on hill slopes. Flowers of this plant are attractive, hence can be introduced in garden.

B. prionitis L. Sp. Pl. 636. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 4: 482. 1884; Cooke, Fl. Pres. Bombay 2: 457. 1958 (Repr. ed.); Witt. List 64–65 1908; Sant. in Univ. Bombay Bot. Mem. No. 2, 7: 57. 1952. '*Katekoranti*.'

Erect, suffrutescent, glabrous herbs, 30–90 cm tall. Leaves elliptic, 7–4 x 0.5–1.5 cm, appressed hairy beneath. Flowers bright yellow, in axillary fascicles and terminal leafy spikes. Capsules ovoid, with a tapering beak, 1.8–2.2 cm long. Seeds flattened or globular hairy.

Fls. & Frts. : September–March.

Illus. : Wight, Ic. t. 452. 1841; Maheshwari, Illus. Fl. Delhi t. 170. 1966.

Distrib. : Toradi village near Shegaon.

Notes : Common in the forest undergrowth and in waste places.

BLEPHARIS A. L. Juss.

Blepharis maderaspatensis (L.) Roth, Nov. Pl. Sp. 320. 1821; Sant. in Univ. Bombay Bot. Mem. No. 2, 15. 1952; Napper in Kew Bull. 24. 323. 1970. *Acanthus maderaspatensis* L. Sp. Pl. 639. 1753. *Blepharis boerhaviaefolia* Pers. Syn. Pl. 2: 180. 1806; C.B.Cl. in Hook. f. Fl. Brit. India 4: 478. 1884; Cooke, Fl. Pres. Bombay 2: 424. 1958 (Repr. ed.).

Diffuse or procumbent, much branched, pubescent herbs. Leaves whorled, elliptic or slightly obovate, 1.5–9 x 0.5–2 cm, whitish beneath. Flowers white or pale blue, solitary, axillary or 2–3 together. Capsules ovoid–ellipsoid, 0.5–0.7 cm long, compressed. Seeds echinate with blunt spines.

Fls. & Frts. : September–December.

Illus. : Wight, Ic. t. 458. 1841.

Distrib. : Lonar lake.

Notes : Frequent on hill slopes.

DIPTERACANTHUS Nees

Dipteracanthus prostratus (Poir.) Nees in Wall. Pl. As. Rar. 3: 81. 1832; Sant. in Univ. Bombay Bot. Mem. No. 2, 24. 1952. *Ruellia prostrata* Poir. in Lamk. Encycl. 6: 349. 1804; C.B.Cl. in Hook. f. Fl. Brit. India 4: 411. 1884. *R. prostrata* var. *dejecta* C.B.Cl. in Hook. f. l.c. 412; Cooke, Fl. Pres. Bombay 2: 431. 1958 (Repr. ed.).

Perennial, prostrate to geniculately ascending, multicauline herbs. Leaves ovate or ovate–elliptic, 2–6 x 1.5–3.5 cm, appressed hairy. Flowers purple, axillary, solitary. Capsules clavate, 1.5–2 cm long, pointed. Seeds orbicular.

Fls. & Frts. : October–January.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 525. 1982.

Distrib. : Jamod.

Notes : Occasional on hill slopes.

ERANTHEMUM L. *emend.* Radlk.

Eranthemum roseum (Vahl) R. Br. Prodr. 477. 1810; Sant. in Univ. Bombay Bot. Mem. No. 2, 34. 1952. *Justicia rosea* Vahl, Enum. 1: 165. 1804. *Daedalacanthus roseus* T. Anders. in J. Linn. Soc. 9: 487. 1867; C.B.Cl. in Hook. f. Fl. Brit. India 4: 419. 1884; Cooke, Fl. Pres. Bombay 2: 439. 1958 (Repr. ed.).

Erect, suberect herbs or undershrubs, 40–100 cm tall. Leaves elliptic-lanceolate, oblong-lanceolate, 10–20 x 3–7 cm, pubescent beneath. Flowers bluish-purple in terminal and axillary, simple or paniculate-spikes. Capsules clavate, 1–1.3 cm long, pubescent. Seeds suborbicular, hygroscopically hairy.

Fls. & Frts. : December–March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 529. 1982.

Distrib. : Ambabarwa hillocks.

Notes : Rare, on hillocks.

GANTELBUA Bremek.

Gantelbua urens (Heyne ex Roth) Bremek. in Mat. Mon. Strob. 148. 1944; Sant. in Univ. Bot. Mem. No. 2. 28. 1952. *Ruellia urens* Heyne ex Roth, Nov. Pl. Sp. 302. 1821. *Hemigraphis dura* T. Anders. in J. Linn. Soc. 9 : 451. 1867; C.B.Cl. in Hook. f. Fl. Brit. India 4: 422. 1884; Cooke, Fl. Pres. Bombay 2: 433. 1958. (Repr. ed.).

Procumbent or prostrate, branched, strigosely hairy herbs. Leaves obovate or oblong, 1.5–4 x 1–2 cm, strigosely hairy. Flowers blue, in capituliform compound spikes, at the ends of the branches. Capsules linear-oblong, 0.9–1.2 cm, grooved, glabrous. Seeds suborbicular, yellowish-brown.

Fls. & Frts. : January–June.

Distrib. : Borkhed, Hajam Nala, near Amrawati–Buldhana District border.

Notes : Occasional along dried stream beds.

HAPLANTHODES O. Ktze.

Haplanthodes verticillatus (Roxb.) Majumdar in Bull. Bot. Soc. Bengal 25 (1 & 2): 76. 1971; Panigrahi & Das in Bull. Bot. Surv. India 23: 199. 1983. *Justicia verticillata* Roxb. Fl. Ind. 1: 135. 1832. *Haplanthus verticillatus* (Roxb.) Nees in DC. Prodr. 11: 513. 1847 ('*verticillaris*'); C.B.Cl. 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.

Erect, annual, glandular pubescent, suffruticose herbs, 20–50 cm tall. Leaves ovate-oblong, 5–10 x 3–5 cm, glabrescent at length. Flowers bluish-purple axillary in verticels. Capsules oblong, 0.9–1.2 cm long, grooved.

Fls. & Frts. : December–March.

Distrib. : Ambabarwa hillocks.

Notes : Rere, on hillocks.

HEMIGRAPHIS Nees *emend.* T. Anders.

Hemigraphis latebrosa (Heyne ex Roth) Nees var. **heyneana** Bremek. in Verh. Nederl. Acad. Wet. II, 40: 139. 1944; Sant. in Univ. Bombay Bot. Mem. No. 2, 26. 1952. *Ruellia latebrosa* Heyne ex Roth, Nov. Pl. Sp. 307. 1821. *Hemigraphis latebrosa* (Heyne ex Roth) Nees in DC. Prodr. 11: 723. 1847; C.B.Cl. in Hook. f. Fl. Brit. India 4: 423. 1884; Cooke, Fl. Pres. Bombay 2: 434. 1958 (Repr. ed.).

Procumbent, much branched, weak herbs, clothed soft white hairs. Leaves ovate, 3–9 x 2–5.5 cm, membranous, sparingly hairy. Flowers blue in axillary and terminal heads. Capsules 0.5–0.7 cm long, minutely pubescent, tetragonous. Seeds broadly ellipsoid to sub-orbicular, yellowish-brown.

Fls. & Frts. : December–March.

Illus. : Wight, Ic. t. 1504. 1850.

Distrib. : Ambabarwa valley.

Notes : Frequent in shaded spots.

HYGROPHILA R. Br.

- | | | |
|---|-----|----------------------|
| 1. Inflorescence spinous; capsules 2-8 seeded | ... | <i>H. auriculata</i> |
| 1. Inflorescence not spinous; capsules 8 or more seeded | ... | <i>H. serpyllum</i> |

Hygrophila auriculata (Schum.) Heine in Kew Bull. 16: 172. 1962. *Barleria auriculata* Schum. in Schum. & Thonn. Beskr. Guin. Pl. 285. 1827. *Asteracantha longifolia* 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. Zeyl. 225. 1860. & J. Linn. Soc. Bot. 7: 22 1863; C.B.Cl. in Hook. f. Brit. India 4: 408. 1885.

Armed, erect, perennial, stout, hispid herbs. Leaves in whorl of 6 at each node, oblong-lanceolate, 5-8 x 1.2 cm, hispid. Flowers blue, in many flowered axillary whorls. Capsules linear-oblong, 1-1.2 cm long.

Fls. & Frts. : October-March,

Distrib. : Buldhana, Sonati village near Mehkar.

Notes : Common in marshy areas along streams and river beds.

H. serpyllum (Nees) T. Anders. in J. Linn. Bot. Soc. 9: 456. 1867; C.B.Cl. in Hook. f. Fl. Brit. India 4: 406. 1884; Cooke, Fl. Pres. Bombay 2: 429. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem No. 2, 19. 1952. *Physichilus serpyllum* Nees in Hook. Comp. Bot. Mag. 2: 311. 1837.

Unarmed, prostrate herbs, rooting at nodes. Leaves ovate, elliptic or nearly orbicular, 1-2.5 x 0.5-1 cm, hairy on both the surfaces. Flowers bluish-purple, in axillary and terminal dense spikes. Capsules linear-oblong, 0.5-0.7 cm long, pointed. Seeds ovoid.

Fls. & Frts. : November-March.

Illus. : Wight, Ic. t. 1493. 1849.

Distrib. : Bhingara forest stream, Gaumal forests.

Notes : Common in moist places along streams and cultivated fields.

INDONEESIELLA Sreem.

Indoneesiella echioides (L.) Sreem. in Phytologia 16 : 466, 1968. *Justicia echioides* L. Sp. Pl. 16. 1753. *Andrographis echioides* (L.) Nees in Wall. Pl. As. Rar. 3: 117. 1832; C.B.Cl. in Hook. f. Fl. Brit. India 4: 505. 1884; Cooke, Fl. Pres. Bombay 2: 451. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 51. 1952.

Erect, annual herbs, patently hairy with quadrangular, grooved stems. Leaves oblong, 2.5–6.5 x 1–2 cm, sparsely hairy on both surfaces. Flowers whitish–pink or dirty white, in long racemes. Capsules elliptic, 0.8–1 x 0.3–0.5 cm, compressed, hairy, acute at both ends. Seeds rugose.

Fls. & Frts. : September–December.

Illus. : Maheshwari, Illus. Fl. Delhi t. 165. 1966.

Distrib. : Sultanpur near Bibi.

Notes : Rare in gravelly ravines.

JUSTICIA L.

- | | |
|--|---|
| 1. Bracts, bracteoles and calyx lobes obtuse at apex | . <i>quinqueangularis</i>
var. <i>peplodes</i> |
| 1. Bracts, bracteoles and calyx lobes acute at apex | ... <i>J. prostrata</i> |

Justicia prostrata (C.B.Cl.) Gamble, Fl. Pres. Madras 2: 757. 1957 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 88. 1952. *J. diffusa* Willd. var. *prostrata* C.B.Cl. in Hook. f. Fl. Brit. India 4: 538. 1885; Cooke, Fl. Pres. Bombay 2: 490. 1958 (Repr. ed.).

Erect or diffuse, upto 30 cm tall weak herbs, patently hairy. Leaves ovate–elliptic, 1–3 x 0.2–1.2 cm, membranous, pubescent. Flowers pink, in short terminal spikes. Capsules 0.2–0.3 cm long, pubescent. Seeds brown, tubercled.

Fls. & Frts. : October–March.

Distrib. : Gaumal forests on way to Badalkhora, Shimba river bank.

Notes : Frequent on open hillocks.

J. quinqueangularis Koen. ex Roxb. var. **peploides** (Nees) C.B.Cl. in Hook. f. Fl. Brit. India 4: 537. 1885; Cooke, Fl. Pres. Bombay 2: 490. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 89. 1952. *Rostellaria peploides* Nees in Wall. Pl. As. Rar. 3: 101. 1832.

Erect, or diffuse, annual herbs, 10–35 cm tall; stems angular with distant internodes. Leaves elliptic-oblong, 1.5–2 x 0.2–1 cm, obtuse at apex. Flowers pink, in terminal spikes. Capsules oblong, 0.5–0.6 x 0.2 cm, acutely pointed. Seeds reticulately rugose.

Fls. & Frts. : September–March.

Distrib. : Buldhana, Deulgaon Raja, Gaumal forests near Madhya Pradesh border, Lonar lake.

Notes : Common in stagnant water. One of the few aquatic plants which are common in the district.

LEPIDAGATHIS Willd.

1. Calyx 5-partite ... *L. trinervis*

1. Calyx 4-partite ... *L. cristata*

Lepidagathis cristata Willd. Sp. Pl. 3: 400. 1800; C.B.Cl. in Hook. f. Fl. India 4: 516. 1885; Cooke, Fl. Pres. Bombay 2: 470. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem No. 2, 71. 1952.

Stunted, perennial herbs with suberect procumbent branches from base. Leaves lanceolate-oblong, 1–4.5 x 1–1.7 cm, lineolate above, hairy on nerves beneath. Flowers pink with purple spots in a sub-radial globose heads. Capsules ovoid, 0.6–0.7 cm long. Seeds ovoid-oblong, hygroscopically hairy.

Fls. & Frts. : September–December.

Illus. : Wight, Ic. t. 455. 1841.

Distrib. : Bawanbir, Buldhana, Gaumal forests, Mehkar.

Notes. : Occasional on rocky and hard soil. This is drought resisting species.

L. trinervis Wall. ex Nees in Wall. Pl. As. Rar. 3: 96. 1832; C.B.Cl. 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, 72. 1952.

Perennial, erect or diffuse, suffrutcose herbs; rootstocks woody. Leaves linear, 1-4 x 0.3-0.4 cm, 3-nerved, glabrous. Flowers pinkish, in axillary, sessile, ovoid, dense spikes. Capsules ovoid-lanceolate, 0.5-0.6 cm long, compressed. Seeds oblong, hairy.

Fls. & Frts. : September-March.

Distrib. : Aampani forests, Bhingara forests, Botha forests, Pathardi forests.

Notes : Common throughout the district, on hill slopes. This species too is drought resistant and is usually found on lateritic soil.

PERISTROPHE Nees

Peristrophe paniculata (Forssk.) Brummitt in Kew Bull. 38: 451. 1983. *Dianthera paniculata* Forssk. Fl. Aeg.-Arab. 7. 1775. *Peristrophe bicalyculata* (Retz.) Nees in Wall. Pl. As. Rar. 3: 113. 1832; C.B.Cl. in Hook. f. Fl. Brit. India 4: 554. 1885; Cooke, Fl. Pres. Bombay 2: 495. 1958 (Repr. ed.); Sant. Univ. Bombay Bot. Mem No. 2, 93. 1952.

Erect, weak, annual herbs, 20-40 cm tall, scabrous; stems and branches angular. Leaves ovate, 3-6.4 x 2-3 cm, appressed hairy. Flowers pink, in axillary and terminal trichotomous paniculate-cymes. Capsules narrowed into cylindrical stalks, pubescent. Seeds orbicular, papillose.

Fls. & Frts. : October-December.

Illus. : Maheshwari, Illus. Fl. Delhi t. 166. 1966.

Distrib. : Ambabarwa near tribal village, Sonabardi forest.

Notes : Occasional in marshy areas.

RUNGIA Nees

- | | | |
|--|-----|---------------------|
| 1. Upper lip of corolla notched; bracts similar | ... | <i>R. elegans</i> |
| 1. Upper lip of corolla acuminate; bracts diamorphic | ... | <i>R. pectinata</i> |

Rungia elegans Dalz. in Dalz. & Gibs. Bombay Fl. 196. 1861; C.B.Cl. in Hook. f. Fl. Brit. India 4: 549. 1885; Cooke, Fl. Pres. Bombay 2: 480. 1958 (Repr. ed.); Sant. in Univ. Bombay Bot. Mem. No. 2, 78 1952.

Erect herbs with angular stems, clothed with white, soft hairs, 10–25 cm tall. Leaves elliptic-lanceolate, 1.5–6.5 x 0.5–2.2 cm, glabrous or nearly so. Flowers blue, in terminal, long spikes. Capsules obovoid, 0.3–0.4 x 0.1–0.2 cm, pubescent. Seeds orbicular or oblong, echinate.

Fls. & Frts. : September–November.

Distrib. : Ayla Killa, Deulgaon Sakharasa.

Notes : Common on hill slopes.

R. pectinata (L.) Nees in DC. Prodr. 11: 469. 1847; Sant. in Univ. Bombay Bot. Mem No. 2: 77. 1952. *Justicia pectinata* L. in Thor. Cent. II Pl. 3. 1756. *Rungia parviflora* Nees var. *pectinata* (L.) C.B.Cl. in Hook. f. Fl. Brit. India 4: 550. 1885; Cooke, Fl. Pres. Bombay 2: 478. 1958 (Repr. ed.).

Diffuse or erect herbs, much branched. Leaves elliptic-lanceolate or oblong-lanceolate, 1–3.2 x 0.3–0.5 cm, glabrous. Flowers blue or bluish, in axillary and terminal, solitary or 2–3 fascicled–spikes. Capsules ovoid, 0.3 x 0.1 cm, pubescent at tips. Seeds orbicular, minutely echinate, yellow.

Fls. & Frts. : September–March.

Illus. : Wight, Ic. t. 1547. 1850; Maheshwari, Illus. Fl. Delhi t. 167. 1966.

Distrib. : Lonar lake, eastern side, Loni near Lonar lake.

Notes : Occasional around lakes but locally abundant.

VERBENACEAE

- | | | |
|---|-----|--------------|
| 1. Leaves compound, 3-5 foliolate | ... | VITEX |
| 1. Leaves simple : | | |
| 2. Herbs | ... | PHYLIA |
| 2. Trees or shrubs : | | |
| 3. Corolla distinctly 2-lipped | ... | GMELINA |
| 3. Corolla nearly regular: | | |
| 4. Medium trees; fruits enclosed in persistent inflated calyx | ... | TECTONA |
| 4. Shrubs or small trees : fruits not as above : | | |
| 5. Inflorescence cymes; plants usually unarmed | ... | CLERODENDRUM |
| 5. Inflorescence a dense contracted head; plants armed | ... | LANTANA |

CLERODENDRUM L.

- | | | |
|---|-----|-----------------------|
| 1. Corolla slightly or densely pubescent; leaves opposite | ... | <i>C. multiflorum</i> |
| 1. Corolla glabrous; leaves whorled | ... | <i>C. serratum</i> |

Clerodendrum multiflorum (Burm. f.) O. Ktze. Rev. Gen. Pl. 3: 526. 11891. *Volkameria multiflorum* Burm. f. Fl. Ind. 137, t. 45. f. 1. 1768. *Clerodendrum phlomidis* L.f. Suppl. 292. 1781; C.B.Cl. in Hook. f. Fl. Brit. India 4: 590. 1885; Cooke, Fl. Pres. Bombay 2: 511. 1958 (Repr. ed.).

Shrubs or undershrubs, 1-3 m tall; branches pubescent. Leaves broadly ovate or sub-rhomboid, thinly hairy. Flowers white, in axillary and terminal dichotomous cymes, fragrant. Drupes broadly ovoid, 0.5-0.6 cm long, depressed.

Fls. & Frts. : September-March.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 358, t. 454. 1911; Maheshwari, Illus. Fl. Delhi t. 173. 1966.

Distrib. : Dongar shewli, Garpiti forest areas, Nalgangapur, Pimpalgaon, near Raipur.

Notes : Common in hedges and along river banks.

C. serratum (L.) Moon, Cat. 46. No. 382. 1824; C.B.Cl. in Hook. f. Fl. Brit. India 4: 592. 1885; Cooke, Fl. Pres. Bombay 2: 512. 1958 (Repr ed.). *Volkameria serrata* L. Mant. 90. 1771.

Shrubs, 1–2 m tall, with 4-angled, grooved stems. Leaves oblong, oblong-ovate or elliptic-lanceolate, 8–13 x 3–14.5 cm, glabrous. Flowers blue, in axillary and dichotomous cymes. Drupes broadly obovoid, 0.5–0.6 long, 4-lobed, glabrous, drying black.

Fls. & Frts. : September–December.

Illus. : Wight, Ic. t. 1472. 1849; Talbot, For. Fl. Bombay & Sind 2: 359, t. 455. 1911.

Distrib. : Nandura, Sonala forests.

Notes : Frequent on hill slopes.

GMELINA L.

Gmelina arborea Roxb. Pl. Cor. 3: 42, t. 246. 1815; C.B.Cl. in Hook. f. Fl. Brit. India 4: 581. 1885; Cooke, Fl. Pres. Bombay 2: 504. 1958 (Repr. ed). '*Shivan*'.

Small trees, 5–6 m tall; young parts clothed with mealy pubescence. Leaves broadly ovate, 7–10 x 4.5–9 cm, fulvous-tomentose beneath. Flowers yellow, in terminal paniced-cymes. Drupes ovoid, 2–2.5 x 1 cm, glabrous, smooth, yellow, orange when ripe.

Fls. & Frts. : March–July.

Illus. : Wight, Ic. t. 1470. 1849; Talbot, For. Fl. Bombay Pres. & Sind 2: t. 451. 1911.

Distrib. : Dongar Shewli.

Notes : Occasional on hill slopes.

LANTANA L.

- | | | |
|---|-----|--|
| 1. Armed plants with prickles; flowers variously coloured | ... | <i>L. camara</i>
var. <i>aculeata</i> |
| 1. Unarmed plants; flowers white | ... | <i>L. salvifolia</i> |

Lantana camara L. var. **aculeata** (L.) Moldenke in Torreyia 34: 9. 1934 & in Ann. Missouri Bot. Gard. 60: 58. 1973. *L. aculeata* L. Sp. Pl. 627. 1753. *L. camara auct. non* L. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 4: 562. 1885; Cooke, Fl. Pres. Bombay 2: 498. 1958 (Repr. ed.). 'Tantani'.

Bushy, scandent, shrubs; branches with recurved prickles. Leaves ovate, 3–3.5 x 2–2.5 cm, scabrid above. Flowers orange-red to scarlet, in axillary and terminal short heads. Drupes globose, 0.3–0.4 cm across, fleshy, shining.

Fls. & Frts. : More or less throughout the year.

Illus. : Tadulingam & Venkatanarayana, Handb. S. Indian Weeds, 326, t. 129 1955 (Rev. ed.).

Distrib. : Dongar Khandala, Gondankheda, Rohinkhed.

Notes : Very common on waste lands near villages. It was introduced as an ornamental plant from tropical America, now naturalized near villages and on hill slopes near human habitation.

L. salvifolia Jacq. Hort. Schoenbr. 3: 18. t. 285. 1798. *L. indica* Roxb. Hort. Beng. 26. 1814, *nom. nud.* & Fl. Ind. 3: 89. 1832; C.B.Cl. in Hook. f. Fl. Brit. India 4: 562; Cooke, Fl. Pres. Bombay 2: 499. 1958 (Repr. ed.).

Straggling, aromatic, undershrubs or shrubs. Leaves elliptic or ovate-elliptic, 1.5–5.5 x 0.5–2.8 cm, pubescent. Flowers lilac, in pedunculate, capitate-spikes. Drupes globose, 1–2.5 cm across, glabrous.

Fls. & Frts. : More or less throughout the year.

Distrib. : Koradi near Mehkar.

Notes : Occasional along roadsides.

PHYLA Lour.

Phyla nodiflora (L.) Greene in Pittonia 4: 46. 1899; Sant. in Rec. Bot. Surv. India 16: 211. ed. 3, 1967. *Verbena nodiflora* L. Sp. Pl. 20. 1753. *Lippa nodiflora* (L.) A. Rich. in Mich. Fl. Bor. Amer 2: 15. 1803; C.B.Cl. in Hook. f. Fl. Brit. India 4: 563. 1885; Cooke, Fl. Pres. Bombay 2: 499. 1958 (Repr. ed.).

Prostrate, perennial herbs, rooting at nodes, with erect flowering branches. Leaves obovate or spatulate, 1–1.8 x 0.3–0.5 cm, sessile. Flower pink or white, in long ovoid spikes. Drupes globose-oblong, ca 0.2 cm long, 2-seeded.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Ic. t. 1463. 1849.

Distrib. : Changehal nala, Deulgaon Sakharsa, Nalgangapur project area, Rajura lake, Sultanpur, Warwat–Shegaon Road, near river bridge.

Notes : Common in marshy areas, throughout the district.

TECTONA L.f. nom. cons.

Tectona grandis L.f. Suppl. 151. 1781; C.B.Cl. in Hook. f. Fl. Brit. India 4: 570. 1885; Cooke, Fl. Pres. Bombay 2: 503. 1958 (Repr. ed.). 'Sag', 'Sagwan'.

Deciduous, large trees with straight trunks, 10–20 m tall, branches angled. Leaves elliptic or obovate, 30–60 x 15–30 cm, coriaceous, white, stellately tomentose beneath. Flowers white, in terminal panicles. Drupes suglobose, 1–1.2 cm across, stellately hairy, somewhat 4-lobed.

Fls. & Frts. : September–March.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: t. 450. 1911.

Distrib. : Buldhana, Hajampani forests. Lonar lake.

Notes : One of the dominant and widespread species of the district.

Uses : The wood is durable and hence it is employed in house-building and furniture making etc.

VITEX L.

Vitex negundo L. Sp. Pl. 638. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 4: 583. 1885; Cooke, Fl. Pres. Bombay 2: 508. 1958 (Repr. ed.). 'Nirgudi'.

Large shrubs or small trees, 5–6 m tall; young branches quadrangular and whitish pubescent. Leaves palmately 3–5 foliolate; leaflets lanceolate, 8–12 x 2.3 cm, greyish beneath. Flowers bluish, in terminal, branched, tomentose panicles. Drupes sub-globose, slightly longer than broad, 0.4–0.5 cm across, black when ripe.

Fls. & Frts. : Throughout the year.

Illus. : Wight, Ic. t 519. 1842.

Distrib. : Adsul on way to Shegaon, Buldhana, Chinchphata forests, Gondankheda, Jalgaon Jamod, Mehkar, Pathardi forest.

Notes : Very common on hill slopes. It is observed that the species is spreading vigorously along hill slopes and river beds, dominating other vegetation, often forming pure patches. Pathardi forest is particularly rich in *Vitex* patches.

CULTIVATED SPECIES

DURANTA L.

Duranta repens L. Sp. Pl. 637. 1753; Matthew in Rec. Bot. Surv. India 20: 185. 1969. *D. plumieri* Jacq. Select. Strip. Amer. Hist. 186. t. 176. f. 76. 1763; C.B.Cl. in Hook. f. Fl. Brit. India 4: 560. 1885; Cooke, Fl. Pres. Bombay 2: 518. 1958 (Repr. ed.).

Erect, bushy shrubs, with spinous branches. Leaves ovate-elliptic or oblong-lanceolate, 1.2–5.5 x 0.4–3 cm, glabrous. Flowers pale blue, in terminal and axillary, drooping spikes. Berries globose, 0.6–0.8 cm in across.

Fls. & Frts. : More or less throughout the year.

Distrib. : Botha forest nursery.

Notes : Planted. Native of S. America and West Indies.

LAMIACEAE (LABIATAE)

- | | | | |
|-----|---|-----|--------------|
| 1. | Plants with suckers | ... | MENTHA |
| 1. | Plants without suckers : | | |
| 2. | Stamens declinate; anther cells confluent : | | |
| 3. | Leaves pinnatisect | ... | LAVANDULA |
| 3. | Leaves not pinnatisect : | | |
| 4. | Lower lip of corolla declinate, hardly longer than upper lip : | | |
| 5. | Corolla tube short; stigma 2-fid | ... | OCIMUM |
| 5. | Corolla tube usually long; stigma entire | ... | ORTHOSIPHON |
| 4. | Lower lip of corolla deflexed, boat shaped or flat, usually longer than upper lip : | | |
| 6. | Calyx 2-lipped : | | |
| 7. | Flowers in compact spikes | ... | ANISOCHILUS |
| 7. | Flowers in lax panicles | ... | PLECTRANTHUS |
| 6. | Calyx equally 5-toothed | ... | HYPTIS |
| 2. | Stamens erect or ascending; anther cells free : | | |
| 8. | Corolla lobes 4; stamens equal or subequal | ... | POGOSTEMON |
| 8. | Corolla 2-lipped; stamens didynamous : | | |
| 9. | Flowers orange coloured | ... | LEONOTIS |
| 9. | Flowers white or pink-violet : | | |
| 10. | Calyx 8-10 toothed; flowers in axillary and terminal dense whorls | ... | LEUCAS |
| 10. | Calyx 5-toothed; flowers in terminal paniculate-cymes | ... | ANIBOMELES |

ANISOCHILUS Wall.

Anisochilus carnosus (L.) Wall. Pl. As. Rar. 2: 18. 1831; Hook. f. Fl. Brit. India 4: 627. 1885; Cooke, Fl. Pres. Bombay 2: 532. 1958 (Repr. ed.); Mukherjee in Rec. Bot Surv. India 14: 58. 1940. *Lavandula carnosus* L. Amoen. Acad. 10: 56, t. 3. 1790.

Erect, sub-succulent herbs, 20–50 cm tall. Leaves ovate, 1.5–5.5 x 1.2–4 cm, pubescent beneath. Flowers purple, in terminal heads or cylindrical spikes. Nutlets suborbicular, 0.1 cm in across, compressed, smooth, shining.

Fls. & Frts. : September–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 561. 1982.

Distrib. : Sonala forests.

Notes : Occasional on hill tops. The plant is very attractive when in bloom, with its purple flowers.

ANISOMELES R. Br.

Anisomeles indica (L.) O. Ktze. Rev. Gen. Pl 512 1891; Mukherjee in Rec. Bot Surv. India 14: 152. 1940. *Nepeta indica* L. Sp. Pl. 571. 1753. *Anisomeles ovata* R. Br. Ait. Hort. Kew ed. 2, 3: 364. 1811; Hook. f. Fl. Brit. India 4: 672. 1885; Cooke, Fl. Pres. Bombay 2: 543. 1958 (Repr. ed.).

Erect, woody, annual herbs or undershrubs, 50–80 cm tall, softly pubescent. Leaves ovate, 2–10.5 x 1.2–5.5 cm, softly pubescent. Flowers pale purple, in whorls in axillary cymes. Nutlets broadly ovoid, 0.1–0.2 cm long, obtusely angled, black, smooth

Fls. & Frts. : September–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 562. 1982.

Distrib. : Aampani forests, Ambabarwa hills, Buldhana, Ghatthori forests, Hajampani forests, Sultanpur.

Notes : Common throughout the district, on hill slopes.

HYPTIS Jacq. *nom. cons.*

***Hyptis suaveolens* (L.) Poit.** in Ann. Mus. Nat. Hist. Paris 7: 472. 1806; Hook. f. Fl. Brit. India 4: 630. 1885; Cooke, Fl. Pres. Bombay 2: 560. (Repr. ed). *Ballota suaveolens* L. Syst. ed. 10: 1100. 1759.

Erect, woody, densely but softly hairy, strongly aromatic herbs or sometimes undershrubs, up to 1.5 m tall. Leaves broadly ovate or ovate-cordate, 2–11 x 1.5–8.5 cm, thinly to densely hairy. Flowers purple-violet, in axillary long peduncled cymes, also forming very long, terminal, interrupted racemose-cymes. Nutlets obovoid, 0.4–0.5 x 0.3–0.4 cm, compressed, blackish-brown.

Fls. & Frts. : October–March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 567. 1982.

Distrib. : Buldhana, Gaumal forest village, Ghatbori, Mardadi temple areas.

Notes : Common on waste lands and in barren fields. A native of Tropical America, now running wild in many parts of India. The plant is strongly aromatic.

LAVANDULA L.

***Lavandula bipinnata* (L.) O. Ktze. var. *rothiana* O. Ktze.** Rev. Gen. Pl. 551. 1891; Mukherjee in Rec. Bot. Surv. India 14: 65. 1940. *L. burmanii* Bth. Lab. Gen. & Sp. 151. 1833; Hook. f. Fl. Brit. India 4: 631. 1885; Cooke, Fl. Pres. Bombay 2: 534. 1958 (Repr. ed.).

Erect, perennial, hoary pubescent undershrubs or herbs, 50–100 cm tall. Leaves pinnatisect; segments linear, 2–5 cm long. Flowers blue or white, in terminal, simple or panicle–spikes. Nutlets oblong-ellipsoid, 0.2 x 0.1 cm, with oblong areole on the dorsal side, black.

Fls. & Frts. : September–March.

Illus. : Wight, Ic. t. 1438. 1849.

Distrib. : Deulgaon Raja, Deulgaon Sakharasa, Lonar lake.

Notes : Common on open hill slopes. The leaves and flowers are sweet scented.

LEONOTIS R. Br.

Leonotis nepetaefolia (L.) R. Br. Prodr. 504. 1810 et in W. Ait. Hor. Kew. ed. 2. 409. 1811; Hook. f. Fl. Brit. India 4: 691 1885; Cooke, Fl. Pres. Bombay 2: 555. 1958 (Repr. ed.). Mukherjee in Rec. Bot. Surv. India 14: 185. 1940. *Phlomis nepetaefolia* L. Sp. Pl. 586 1753.

Stout, deciduous, erect, woody herbs, 0.5–1 m tall; stems strong stout quadrangular. Leaves ovate, 5–10 x 2–5 cm, finely pubescent on both surfaces. Flowers orange-red, in axillary and terminal, globose whorls. Nutlets oblong-obovoid, with a pit at the truncate apex, smooth, black.

Fls. & Frts. : November–March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 568. 1982.

Distrib. : Deulgaon Mali forest areas.

Notes : Rare, but locally abundant. The plant is very attractive when in bloom, with its bright orange-red flowers.

LEUCAS R. Br.

1. Mouth of calyx tube oblique :

2. Calyx membranous, reticulate, mouth produced below ... *L. urticifolia*

2. Calyx neither membranous nor reticulate, mouth produced above :

3. Calyx teeth very short ... *L. cephalotes*

3. Calyx teeth slender and long ... *L. martinicensis*

1. Mouth of calyx tube straight :

4. Whorls 6–to many flowered ... *L. stricta*

4. Whorls 1 to 4–flowered ... *L. biflora*

Leucas biflora (Vahl) R. Br. Prodr. 504. 1810; Hook. f. Fl. Brit. India 4: 683. 1885; Cooke, Fl. Pres. Bombay 2: 553. 1958 (Repr. ed.); Mukherjee in Rec. Bot. Surv. India 14: 180. 1940. *Phlomis biflora* Vahl, Symb. Bot. 3: 77. 1994.

Procumbent, trailing or straggling herbs with perennial root stocks, and long internodes. Leaves ovate, elliptic or elliptic-oblong, 1-5 x 0.5-1.5 cm, pubescent. Flowers white, in axillary whorls. Nutlets oblong-obovoid, 0.2 cm long, obtusely trigonous, truncate at apex, irregularly tuberculate.

Fls. & Frts. : October-March.

Illus. : Wight, Ic. t. 866. 1844-45.

Distrib. : Lonar lake.

Notes : Frequent along water springs.

L. cephalotes (Roxb. ex Roth) Spr. Syst. Veg. 2: 743; 1825; Hook. f. Fl. Brit. India 4: 689. 1885; Cooke, Fl. Pres. Bombay 2: 549. 1958 (Repr. ed.); Mukherjee in Rec. Bot. Surv. India 14: 168. 1940. *Phlomis cephalotes* Roxb. ex Roth, Nov. Pl. Sp. 262. 1821.

Erect, annual stout branched, pubescent herbs, upto 1 m tall. Leaves ovate to ovate-lanceolate, 3-4 x 1-1.2 cm, appressed hairy. Flowers white, in large, globose, terminal whorls. Nutlets obovoid-oblong, 0.2-0.3 cm long, glabrous, smooth.

Fls. & Frts. : September-March.

Illus. : Wight, Ic. t. 337. 1840.

Distrib. : Deulgaon Raja, Lonar lake.

Notes : Occasional along stream beds.

L. martinicensis (N. Jacq.) R. Br. Prodr. 504. 1810; Hook. f. Fl. Brit. India 4: 688. 1885; Cooke, Fl. Pres. Bombay 2: 550. 1958 (Repr. ed.); Mukherjee in Rec. Bot. Surv. India 14: 169. 1940. *Clinopodium martinicense* N. Jacq. Amer.-Hist. 173. 1763.

Erect, annual, hairy herbs, up to 1 m tall, stems and branches 4-angled. Leaves ovate or ovate-lanceolate, 5-14 x 1.5-5.5 cm, densely appressed-hairy. Flowers white in axillary and terminal whorls, 1.5-2.5 cm across. Nutlets 0.2-0.3 cm long, shining, oblong.

Fls. & Frts. : November-December.

Distrib. : Lonar lake valley, Sonapally project area.

Notes : Common weed around cultivated fields.

L. stricta Bth. in Wall. Pl. As. Rar. 1: 61. 1829; Hook. f. Fl. Brit. India 4: 688. 1885; Cooke, Fl. Pres. Bombay 2: 551. 1958 (Repr. ed.); Mukherjee in Rec. Bot. Surv. India 14: 165. 1940.

Erect, annual herbs, 20-40 cm tall; branched from the base. Leaves linear-oblong or oblong-lanceolate, 2-5.5 x 2.5-1 cm, hispid. Flowers white, in solitary, terminal whorls, 1.5-2.0 cm across. Nutlets oblong-obovoid or trigonous, 0.2-0.3 cm, smooth.

Fls. & Frts. : August-November.

Distrib. : Pimpri village, Sonala forests.

Notes : Occasional on open hill slopes amongst grasses.

L. urticifolia (Vahl) R. Br. Prodr. 504. 1810. Hook. f. Fl. Brit. India 4: 680. 1885; Cooke, Fl. Pres. Bombay 2: 547. 1958 (Repr. ed.); Mukherjee in Rec. Bot. Surv. India 14: 166. 1940. *Phlomis urticifolia* Vahl, Symb. Bot. 5: 76. 1794.

Erect, annual herbs, 10-30 cm tall, hoary. Leaves broadly ovate or ovate-elliptic, 2-3.5 x 2-2.5 cm, pubescent on both the sides. Flowers white, in many flowered, dense, distant, globose whorls, 2-2.5 cm across. Nutlets oblong-obovoid, 0.1-0.2 cm long, glabrous, with a triangular depression at apex.

Fls. & Frts. : September-November.

Illus. : Wight, Ic. t. 1451 1849.

Distrib. : Ayla Killa.

Notes : Rare, along roadsides. The plant is very distinct with its oblique calyx mouth, much produced in the lower side.

MENTHA L.

Mentha spicata L. Sp. Pl. 576. 1753, Bailey, Man. Cult. Pl. 863. 1949. *M. viridis* L. Sp. Pl. ed. 2: 804. 1763; Hook. f. Fl. Brit. India 4: 647. 1885; Cooke, Fl. Pres. Bombay 2: 559. 1958 (Repr. ed.). '*Pudina*'.

Aromatic, erect herbs, 20–30 cm tall. Leaves oblong-lanceolate, 1–2 x 0.5–1 cm, glabrous. Flowers and fruits not seen.

Fls. & Frts. : Not seen.

Illus. : Bailey, l.c. 846. t. 176. F: Fa–B.

Distrib. : Buldhana Raipur Road, 9th km stone, Jalgaon Jamod Rest House.

Notes : Cultivated for menthol-scented leaves, but in some marshy places running wild.

OCIMUM L.

Ocimum americanum L. Cent. Pl. 1: 15. 1755; Keng in Gard. Bull. Singapore 24: 126. 1969. *O. canum* Sims in Bot. Mag. 51. t. 2451. 1823; Hook. f. Fl. British India 4: 607. 1885; Cooke, Fl. Pres. Bombay 2: 521. 1958 (Repr. ed.). '*Ran-tulas*'.

Erect, much branched, pubescent, herbs 30–60 cm tall; stems and branches striate, pubescent. Leaves elliptic-lanceolate, 1–3.5 x 0.5–1.2 cm, glabrous or gland-dotted beneath. Flowers white, in close whorls, forming spiciform-racemes. Nutlets ellipsoid, 0.1 x 0.1 cm, black dotted.

Fls. & Frts. : June–September.

Illus. : Maheshwari, Illus. Fl. Delhi t. 174. 1966.

Distrib. : Botha forests, Buldhana, Lonar lake areas.

Notes : Common on gravelly soils, along roadsides.

ORTHOSIPHON Bth.

Orthosiphon pallidus Royle ex Bth. in Hook. J. & Bot. Kew Gard. Misc. 3: 370. 1853; Hook. f. Fl. Brit. India 4: 613. 1885; Cooke, Fl. Pres. Bombay 2: 523. 1958 (Repr. ed.); Mukherjee in Rec. Bot. Surv. India 14: 23. 1940.

Diffuse undershrubs with perennial root system; branches finely pubescent. Leaves ovate, 1-2.5 x 0.5-1.5 cm, gland-dotted. Flowers white, in distant, 6-flowered whorls of short racemes. Nutlets subglobose, 2-2.5 cm across, smooth, yellowish-brown.

Fls. & Frts. : June-September.

Illus. : Maheshwari, Illus. Fl. Delhi t. 175. 1966.

Distrib. : Gandhali forests near Loni village, Hiwarkhed village, Lavhala near Mehkar, Lonar lake.

Notes : Common in open areas, on sandy or gravelly soils.

PLECTRANTHUS L'Herit. *nom. cons.*

Plectranthus stocksii Hook. f. Fl. Brit. India 4: 618. 1885; Cooke, Fl. Pres. Bombay 2: 528. 1958. (Repr. ed.); Mukherjee in Rec. Bot. Surv. India 14: 43. 1940.

Weak, erect, annual, slender herbs, 30-40 cm tall; stems quadrangular, simple or branched. Leaves ovate, 2.5-10.1-10 x 1-6.2 cm, red gland-dotted beneath. Flowers white with purple spots, whorled, in terminal panicles. Nutlets broadly ellipsoid, 0.1 cm long, smooth, yellowish.

Fls. & Frts. : September-November.

Distrib. : Buldhana.

Notes : Occasional along roadsides.

POGOSTEMON Desf. *nom. cons.*

Pogostemon benghalense (Burm. f.) O. Ktze. Rev. Gen. Pl. 2: 529. 1891; Press, in Bull. Br. Mus. Nat. Hist. (Bot.) 10: 71. 1982. *Origanum benghalense* Burm. f. Fl. Ind 128. t. 38, f. 3. 1768.

Pogostemonplectranthoides Desf. in Ann. Mus. Paris 2: 155, t. 6. 1803; Hook. f. Fl. Brit. India 4: 632; 1885; Cooke, Fl. Pres. Bombay 2: 536. 1958 (Repr. ed.); Mukherjee in Rec. Bot. Surv. India 14: 69. 1940. *P. parviflorus* Bth. in Wall. Pl. As Rar. 1: 31. 1830; Hook. f. l.c.; Cooke, l.c.; Mukerjee, l.c. 68.

Erect, pubescent, aromatic herbs or undershrubs, upto 1.5 cm tall; stems and branches purple, grey hairy. Leaves ovate, 2.5–10.5 x 1–2.5 cm, membranous, sparsely hairy. Flowers white or purple, in dense terminal and axillary paniced-cymes. Nutlets ellipsoid, about 0.1 cm long, trigonus, smooth, ripens black.

Fls. & Frts. : November–March.

Illus. : Matthew, Illus. Tamilnadu Carnatic t. 574. 1982.

Distrib. : Songaon forests.

Notes : Occasional on hill slopes.

NYCTAGINACEAE

- | | | |
|--|-----|-------------|
| 1. Anthocarps 10-ribbed, with wart-like glands | ... | COMMICARPUS |
| 1. Anthocarps 5-ribbed, without wart-like glands | ... | BOERHAVIA |

BOERHAVIA L.

Boerhavia diffusa L. Sp. Pl. 3. 1753; Cooke, Fl. Pres. Bombay 2: 563. 1958 (Repr. ed.); Almeida in J. Bombay Nat. Hist. Soc. 65: 267. 1968; Mukherjee, in J. Econ. Tax. Bot. 5: 582. 1984. *B. repens* L. var. *diffusa* (L.) Hook. f. Fl. Brit. India 4: 709. 1885.

Perennial, diffuse herbs; roots fusiform. Leaves broadly ovate, elliptic-oblong or suborbicular, 0.5–3.2 x 0.4–3.1 cm, glabrous. Flowers pink, in axillary and terminal, very long peduncled panicles of umbels. Anthocarps clavate, 0.2–0.3 x 0.1 cm, fusiform or obovoid, turbinate, bluntly 5-ribbed, glandular.

Fls. & Frts. : August–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 578. 1982.

Distrib. : Jamod, Lavhala near Mehkar, Lonar lake, Motala.

Notes : Common on hedges along roadsides.

COMMICARPUS Standl.

Many authors treated this genus under *Boerhavia* L. from which it differs in the larger flowers and anthocarps which are 10-ribbed and with conspicuous glands.

- | | | | |
|----|---|-----|------------------------|
| 1. | Stamens exerted; anthocarps glandular along ribs | ... | <i>C. chinensis</i> |
| 1. | Stamens not exerted; anthocarps glandular around crowns | ... | <i>C. plumbagineus</i> |

Commicarpus chinensis (L.) Heimerl in Engl. & Prantl, Nat. Pflanzenf. ed 2, 16: 117. 1934; Meikle in Notes Roy. Bot. Gard. Edinburgh 36: 243. 1978; Mukherjee in J. Econ. Tax. Bot. 5: 586. 1984. *Valeriana chinensis* L. Sp. Pl. 33. 1753. *Boerhavia repanda* Willd. Sp. Pl. 1: 22. 1797; Hook f. Fl. Brit. India 4: 709. 1885; Cooke, Fl. Pres. Bombay 2: 564. 1958 (Repr. ed.).

Sub-scandent, perennial herbs with long internodes, minutely pubescent. Leaves broadly ovate, 1-2 x 1.5-2 cm, glabrous or thinly pubescent. Flowers pink, in axillary, simple, paniculate-umbels. Anthocarps clavate, 0.3-0.4 cm long, ribbed.

Fls. & Frts. : November-December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 579. 1982.

Distrib. : Asalgaon, Botha forest fields.

Notes : Frequent in hedges.

C. plumbagineus (Cav.) Standl. in Contrib. U.S. Nat. Herb. 18: 101. 1961; Meikle in Notes Roy. Bot. Gard. Edinburgh 36: 244. 1978. *Boerhaia plumbaginea* Cav. Ic. 2: 7. t. 112. 1793. *B. verticillata* Poir. in Lamk. Encycl. 5: 56. 1804; Hook. f. Fl. Brit. India 4: 710. 1885; Cooke, Fl. Pres. Bombay 2: 564. 1958 (Repr. ed.). *Commicarpus verticillatus* (Pior.) Standl. l.c.; Mukherjee in J. Econ. Tax. Bot. 5: 587. 1984.

Scandent glabrous or pubescent herbs or undershrubs; branches long, pale. Leaves broadly ovate or suborbicular, 2–5.5 x 2–54 cm, glabrous or sparsely hairy. Flowers pale pink, in axillary, long peduncled, few-flowered, paniced-umbels. Anthocarps clavate, 0.1–0.2 cm long, with large wart-like glands around the crown.

Fls. & Frts. : September–January.

Illus. : Cav. L.c.

Distrib. : Lonar lake.

Notes : Occasional along margins of lake. According to some authors, flowers are pale pink or white, but the first author has come across with only pale pink flowers in Buldhana district.

CULTIVATED SPECIES

MIRABILIS L.

Mirabilis jalapa L. Sp. Pl. 177. 1753; Cooke, Fl. Pres. Bombay 2: 567. 1958 (Repr ed.); Mukherjee in J. Econ. Tax. Bot. 5: 587. 1984. '*Gul-bakshi*'.

Large, much branched, perennial herbs or undershrubs, with tuberous roots. Leaves ovate, 5–15 x 3–9 cm, glabrous, cordate at base. Flowers pink, red or yellow, in axillary cymes. Anthocarps globose, 0.3–0.4 cm across, 5-ribbed, tuberculate, black when mature.

Fls. & Frts. : Throughout the year.

Distrib. : Lonar lake.

Notes : Usually planted for its attractive flowers.

AMARANTHACEAE

1. Anthers 2-celled :
 2. Pseudo-staminodes absent :
 3. Leaves alternate :
 4. Seed 1 :
 5. Flowers bisexual; tepals persistent on fruiting spikes ... DIGERA
 5. Flowers unisexual; tepals deciduous ... AMARANTHUS
 4. Seeds 2 or more ... CELOSIA
 3. Leaves opposite :
 6. Flowers in spikes; stamens-2 ... NOTHOSAERA
 6. Flowers in fascicles; stamens-5 ... PUPALIA
 2. Pseudo-staminodes present :
 7. Leaves opposite; bracts and bracteoles spinescent ... ACHYRANTHES
 7. Leaves opposite and alternate; bracts and bracteoles never spinescent ... AERVA
1. Anthers 1-celled :
 8. Flowers in axillary heads; stigmas capitate ... ALTERNANTHERA
 8. Flowers in terminal heads; stigmas bifid ... GOMPHRENA

ACHYRANTHES L.

Achyranthes aspera L. var. **porphyristachya** (Wall. ex Moq.) Hook. f. Fl. Brit. India 4: 730. 1885; Sant. in Rec. Bot. Surv. India 16: 224. (ed. 3) 1967. *A. porphyristachya* Wall. ex Moq. Cat. 1925. 1832. 'Aghada'.

Erect, woody, perennial herbs, 20–80 cm tall; stems simple or branched, ribbed, pubescent. Leaves broadly elliptic, elliptic-lanceolate or ovate-lanceolate, 4–13 x 2–5 cm, glabrous or sparsely pubescent. Flowers pale green, in terminal, simple or branched spikes. Utricles oblong-cylindric, about 0.2 cm long, truncate at apex, brown.

Fls. & Frts. : September–December.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 183, 1966.

Distrib. : Loni near Lonar, Satgaon Bhusari near Hatni, Waghadi on way to Buldhana.

Notes : Common weed in waste places.

Uses : The roots and seeds are used in Ayurvedic medicines.

AERVA Forssk. *nom. cons.*

Aerva lanata (L.) A.L. de Juss. ex Schult. *Syst. Veg.* ed 15, 5: 564. 1819; Hook. f. *Fl. Brit. India* 4: 728. 1885; Cooke, *Fl. Pres. Bombay* 2: 578. 1958 (Repr. ed.). *Achyranthes lanata* L. *Sp. Pl.* 204. 1753.

Erect or suberect, woody herbs, 10–25 cm tall, branched from base pubescent or woolly. Leaves elliptic, obovate or suborbicular, 0.5–1.5 x 0.2–1 cm, pubescent above, cottony beneath. Flowers greenish–white, in axillary heads, forming globose clusters. Utricles ovoid, indehiscent, smooth, black.

Fls. & Frts. : November–March.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 176. 1966.

Distrib. : Buldhana near Nursery, Lonar lake, Nalgangapur project area, Pimpalgaon, Sangrampur, Shiwni Taka, Sindkhed Raja.

Notes : Common in cultivated fields and gardens.

ALTERNANTHERA Forssk.

- | | | |
|---|-----|--------------------|
| 1. Bracts and bracteoles spinescent; tepals dissimilar | ... | <i>A. pungens</i> |
| 1. Bracts and bracteoles not spinescent; tepals similar | ... | <i>A. sessilis</i> |

Alternanthera pungens H.B. & K. *Nov. Gen. Sp.* 2: 206. 1818; Sant. & Shah in *J. Bombay Nat. Hist. Soc.* 58: 551. 1961. *A. repens* (L.) Lamk. *Enum. Pl. Hort. Berol.* 1: 154 1821, *non* Gmelin, 1791. 'Chubu–Kata'.

Much spreading, prostrate or decumbent, perennial herbs. Leaves broadly ovate or orbicular, 0.5–3 x 0.4–2.5 cm, pubescent beneath. Flowers in small, axillary spikes. Utricles orbicular, 0.1 cm across, compressed, narrowly winged.

Fls. & Frts. : Throughout the year.

Illus. : Melville in Kew Bull. 1958: 172. t. 2. 1958.

Distrib. : Mehkar.

Notes : Very common and abundant weed along roadsides and in dried ditches. A native of America, this species was not recorded by Cooke from the whole of former Bombay Presidency. Later Santapau reported it from Maharashtra for the first time. The plant is now recorded from all over India. It is observed that this herb totally prevents the growth of *Parthenium hysterophorus* L.

A. sessilis (L.) R. Br. ex DC. Cat. Hort. Monsp. 77. 1813; Hook. f. Fl. Brit. India 4: 731. 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 suberect, perennial herbs, glabrous, rooting at nodes. Leaves oblong-elliptic, oblanceolate or linear-oblong, 0.5–4.5 x 0.3–1 cm, glabrous. Flowers white, in small, axillary heads. Utricles obcordate, 0.1–0.15 cm long, compressed, with thickened margins.

Fls. & Frts. : Throughout the year.

Illus. : Maheshwari, Illus. Fl. Delhi t. 181. 1966.

Distrib. : Borkhedi bund site, Painganga river bed near Mehkar, Warwat-Shegaon Road near Purna river.

Notes : Common in damp places such as the edges of river beds and water reservoirs. This weed can be used as a fodder.

AMARANTHUS L.

- | | |
|---|--------------------|
| 1. Stems armed with sharp divaricate spines in the leaf axils ... | <i>A. spinosus</i> |
| 1. Stems unarmed : | |
| 2. Fruits circumscissile; bracts shorter than bracteoles ... | <i>A. tricolor</i> |
| 2. Fruits indehiscent; bracts longer than bracteoles ... | <i>A. viridis</i> |

Amaranthus spinosus L. Sp. 991. 1753; Hook. f. Brit. India 4: 718. 1885; Cooke, Fl. Pres. Bombay 2: 573. 1958 (Repr. ed.).

Erect, spinous, annual herbs or undershrubs, 30–70 cm tall; stems striate. Leaves ovate or lanceolate, 2–8 x 1–3 cm, glabrous. Flowers pale green in simple or branched spikes axillary or terminal. Utricles conic, circumscissile, rugose.

Fls. & Frts. : September–March.

Illus. : Wight, Ic. t. 1767. 1852.

Distrib. : Sultanpur.

Notes : Common in waste places around villages.

Uses : The entire plant is used in medicine.

A. tricolor L. Sp. Pl. 989. 1753. *A. gangeticus* L. Syst. Veg. ed. 10. vol. 2: 1268. 1759; Hook. f. Fl. Brit. India 4: 720. 1885; Cooke, Fl. Pres. Bombay 2: 574. 1958 (Repr. ed.). '*Tandulja*'.

Erect, diffuse, glabrous, stout herbs. Leaves ovate-rhomboid or ovate-elliptic, 1–4.5 x 0.5–3 cm, glabrous. Flowers greenish-yellow, in terminal interrupted spikes of globose fascicles and also in axillary fascicles. Utricles flask-shaped, rugose, crowned.

Fls. & Frts. : September–March.

Illus. : Maheshwari, Illus. Fl. Delhi t. 178. 1966.

Distrib. : Yelgaon lake area.

Notes : Occasional in waste places and along roads.

Uses : Leaves are used as vegetable.

A. viridis L. Sp. Pl. ed. 2: 1405. 1763; Hook. f. Fl. Brit India 4: 720. 1885; Cooke, Fl. Pres. Bombay 2: 575. 1958 (Repr. ed.). *A. gracilis* Desf. Tabl. Bot. 43. 1804.

Erect, branching, glabrous, annual herbs, with grooved stems; branches purplish. Leaves ovate, 4–6 x 3–3.3 cm, glabrous. Flowers pale green, in small, axillary clusters and in axillary and terminal interrupted panicles. Utricles suborbicular, compressed, rugose, with a short beak. Seeds black.

Fls. & Frts. : September–December.

Distrib. : Buldhana–Raipur Road, 2nd km stone.

Notes : Frequent in cultivated fields and along roads in waste, moist situations.

CELOSIA L.

Celosia argentea L. Sp. Pl. 1205. 1753; Hook. f. Fl. Brit. India 4: 714. 1885; Cooke, Fl. Pres. Bombay 2: 570 1958 (Repr. ed.). 'Rankurdu'.

Erect, much branched, annual herbs, glabrous. Leaves variable in size and shape, ovate, ovate-lanceolate, elliptic-lanceolate or linear-lanceolate, 0.5–2 x 0.3–1.5 cm, glabrous. Flowers pink, turning white at length, in terminal dense, cylindric or lanceolate, spikes. Utricles ellipsoid, dehiscent circumscissily.

Fls. & Frts. : September–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 586. 1982.

Distrib. : Mehkar, on way to Janephal, MIDC, Buldhana, Rohinkhed, Udhera Tank, Sindkhed Raja, Wasali Tribal Village.

Notes : Common weed of cultivated fields and on old compound amidst grasses.

DIGERA Forssk.

Digera muricata (L.) Mart. Beitr. Amar. 77. No. 2. 1825; Backer in Steenis, Fl. Males. Ser. 1, 4: 80. 1949. *Achyranthes muricata* L. Sp. Pl. ed. 2: 295. 1762. *Digera arvensis* Forssk. Fl. Aeg.–Arab. 65. 1775; Hook. f. Fl. Brit. India 4: 717. 1885; Cooke, Fl. Pres. Bombay 2: 572. 1958 (Repr. ed.). 'Kunjirja'.

Erect or procumbent, slender, annual herbs; stems striate, glabrous or pubescent. Leaves ovate or elliptic, 2.5– x 2–5 cm, glabrous. Flowers pink or rose-red, in lax spikes. Utricles globose, about 0.2 cm across, muricate. Seeds yellowish-brown.

Fls. & Frts. : October–March.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 587. 1982.

Distrib. : Buldhana, Jalgoan Jamod, Waghadi village.

Notes : Common in marshy places.

Uses : Leaves are used as vegetable.

GOMPHRENA L.

Gomphrena celosioides Mart. in Nov. Act. Phys. Med. Acad. Caes. Leop. Carl. Nat. Cur. 13: 301. 1826; Raiz. in J. Bombay Nat. Hist. Soc. 48: 675. 1946.

Erect or diffuse, annual herbs, with a stout tap root and pilose stems. Leaves elliptic-oblong, obovate-oblong, 1-3 x 0.4-0.5 cm, upper surface glabrescent, lower surface densely pilose. Flowers white, in subglobose heads or slightly elongated and supported by 2 leafy bracts. Utricles ovoid or ellipsoid-oblong, indehiscent, smooth.

Fls. & Frts. : Throughout the year.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 179. 1966.

Distrib. : Lonar lake.

Notes : Frequent among grasses on roadsides and in cultivated fields.

PUPALIA A.L. Juss. *nom. cons.*

Pupalia lappacea (L.) A. L. de Juss. in Ann. Mus. Hist. Nat. Paris 2: 132. 1803; Hook. f. *Fl. Brit. India* 4: 728. 1885; Cooke, *Fl. Pres. Bombay* 2: 583. 1958. (Repr. ed.). *Achyranthes lappacea* L. Sp. Pl. 204. 1753. '*Chikta*'.

Large, scandent, woody undershrubs, with long internodes. Leaves ovate-elliptic, 3-5.5 x 2-3.5 cm, soft tomentose. Flowers green on close or distant spinous clusters forming terminal spikes. Utricles oblong with a constriction near the apex, membranous. Seeds ellipsoid, dorsally compressed.

Fls. & Frts. : September-March.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 184. 1966.

Distrib. : Bawanbir, Deulgaon Raja, Lonar, Wasali forests.

Notes : Common in hedges along roadsides and on the hill slopes.

CHENOPODIACEAE

CHENOPODIUM L.

Chenopodium murale L. *Sp. Pl.* 219. 1753; *Hook. f. Fl. Brit. India* 5: 4. 1886; *Cooke, Fl. Pres. Bombay* 2: 586. 1958 (Repr. ed.).

Simple branched, erect, annual herbs, 20–50 cm tall. Leaves variable in size and shape, oblong-rhomboid, deltoid or lanceolate, toothed, glabrous. Flowers green, minute, in long, axillary and terminal, compact mealy spikes. Utricles membranous, enclosed in the perianth. Seeds orbicular, rugose, compressed.

Fls. & Frts. : September–December.

Distrib. : Dhad.

Notes : Rare, in shady places.

BASELLACEAE

BASELLA L.

Basella rubra L. *Sp. Pl.* 272. 1753; *Hook. f. Fl. Brit. India* 5: 20. 1886; *Cooke, Fl. Pres. Bombay* 2: 594. 1958 (Repr. ed.).

Perennial, twining, much branched, glabrous, succulent herbs. Leaves broadly ovate, 4–7.5 x 2–2.5 cm. Flowers white, with pink or red tips, in lax, pedunculate, axillary spikes. Utricles globose, 0.5–0.7 cm across, glabrous.

Fls. & Frts. : September–March.

Distrib. : Loni, Mehkar, Shegaon, Sonala.

Notes : Cultivated, often as an escape, at some places naturalized.

POLYGONACEAE

- | | | | |
|----|---|-----|------------|
| 1. | Climbing shrubs; inflorescence tendrilar | ... | ANTIGONON |
| 1. | Erect under shrubs or herbs; inflorescence tips not tendrilar : | | |
| 2. | Plants glandular | ... | PERSICARIA |
| 2. | Plants non-glandular | ... | POLYGONUM |

ANTIGONON Endl.

Antigonon leptopus Hook. & Arn. Bot. Beech. Voy. 308. t. 69. 1841; Cooke, Fl. Pres. Bombay 3: 10. 1958 (Repr. ed.).

Large, perennial climbers, woody at base. Leaves broadly ovate to ovate-triangular, 2.5–10.5 x 1.5–6 cm, puberulous or glabrous. Flowers pink, in axillary and terminal, tendrilar racemes. Fruits not seen.

Fls. : August–October.

Distrib. : MIDC. Buldhana.

Notes : Native of Mexico, planted in gardens as an ornamental; also running Willd.

PERSICARIA Mill.

- | | | | |
|----|----------------------------|-----|-------------------|
| 1. | Bracts and ocreae glabrous | ... | <i>P. glabra</i> |
| 1. | Bracts and ocreae ciliate | ... | <i>P. barbata</i> |

Persicaria barbata (L.) Hara in Fl. East. Himal. 70. 1966; Maiti & Sikdar in Indian J. For. 8: 191. 1985. *Polygonum barbatum* L. Sp. Pl. ed. 1: 362. 1753; *P. serrulatum* Hook. f. Fl. Brit. India 5: 38. 1886 *auct. non* Lagasca, 1816; Cooke, Fl. Pres. Bombay 3: 7. 1958 (Repr. ed.).

Erect, or procumbent–ascending herbs, stems slender, glabrous. Leaves lanceolate or linear–lanceolate, 5–9 x 1–2 cm, glabrous, appressed hairy on the nerves. Flowers in axillary or terminal racemes, perianth white. Nutlets trigonous, granulate, dark brown.

Fls. & Frts. : More or less throughout the year.

Distrib. : Nandura near broken bridge.

Notes : Occasional on nallah beds.

P. glabra (Willd.) Gomez dela Maza in Ann. Isnt. Segunda Ensenanza Habana 2: 278. 1896; Maiti & Sikdar in Indian J. For. 8: 192. 1985. *Polygonum glabrum* Willd. Sp. Pl. 2: 447. 1799; Hook. f. Fl. Brit. India 5: 34. 1886; Cooke, Fl. Pres. Bombay 3: 5. 1958 (Repr. ed.).

Stoloniferous, erect, aquatic or semi-aquatic, glabrous herbs, rooting from lower nodes. Leaves lanceolate, 5–15 x 0.5–2 cm, glabrous, closely gland-dotted. Flowers pink, in terminal racemes. Nutlets broadly ovoid or suborbicular, 0.2–0.3 cm across, compressed, biconvex, shining, black.

Fls. & Frts. : Throughout the year.

Illus. : Maheshwari, Illus. Fl. Delhi t. 188. 1966.

Distrib. : Bhalkund near Borhala village, Buldhana, Purna river bank near Mehkar; Rajura lake near Jalgaon Jamod; Waghadi village.

Notes : Common in marshy and water-logged places.

POLYGONUM L.

Polygonum plebeium R. Br. Prodr. 420. 1810 ('plebejun'); Hook. f. Fl. Brit. India 5: 27. 1886; Cooke, Fl. Pres. Bombay 3: 4. 1958 (Repr. ed.).

Diffuse, prostrate herbs, branching from a woody rootstock. Leaves oblong, linear or obovate, 0.3–2 x 0.1 cm, glabrous. Flowers pink or rosy, axillary, solitary or in small clusters. Nutlets trigonous, about 0.1 cm long, shining, smooth, black.

Fls. & Frts. : December–June.

Illus. : Wight, Ic. t. 1808. 1852.

Distrib. : Lonar lake bed, Nalgangapur project area, Nandura near broken bridge, Rajura lake near Jalgaon Jamod.

Notes : Common in drying ponds and puddles. A very variable plant, the forms and varieties apparently depending on the amount of moisture and shade.

ARISTOLOCHIACEAE

ARISTOLOCHIA L.

Aristolochia bracteolata Lamk. *Encycl.* 1: 258. 1783; Sant. & Wagh in *Bull. Bot. Surv. India* 5(2) : 104. 1964. *A. bracteata* Retz. *Obs. Bot.* 5: 29. 1788; Hook. f. *Fl. Brit. India* 5: 75. 1886; Cooke, *Fl. Pres. Bombay* 3: 16. 1958 (Repr. ed.).

Slender, decumbent, glabrous, perennial herbs, woody at base. Leaves broadly ovate or reniform, 3–6 x 4.5–8 cm, glaucous below. Flowers dark purple, axillary, solitary. Capsules oblong-ellipsoid, 1.5–2.2 x 1–1.5 cm, glabrous, ribbed.

Fls. & Frts. : October–March.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic t.* 601. 1982.

Distrib. : Yelgaon lake.

Notes : Occasional in stony crevices of bunds.

Uses : Leaf-paste is used as a remedy for itche and insect bites.

PIPERACEAE

CULTIVATED SPECIES

PIPER L.

Piper betle L. *Sp. Pl.* 28. 1753; Hook. f. *Fl. Brit. India* 5: 85. 1886; Cooke, *Fl. Pres. Bombay* 3: 20. 1958 (Repr. ed.). '*Pan-Nagwel*'.

Perennial, dioecious twiners; stems scarcely branched and producing clinging roots at nodes, glabrous. Leaves broadly elliptic-oblong, about 8–15 x 5–9 cm, usually 3 nerved above the base, glabrous. Flowers and fruits not seen.

Cultivated in Jalgaon Jamod taluka, near Sangrampur along the slopes of Satpuda Ranges.

The plants are supported in betel-gardens on quick growing trees such as *Moringa oleifera*, *Sesbania sesban*, *Erythrina variegata* etc. The leaves are chewed by many.

CULTIVATED SPECIES

PROTEACEAE

GREVILLEA R. Br. *nom. cons.*

Grevillea robusta A. Cunn. ex R. Br. Suppl. Prodr. Fl. Nov. Holl. 24. 1830; Matthew in Rec. Bot. Surv. India 20: 192. 1969.

Tall trees, with hoary-tomentose branches. Leaves bipinnate or sometimes tripinnate, 10-25 cm, long; pinnae entire or deeply pinnatifid, lanceolate, silvery beneath. Flowers greenish-yellow, mixed with orange, in secund racemes. Follicles oblique, scarious.

Fls. & Frts. : March-July.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 614. 1982.

Distrib. : Buldhana.

Notes : Native of Eastern Australia, planted as an ornamental tree.

LORANTHACEAE

- | | | |
|--|-----|--------------|
| 1. Plants leafy; stems and branches terete; flowers bisexual | ... | DENDROPHTHOE |
| 1. Plants leafless; stems and branches flattened;
flowers unisexual | ... | VISCUM |

DENDROPHTHOE Mart.

Dendrophthoe falcata (L.f.) Etting. in Denkschr Kaiserl. Akad. Wiss. Math. Naturwiss. Kl. 32: 52-53, 58, t. 13, f. 14. 1872; Sant. in Rec. Bot. Surv. India 16: 234. 1967. ed 3. *Loranthus falcatus* L.f. Suppl. 211. 1781. *L. longiflorus* Desr. in Lamk. Eycl. 3: 598. 1789; Hook. f. Fl. Brit. India 5: 214. 1886; Cooke, Fl. Pres. Bombay 3: 42. 1958 (Repr ed.) var. *amplexifolia* (DC.) Thw. Enum. Pl. Zeyl. 134. 1879; Hook. f. l.c.; Cooke, l.c. 'Bandgul'.

Large, much branched, stem parasites. Leaves elliptic-oblong, suborbicular or ovate-lanceolate, 3–10 x 1.5–4.5 cm, leathery. Flowers red with orange tips, axillary, solitary or in unilateral racemes. Berries ovoid-oblong, 0.6 x 0.2 cm, covered by cupular calyx, pink when mature.

Fls. & Frts. : September–March.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 616. 1982.

Distrib. : Bedapani hills, Ambabarwa, Salvan beat of Sonala forest range, Vayla near Shimba river.

Notes : Frequent on *Anogeissus latifolia*, *Boswellia serrata*, *Dalbergia latifolia* and *Mangifera indica*.

VISCUM L.

Viscum nepalense Spr. Syst. Cur. Post. 47. 1827; Danser in *Blumea* 4: 283. 1936. *V. articulatum* auct. non Burm. f. 1768; Hook. f. *Fl. Brit. India* 5: 226. 1886; Cooke, *Fl. Pres Bombay* 3: 47. 1958 (Repr. ed.).

Dichotomously branched, pendulous parasites; branches articulated, yellowish-green, longitudinally furrowed, narrow at both ends. Flowers minute, in axillary clusters. Berries globose, 0.1–0.4 cm across, smooth, green, verrucose when young, white, smooth when mature.

Fls. & Frts. : June–December.

Illus. : Talbot, *For. Fl. Bombay Pres. & Sind*, 2: 423, t. 482. 1911.

Distrib. : Dongar shewli, Gerumatargaon forests, Motala, Warwand Forest Rest House.

Notes : Frequent on *Tectona grandis* and *Cordia dichotoma*. This parasite is frequent in plains of southern parts of the district but never seen in Satpuda ranges.

SANTALACEAE

SANTALUM L.

Santalum album L. Sp. Pl. 349. 1753; Hook. f. Fl. Brit. India 5: 231 1886; Cooke, Fl. Pres.-Bombay 3: 49. 1958. (Repr. ed.). 'Chandan'.

Small, evergreen, glabrous trees, 5-6 m tall. Leaves elliptic-lanceolate, 1.5-6 x 0.5-3 cm, glabrous and shining above. Flowers brownish-purple, in axillary and terminal, branched, paniculate-cymes. Drupes subglobose, 0.7 x 0.5 cm, with solitary seed, purplish-black when ripe.

Fls. & Frts. : March-November.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 425, t. 483. 1911; Matthew, Illus. Fl. Tamilnadu Carnatic t. 622. 1982.

Distrib. : Borkhedi, Buldhana, Pimpalgaon, Sutala near Khamgaon.

Notes : Common under shade of trees along forest streams. Also planted in gardens.

Uses : The yellowish-brown, strongly-scented heartwood constitutes the well-known sandalwood of commerce.

EUPHORBIACEAE

- | | | |
|--|-----|-----------|
| 1. Flowers in cyathium inflorescence | ... | EUPHORBIA |
| 1. Flowers not forming cyathium : | | |
| 2. Petals present in one or both sexes : | | |
| 3. Trees or shrubs : | | |
| 4. Flowers in axillary clusters or clusters in racemes | ... | BRIDELLA |
| 4. Flowers in terminal, 2-3 cymose cymes | ... | JATROPHA |
| 3. Herbs : | | |
| 5. Plants not stellate hairy; seeds strophiolate | ... | CROTON |

5. Plants stellate hairy; seeds estrophiolate ... CHROZOPHORA
2. Petals absent in both sexes :
6. Trees or shrubs :
7. Leaves more than 1.5 cm; styles 0 or combined into a column; ovary 5-12 celled ... KIRGANELIA
7. Leaves upto 1.5 cm; styles distinct, 2-fid; ovary 3-celled or seldom 4-celled ... EMBLICA
6. Herbs or undershrubs :
8. Female flowers with leafy bracts or in long spikes ... ACALYPHA
8. Female flowers without leafy bracts, never in long spikes :
9. Leaves distichous; flowers in axillary fascicles ... PHYLLANTHUS
9. Leaves not distichous; flowers in racemes ... BALIOPERMUM

ACALYPHA L.

1. Bracts shortly dentate-truncate ... *A. indica*
1. Bracts fimbriate or ciliate ... *A. ciliata*

Acalypha ciliata Forssk. Fl. Aeg.-Arab. 162. 1775; Hook. f. Fl. Brit. India 5: 417. 1887; Cooke, Fl. Pres. Bombay 3: 109. 1958 (Repr. ed.).

Erect, annual herbs, 25-100 cm tall. Leaves ovate 4-7.5 x 2-4 cm, glabrous but hairy on the veins. Flowers greenish, in axillary spikes; the males few, minute, at the top of the spike; females several, crowded at its base. Fruits about 0.2 cm long, 3-lobed, glabrous, twisted after dehiscence.

Fls. & Frts. : August-December.

Distrib. : Shimpā river bank, Sonala forest range.

Notes : Occasional in deciduous forests, along river banks, on moist ground.

A. indica L. Sp. Pl 1003. 1753; Hook. f. Fl. Brit. India 5: 416. 1887; Cooke Fl. Pres. Bombay 3: 108 1958 (Repr. ed.).

Erect, annual herbs with many ascending angular, branches pubescent. Leaves ovate or ovate-rhomboid, 1.5–7 x 1.8–4 cm, glabrous. Flowers greenish-yellow, in axillary spikes; males minute, at the summit of the spikes; females 3–5, surrounded by bracts. Fruits small, hispid, concealed by bracts, often 1 seeded.

Fls. & Frts. : September–March.

Illus. : Maheshwari, Illus. Fl. Delhi t. 316. 1966.

Distrib. : Buldhana.

Notes : Common on waste lands and along hedges of cultivated fields, under the shade of trees.

CULTIVATED SPECIES

A. hispida Burm. f. Fl. Ind. 303. t. 61. f. 1. 1768; Hook. f. Fl. Brit. India 5: 417. 1887; Cooke, Fl. Pres. Bombay 3: 110. 1958 (Repr. ed.).

Erect, annual herbs, branches many, ascending, angular, pubescent. Leaves ovate or ovate-rhomboid, 1.5–7 x 1.8–4 cm, glabrous. Flowers greenish-yellow, in axillary spikes; males minute, at the summit of the spikes; females 3–5, surrounded by bracts. Fruits small, hispid, concealed by bracts, often 1 seeded.

Fls. & Frts. : September–March.

Illus. : Maheshwari, Illus. Fl. Delhi t. 316. 1966.

Distrib. : Buldhana.

Notes : Common on waste lands and along edges of cultivated fields, under the shade of trees.

A. wilkesiana Muell.-Arg. in DC. Prodr. 15(2): 817. 1866; Cooke, Fl. Pres. Bombay 3: 110. 1958 (Repr. ed.).

Erect, monoecious shrubs, 1–2.5 m tall. Leaves elliptic or ovate, 10–20 x 5–12 cm, bronzy-green, variously mottled with shades of red and purple. Spikes slender, reddish, erect.

Fls. & Frts. : Throughout the year.

Distrib. : A garden near Pimpri village.

Notes : Native of Fiji Island, often grown in gardens as an ornamental. There are several named varieties with various colours of the leaves. For full account of these varieties see L. Bailey's *Man. Cult Pl.* 622. 1949.

BALIOSPERMUM Bl.

Baliospermum montanum (Willd.) Muell.-Arg. in DC. Prodr. 15(2): 1125. 1866; Airy Shaw in Kew Bull. 26: 222. 1972 & 36: 267 1981. *Jatropha montana* Willd. Sp. Pl. 4: 563. 1805. *Baliospermum axillare* Bl. Bijdr. 604. 1825; Hook. f. Fl. Brit. India 5: 461. 1887; Cooke, Fl. Pres. Bombay 3: 106. 1958 (Repr. ed.).

Stout undershrubs 0.5–1.5 m tall. Leaves variable in shape and size; the upper small, lanceolate, penninerved; lower large (20–23 cm) ovate, palmately 3–5 lobed, glabrous. Flowers greenish-yellow, in axillary racemes or condensed panicles. Fruits ovoid, 0.7–0.8 x 0.7–0.8 cm, pubescent, trilobed.

Fls. & Frts. : December–March.

Illus. : Wight, Ic. t. 1885. 1852. *Baliospermum polyandrum*

Distrib. : Bawannbir

Notes : Occasional along streams, in moist, shady localities.

Uses : The seeds are used as drastic purgative. The roots are cathartic.

BRIDELIA Willd.

- | | | |
|--|-----|--------------------|
| 1. Flowers in terminal paniculate-spikes, monoecious | ... | <i>B. retusa</i> |
| 1. Flowers in axillary clusters, dioecious | ... | <i>B. squamosa</i> |

Bridelia retusa (L.) Spr. Syst. Veg. 3: 48. 1826; Hook. f. Fl. Brit. India 5: 268. 1887; Cooke, Fl. Pres Bombay 3: 68. 1958 (Repr. ed.); Sant. in J. Bombay Nat. Hist. Soc. 50: 308. 1951. *Cluytia retusa* L. Sp. Pl. 1042. 1753.

Small trees, 4–5 m tall, spinous when young. Leaves ovate-elliptic or ovate-oblong, 5–20 x 3–11 cm, tomentose beneath. Flowers pinkish or creamy-white, in terminal paniculate-cymes. Drupes globose, 0.8–1 cm across, fleshy, seated on the enlarged calyx, purple-black when ripe.

Fls. & Frts. : July–October.

Illus. : Sant. l.c. opp. page 308 f. 1. 1951; Matthew, *Illus. Fl. Tamilnadu Carnatic* t 629. 1982.

Distrib. : Gandhali forests, near Loni, Wasali forests.

Notes : Frequent on hill slopes, in deciduous forests. *Bridelia retusa* as understood by many of our Indian botanists is a mixture of that species and *B. squamosa* (Lamk.) Gehrm. The former species can be distinguished by its terminal, paniced spikes and the latter by its axillary and fascicled inflorescence.

B. squamosa (Lamk.) Gehrm. in *Engl. Bot. Jahrb.* 41, Beibl, 95: 30. 1908, s.l.; Sant. in *J. Bombay Nat. Hist. Soc.* 50: 308. 1951. *Cluytia squamosa* Lamk. *Encycl.* 5: 54. 1790. 'Rodga'.

Deciduous trees, 8–10 m tall. Leaves elliptic, 5–12 x 2–5 cm, pubescent beneath. Flowers greenish-yellow or pink in axillary clusters. Drupes globose, 0.7–0.9 cm across, with solitary seed, fleshy, greenish-red.

Fls. & Frts. : October–December.

Illus : Sant. l.c. opp. page 308, f. 2. 1951.

Distrib. : Bedapani forests of Ambabarwa reserve.

Notes : Rare, on hill slopes. This species is usually misidentified as *B. retusa* which, however can be distinguished from the latter by its axillary fascicled flowers.

CHROZOPHORA Neck. *nom. cons.*

Chrozophora prostrata Dalz. in Dalz. & Gibs. *Bombay Fl.* 233. 1861; Hook. f. *Brit. India* 5: 410. 1887; Cooke, *Fl. Pres. Bombay* 3: 105. 1958 (Repr. ed.).

Monoecious, prostrate, annual herbs, much branched. Leaves broadly ovate or orbicular, 1.5–2 x 1.5–2.5 cm, upper surface finely pubescent with some stipitate hairs, stellate-woolly beneath. Flowers in short, axillary racemes. Fruits 0.3–0.4 cm across, densely stellate-woolly, 3-lobed. Seeds auriculate.

Fls. & Frts. : October–March.

Distrib. : Rajura lake. Shimba river bank, Yelgaon lake.

Notes : Common along river–stream and lake beds.

CROTON L.

Croton bonplandianum Baill. in *Adansonia* 4: 339 1864; Croizat in *J. Bombay Nat. Hist. Soc* 41: 573. 1940. *C. sparsiflorus* Morong in *Ann. N.Y. Acad. Sci.* 7: 221. 1892; Gamble, *Fl. Pres. Madras* 2: 1316. 1957 (Repr. ed.).

Erect, woody herbs, diffuse, much branched, 30–90 cm tall. Leaves crowded at the ends of the branches, ovate-lanceolate, 2–4 x 1.5–3.2 cm, stellate hairy beneath. Flowers greenish–white, in terminal, simple spikes. Fruits oblong, obtusely 3-gonus, stellately hairy. Seeds oblong, shining.

Fls. & Frts. : Throughout the year.

Distrib. Buldhana–Malkapur Road, 3rd km stone, Khamgaon.

Notes. : Frequent weed along edges of cultivated fields and along roadsides; native of America.

EMBLICA Gaertn.

Emblica officinalis Gaertn. *Fruct.* 2: 122, t. 108. 1790. *Phyllanthus 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 Arbor.* 38: 76. 1957. '*Awla*'.

Deciduous, small trees, 2–8 m tall, bark greenish–grey, peeling. Leaves pinnate; leaflets 1 x 2 cm, close-set, distichous, linear. Flowers greenish–yellow, densely fascicled on new shoots. Berries globose, 1–2.5 cm across, fleshy, with 6 obscure vertical furrows.

Fls. & Frts. : July–November.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 442, t. 491. 1911.

Distrib. : Wasali forests, near Chinchpani.

Notes : Common on hill slopes, elsewhere occasional. According to Webster (*l.c.*) all the distinguishing characters of this genus fall within the circumscription of *Phyllanthus*. This interpretation however, needs further scrutiny.

EUPHORBIA L.

1. Trees or shrubs with succulent branches; leaves absent, if present, fleshy :
 2. Armed with stipular spines ... *E. ligularia*
 2. Unarmed ... *E. tirucalli*
1. Shrubs or herbs; leaves present, not fleshy :
 3. Bracts leaf-like, below the involucre ... *E. geniculata*
 3. Without leaf-like bracts :
 4. Prostrate herbs; limb of gland minute or absent ... *E. thymifolia*
 4. Erect or procumbent herbs, dichotomously branched; limb of the gland large, conspicuous :
 5. Plants hispid; cymes capitate ... *E. hirta*
 5. Plants glabrous; cymes not capitate ... *E. parviflora*

Euphorbia geniculata Orteg. Nov. Rar. Pl. Mar. Decad. 18. 1797; Hook. f. Fl. Brit India 5: 239. 1887; Cooke, Fl. Pres. Bombay 3: 66. 1958 (Repr. ed.); Sant. in Bull. Bot. Soc. Bengal 3: 5. 1955. 'Dudhi'.

Erect, annual herbs, 30–60 cm tall. Leaves variable in shape, usually broadly elliptic or obovate, upper surface glabrous, hairy beneath. Cyathia in terminal cymes supported by 2–4 leaves. Fruits globose, 0.4–0.5 cm across, glabrous, 3-lobed. Seeds ovoid, obtusely trigonous.

Fls. & Frts. : Throughout the year.

Distrib. : Buldhana, Sangam lake, Jamod.

Notes : Common weed of cultivated fields and gardens. An introduced weed from Tropical America, now naturalized in many parts of India. It is rather confusing why *Euphorbia geniculata* Orteg. is treated as a synonym under *E. heterophylla* L. by Deay in Fl. West Africa ed. 2, 1 (2): 421. 1958.

Uses : This plant is used as fodder which is said to be very good for milk yielding cattle.

E. hirta L. Sp. Pl. 454. 1753; Sant. in Bull. Bot. Soc. Bengal 8: 14. 1955. *E. pilulifera* auct. pl. non. L. 1753; Hook. f. Fl. Brit. India 5: 250. 1887; Cooke, Fl. Pres. Bombay 3: 64 1958 (Repr. ed.).

Erect, diffuse or prostrate, annual herbs; branches angled, sparsely clothed with spreading hairs. Leaves ovate or ovate-lanceolate, 1-2 x 0.5-1.2 cm, hairy. Cyathia in crowded, peduncled cymes. Fruits 0.1 cm long, appressed hairy, 3-lobed. Seeds reddish-brown, transversely rugose.

Fls. & Frts. : December-March.

Illus. : Maheshwari, Illus. Fl. Delhi t. 193. 1966.

Distrib. : Ambabarwa village, Buldhana-Motala Road.

Notes : Common weed on waste lands, in cultivated fields and along roadsides.

Uses : Plants are used as fodder.

E. ligularia Roxb. Fl. Ind. 2: 465. 1832; Cooke, Fl. Pres. Bombay 3: 58. 1958 (Repr. ed.); Airy Shaw in Kew Bull. 26: 265. 1972. *E. neriiifolia* Boiss. in DC. Prodr. 79. 1862; Hook. f. Fl. Brit. India 5: 235. 1887, non L. 1753.

Erect, xerophytic, perennial shrubs, 4-5 m tall; branches spirally 5-angled; stipular thorns thick, stout. Leaves elliptic-obovate, 5-14 x 3-9 cm, crowded at the ends of the branches, sub-fleshy, glabrous. Involucres red or yellow, 3-nate forming solitary or twin cymes. Fruits obovoid, 0.8-1 cm across, 3-gonus, glabrous.

Fls. & Frts. : November-April.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: t. 485. 1911.

Distrib. : Pimpalgaon-Raipur Road, near Pimpalgaon.

Notes : Occasional on rocky hill slopes and in open thorny forests.

Uses : Plants are used for fencing around cultivated fields.

E. parviflora L. Syst. ed. 10, 2: 1047. 1759; Sant. in Bull. Bot. Soc. Bengal 8 (1 & 2): 13. (1954) 1955. *E. hypericifolia* L. Sp. Pl. 454. 1753, *p.p.*; Hook. f. Fl. Brit. India 5: 249. 1887, *p.p.* *E. hypericifolia* L. var. *parvifolia* (L.) Prain, Bengal Pl. 2: 924. 1903; Cooke, Fl. Pres. Bombay 3: 63. 1958 (Repr. ed.).

Spreading or erect annual herbs, glabrous or sparsely hairy. Leaves elliptic-oblong, 0.5–2.5 x 0.5–1 cm, thinly appressed hairy beneath. Cyathia many, crowded, peduncled. Fruits subglobose, about 0.1 x 0.1 cm, appressed hairy. Seeds reddish-brown, glabrous.

Fls. & Frts. : July–February.

Distrib. : Botha forest Nursery area, Buldhana Raipur Road, 3rd km stone, Hiwarkheda village.

Note : Common weed around cultivated fields and in waste places.

E. rothiana Spreng. Syst. Veg. 3: 796. 1826; Hook. f. Fl. Brit. India 5: 263. 1887; Cooke, Fl. Pres. Bombay 3: 59. 1958 (Repr. ed.). *E. laeta* Heyne in Roth; Nov. Pl. Sp. 230. 1821 (*non* Ait. 1789); Sedgewick in J. Bombay Nat. Hist. Soc. 26: 599–600. 1852.

Erect, glabrous, annual herbs, 20–50 cm tall, dichotomous branches. Leaves long, whorled, linear or oblong-lanceolate, 3–5 x 0.5–1 cm, glabrous. Inflorescence solitary, in upper axils. Fruits subglobose, deeply 3-lobed, 0.3–0.4 cm in across, glabrous. Seeds oblong, bluish-grey.

Fls. & Frts. : October–March.

Illus. : Wight, Ic. t. 1864. 1852.

Distrib. : Yelgaon lake area.

Notes : Rare in dried lake bed on black soil. This species resembles *E. perbracteata* Gage (Kew Bull. 1924: 238) but can be distinguished by its free opposite bracts. In the latter the two bracts are connate at base. This plant is also known as *E. laeta* Heyne ex Roth.

E. thymifolia L. Sp. Pl. 454. 1753; Hook f. Fl. Brit. India 5: 252. 1887; Cooke, Fl. Pres. Bombay 3: 64. 1954 (Repr. ed.); Sant. in Bull. Bot. Soc. Bengal 8: 16 (1954) 1955; Airy Shaw in Kew Bull. 36: 296. 1981.

Prostrate, usually radially spreading, hispid pubescent, annual herbs. Leaves oblong or elliptic-oblong, 0.5–0.7 x 0.3–0.4 cm. Inflorescence axillary, cymose. Fruits about 0.1 cm long, ellipsoid, appressed hairy all over, reddish-brown. Seeds transversely furrowed.

Fls. & Frts. : June–September.

Distrib. : Lavhala near Mehkar.

Notes : Frequent along roadsides and on waste lands. Usually this weed is found in association with *Tribulus terrestris* in the area under study.

E. tirucalli L. Sp. Pl. 452. 1753; Hook. f. Fl. Brit. India 5: 254. 1887; Cooke, Fl. Pres. Bombay 3: 66. 1958 (Repr. ed.); Sant. in Bull. Bot. Soc. Bengal 8: 5. (1954) 1955. '*Sher*'.

Dichotomously branched, succulent, large shrubs or small trees. Leaves minute, linear-oblong, deciduous. Flowers not seen in the area under study.

Illus. : Tadulingam & Venkatanarayana, Handb. S. India Weeds, t. 487. 1955 (Rev. ed.).

Distrib. : Lonar lake, Warwat bakal village.

Notes : Common milk bush, native of Africa, planted as hedge. The plant is always observed in vegetative condition in the area under study.

JATROPHA L.

- | | | |
|--|-----|---|
| 1. Petiole and leaf-margins glandular | ... | <i>J. gossypifolia</i>
var. <i>elegans</i> |
| 1. Petiole and leaf-margins eglandular | ... | <i>J. curcas</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.). '*Chandrajuoti*, *Mogli erand*'.

Large shrubs with watery juice, soft wooded and deciduous, 1-3 m tall. Leaves broadly ovate, 4-12 x 4-13 cm, entire or palmately 3-5 lobed, glabrous. Flowers yellowish-green, monoecious in corymbose-cymes with acute bracts. Fruits subglobose, 2-3 cm across, glabrous, rugose. Seeds oblong.

Fls. & Frts. : April-June.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 467, 502. 1911.

Distrib. : Budha village, Lavhala near Mehkar.

Notes : Native of tropical America, common in villages as hedge or fence plant.

***J. gossypifolia* L. var. *elegans* Muell.**—Arg. in DC. Prodr. 15(2): 1087. 1866; Back. & Bakh. f. Fl. Java 1: 494. 1963. *J. gossypifolia* auct. non L. 1753.

Erect, perennial shrubs, 1-1.5 m tall, branches reddish-brown. Leaves 4-10 x 5-12 cm, deeply 3-5 lobed; lobes elliptic-obovate. Flowers dark-red, in terminal, trichotomous, 3-4 cm long cymes. Fruits subglobose, 3-lobed, smooth, glabrous.

Fls. & Frts. : Throughout the year.

Illus. : Talbot, For. Fl. Bombay Pres. & Sind 2: 468, t. 503. 1911.

Distrib. : Rajura village.

Notes : Rare in the garden edges and roadsides. Native of Brazil naturalized in certain parts of the district. *J. gossypifolia* L. var. *gossypifolia* has greenish petals.

KIRGANELIA Juss.

***Kirganelia reticulata* (Poir.) Baill.** Etud. Gen. Euphb. 513. 1858; Gamble, Fl. Pres. Madras 905. 1957 (Rev. ed.). *Phyllanthus 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.). 'Kanguni'.

Scandent shrubs with profuse branches, monoecious. Leaves elliptic or oblong, 0.5–2.5 x 0.4–1.5 cm, glabrous. Flowers pale white, axillary; males in fascicles of 2–6 and females solitary. Berries globose, 0.3–0.4 cm across, glabrous. Seeds trigonous, finely granulate.

Fls. & Frts. : June–September.

Illus. : Wight, Ic. t. 1899. 1852; Talbot, For. Fl. Bombay Pres. & page Sind. 2: t. 490. 1911.

Distrib. : Changephal village, Lonar lake.

Notes : Common along hedges and in moist localities. According to Webster (J. Arnold Arb. 38: 57. 1957) the genus *Kirganelia* cannot be maintained as distinct from the genus *Phyllanthus*. This statement however, needs further biosystematic studies of all the genera involved.

Uses : Fruits are edible.

PHYLLANTHUS L.

1. Stipules peltate :

- | | |
|---|-------------------------------|
| 2. Anthers connate, dehiscence vertical | ... <i>P. maderaspatensis</i> |
| 2. Anthers free, dehiscence transverse | ... <i>P. virgatus</i> |

1. Stipules not peltate :

- | | |
|------------------|-------------------------|
| 3. Calyx lobes-5 | ... <i>P. amarus</i> |
| 3. Calyx lobes-6 | ... <i>P. fraternus</i> |

Phyllanthus amarus Schum. et Thonn., Kongl. Danske Vidensk. Seldk. Skr. 4: 195–196. 1829; Webster in J. Arnold Arb. 38: 313. t. 19. f. I–K. 1957. *P. niruri* var. *amarus* (Schum. et Thonn.) Leandri in Humbert, Fl. Madag. 111: 73. 1958. *P. nanus* Hook. f. Fl. Brit. India 5: 298. 1887.

Annual erect, monoecious, glabrous herbs. Leaves thin, blades elliptic-oblong, 0.6–0.8 x 0.3–0.4 cm, rounded to apiculate at the tip, slightly inequilateral at base. Flowers mostly bisexual, the proximal 1

or 2 axils with staminate flowers, the other axils each with one staminate and one pistillate flowers. In both the flowers calyx lobes deeply 5-lobed, sometimes irregular.

Fls. & Frts. : August–October.

Illus. : Bhandari, Fl. Ind. Desr. t. 125. 1978.

Distrib. : Lonar lake.

Note : Collection of this plant from Buldhana district, forms a new record for Maharashtra.

This is stated to be a native of America (Webster & Burch. 1967 & Raizada 1976) and so far known to occur in Bihar & West Bengal.

This herbaceous weedy plant, the most wide spread and abundant species of *Phyllanthus* has until recently been confused with *P. niruri* L. in India. However, it is easily distinguished from *P. niruri* by its equilateral leaf bases and ribbed instead of verruculose seeds. This species also closely resembles *P. fraternus* and is likely to be confused with it. Further *P. amarus* makes its identity fairly easy by presence of male and female flowers in each axils and having flat deeply 5-lobed disc in the female flowers.

P. fraternus Webster in Contr. Gray Herb. 176: 53. 1955 & J. Arnold Arb. 38: 309. 1958. *P. niruri* auct. pl. non. L. 1753; Hook. f. Fl. Brit. India 5: 298. 1887, p.p.; Cooke, Fl. Pres. Bombay 3: 84. 1958 (Repr. ed.).

Erect, annual herbs, 30–60 cm tall; stems branched from base. Leaves distichous, elliptic-oblong or oblanceolate, 0.5–0.8 x 0.2–0.3 cm, glabrous. Flowers whitish or yellowish, solitary, axillary. Fruits depressed-globose, 0.2–0.4 cm across, smooth. Seeds trigonous, yellowish-brown.

Fls. & Frts. : August–December.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 649. 1982.

Distrib. : Chunkhedi forests, Lonar lake valley.

Notes : Common weed in open field and on grassy hill slopes.

P. maderaspatensis L. Sp. Pl. 982 1753; Hook. f. Fl. Brit. India 5: 292. 1887; Cooke, Fl. Pres. Bombay 3: 82. 1958 (Repr. ed.).

Erect, annual, glabrous herbs with a woody rootstock. Leaves obovate-cuneate, 1-1.5 x 0.2-0.5 cm, glabrous. Flowers greenish-white, in axillary, solitary or in few-flowered clusters. Fruits depressed-globose, 0.2-0.3 cm across, 3-gonus, glabrous. Seeds trigonous, brown.

Fls. & Frts. : August-November.

Illus. : Tadulingam & Venkatanarayana Handb. S. Indian Weeds; 394; f. 158. 1955 (Rev. ed.).

Distrib. : Buldhana-Raipur Road, 1st km stone, Deulgaon Sakharsa, Hiwarkheda village, Bakal village, Zadegaon on way to Khamgaon.

Notes : Common weed of cultivated fields and drier areas.

P. virgatus Forst. f. Fl. Ins. Austr. Prodr. 65. 1786; Airy Shaw in Kew Bull. 36: 338. 1981. *P. simplex* Retz. Obs. Bot. 5: 29. 1788; Hook. f. Fl. Brit. India 5: 295. 1887; Cooke, Fl. Pres. Bombay 3: 83 1958. (Repr. ed.).

Erect or decumbent-ascending, weak, annual herbs, 20-50 cm tall, often branched from base. Leaves distichous, linear-oblong, 1.5-2 x 0.3-0.5 cm, glabrous. Flowers greenish-white, on slender, axillary pedicels. Fruits globose, 0.2-0.25 cm across, minutely tuberculate. Seeds trigonous, rounded on back.

Fls. & Frts. : June-October.

Illus. : Maheshwari, Illus. Fl. Delhi t. 199 1966.

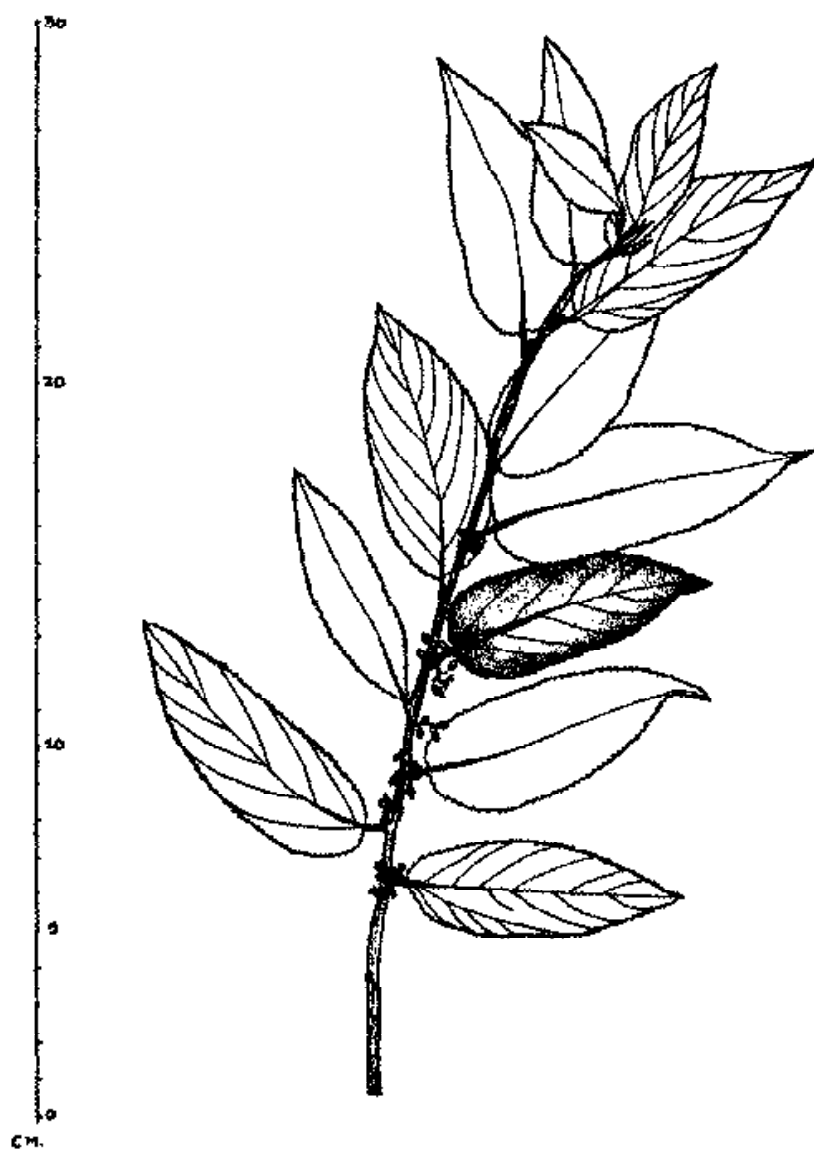
Distrib. : Hiwarkheda village.

Notes : Frequent in open fields and along roadsides.

ULMACEAE

TREMA Lour.

Trema politoria Planch. in Ann. Sci. Nat. 3, 10: 326. 1848; Hook. f. Fl. Brit. India 5: 484. 1888.



Trema politoria Planch.

Collection of this plant from Buldhana district forms a new
record to Maharashtra state.

Large shrubs or small trees, 5–6 m tall. Leaves obliquely ovate or lanceolate, 5–12 x 0.6–1.5 cm, scabrid on both the surfaces; petioles hairy. Flowers minute, greenish-yellow, in compact axillary fascicles shorter or equal to the petioles. Fruits 3-lobed, minute, densely hairy.

Fls. & Frts. : November–February.

Illus. : In view of its rarity, line drawing of the plant is provided herewith for ready reference.

Distrib. : Ambabarwa hillocks.

Notes : Rare on hill slopes. After identification, the present report of this species from Buldhana district has extended its known distribution southwards which was so far restricted to northern parts of the country.

MORACEAE

FICUS L.

- | | | | |
|----|--|-----|------------------------|
| 1. | Receptacles distinctly pedunculate, 3–4 cm across | ... | <i>F. racemosa</i> |
| 1. | Receptacles sessile or subsessile, less than 3 cm across : | | |
| 2. | Leaves glabrous : | | |
| 3. | Leaf apices not caudate-acuminate;
sepals 3 in female flowers | ... | <i>F. amplissima</i> |
| 3. | Leaf apices caudate-acuminate;
sepals 5 in female flowers | ... | <i>F. religiosa</i> |
| 2. | Leaves tomentose or pubescent beneath,
at least when young | ... | <i>F. benghalensis</i> |

Ficus amplissima J. E. Sm. in Rees, Cyclop. 14: No. 1. 1810; Corner in Gard. Bull. Singapore 21: 11. 1965 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 242. 1961. *F. tsiela* Roxb. ex Buch.-Ham. in Trans. Linn. Soc. London 15(1): 149. 1826; Hook. f. Fl. Brit. India 5: 515. 1888; Cooke, Fl. Pres. Bombay 3: 150. 1958. (Repr. ed.). '*Pipri*'.

Trees, 5–15 m tall, branches spreading, without aerial roots, all parts glabrous. Leaves ovate-oblong or elliptic-oblong, 4–12 x 2.5–6 cm, subcoriaceous, broadly and shortly acuminate. Receptacles globose, 0.7–1.2 cm across, sessile, crowded towards branch tips, axillary or from leaf scars, smooth, purple when ripe.

Receptacles : February–December.

Illus. : Wight, Ic. t. 668 1843; Talbot, For. Fl. Bombay Pres. & Sind 2: 519, t. 526. 1911.

Distrib. : Borkhedi, on way to forest, Dongar Khandala.

Notes : Frequent on roadsides and on hill slopes.

E. benghalensis L. Sp. Pl. 1059. 1753; Hook. f. Fl. Brit. India 5: 599. 1888; Cooke, Fl. Pres. Bombay 3: 145. 1958 (Repr. ed.). 'Wad'.

Evergreen, spreading, 10–2 m tall trees, with many aerial roots, sending down from branches and thus extending the growth of the trees indefinitely. Leaves ovate, orbicular-ovate or elliptic, 10–16 x 6–14 cm, coriaceous. Receptacles globose, 1.5–2 cm across, axillary, sessile, in pairs, bright red when ripe.

Receptacles : July–June.

Illus. : Wight, Ic. t. 1989. 1853; Talbot, For. Fl. Bombay Pres. & Sind 2: 508, t. 518. 1911.

Distrib. : Borkhedi, Dongar Khandala, Harni near Undri.

Notes : Common and widely planted or self-sown along roadsides and also on old walls.

Uses : Bark, roots and leaves are used in medicine.

F. racemosa L. Sp. Pl. 1060. 1753; Corner in Gard. Bull. Singapore 21: 34 1965 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 266. 1981. *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.). 'Umbar'.

Evergreen trees, 10–15 m tall, young parts minutely pubescent, glabrous at length. Leaves ovate or ovate-oblong, 3.5–6 x 2–4 cm, glabrous at length. Receptacles ovoid, subglobose or subturbinate, pedunculate, on leaf-less, warty twigs, pubescent, reddish when ripe.

Receptacles : April–July.

Illus. : Wight, Ic. t. 667. 1840; Talbot, For. Fl. Bombay Pres. & Sind 2: 524, t. 531. 1911.

Distrib. : Undri on way to Mehkar.

Notes : Common in deciduous forests and also along river, and stream banks

Uses : The figs though of poor quality, are eaten by local people.

F. religiosa L. Sp. Pl. 1059. 1753; Hook. f. Fl. Brit. India 5: 513. 1888; Cooke, Fl. Pres. Bombay 3: 149. 1958 (Repr. ed.). '*Pimpal*'.

Large trees, 10–15 m tall, young parts glabrous. Leaves broadly ovate, 6–13 x 4–11.5 cm, glabrous, subcoriaceous. Receptacles spherical, 0.5–0.7 cm across, axillary or on leaf-less branches, or clustered towards the ends of branches, dark purple when ripe.

Receptacles : March–June.

Illus. : Wight, Ic. t. 1967. 1853; Talbot, For. Fl. Bombay Pres. & Sind 2: t. 523. 1911.

Distrib. : Ghatbori village.

Notes : Common along roadsides and planted near temples. A sacred tree of the Hindus.

Uses : Leaves are now used as fodder.

CULTIVATED SPECIES

ARTOCARPUS J.R. & G. Forst. *nom. cons.*

Artocarpus heterophyllus Lamk. Encycl. 3: 210. 1789; Jarret. in J. Arnold Arb. 60: 334. 1959; Sant. in Bull. Bot. Surv. India 3: 12 1961, (1962). *A. integrifolius sensu* L. f. 1781; Hook. f. Fl. Brit. India 5: 541. 1888. '*Phanas*'.

Large to medium sized evergreen, 10–15 m tall trees. Leaves ovate to oblong or obovate, 10–12 x 4–7 cm, glabrous. Flowers minute, greenish-yellow, in cauliflorous and ramiflorous ellipsoid spikes. Fruits syncarps reaching upto 40–50 x 10–20 cm, cylindrical on stout drooping peduncles, oblong.

Fls. & Frts. : April–May.

Illus. : Sant. in J. Bombay Nat. Hist. Soc. 57: f. A & B opp. page of 448. 1960.

Distrib. : Buldhana forest gardens.

Notes : Occasionally planted in gardens for its edible fruits.

CASUARINACEAE

CULTIVATED SPECIES

CASUARINA Adans.

Casuarina equisetifolia J.R. & G. Forst. Char. Gen. Pl. 104. f. 52. 1776; Hook. f. Fl. Brit. India 5: 598. 1888; Cooke, Fl. Pres. Bombay 3: 161. 1958 (Repr. ed.).

Evergreen, 10–12 m tall, fast growing trees; branches cylindric, 6–10 ribbed, glaucous. Leaves reduced to scales, in whorls. Male spikes 1–2 cm long, terminal; female fascicles globose or ovoid, at ends of lateral branches. Nuts winged, minute, crowded into a woody cone.

Fls. : March–May. *Frts.* : June–July.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic. t. 681. 1982.

Distrib. : Sultanpur.

Notes : Planted as avenue trees and also in lawns and gardens. These plants are much valued in afforestation along the sea-coasts as sand binder.

CERATOPHYLLACEAE

CERATOPHYLLUM L.

Ceratophyllum demersum L. Sp. Pl. 992. 1753; Hook. f. Fl. Brit. India 5: 639. 1888; Cooke, Fl. Pres. Bombay 3: 165. 1958 (Repr. ed.); Wilmer-Dear in Kew Bull. 40: 257. 1985.

Slender, submerged, rootless, aquatic herbs, 20–35 cm long. Leaves finely dissected; segments linear or fusiform, 2–2.5 cm long, dentate. Flowers minute, axillary, solitary, sessile. Fruits ellipsoid, 0.3–0.4 x 0.2 cm, tuberculate with 3 spines.

Fls. & Frts. : August–November.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 683. 1982.

Distrib. : Bhingara forest stream.

Notes : Rare in forest streams.

ZINGIBERACEAE

CURCUMA L.

Curcuma inodora Blatt. in J. Proc. As. Soc. Bengal (N.S.) 26: 357. 1930; Sant. in J. Bombay Nat. Hist. Soc. 51: 135. 1952; Narasimh. in Sharma *et al.* Fl. Maharashtra State : Monocots 75. 1996.

Rhizomatous, perennial herbs; tubers white inside. Leaves radical, broadly elliptic-lanceolate, 15–28 x 7–13.5 cm, glabrous, acuminate at apex. Spikes 10–20 cm long. Flowers 1–1.5 x 1.5–2.0 cm; corolla purplish with yellow streak at tip; bracts green–purplish. Capsules 3-valved with arillate seeds.

Fls. & Frts. : June–September.

Illus. : Sant. *l.c.* opp. page 136, f. 1. 1952.

Distrib. : Hajam nala–Ambabarwa forests.

Notes : Rare in spots of the forest undergrowth.

MUSACEAE

ENSETE Horan.

Ensete superbum (Roxb.) Cheesm. in Kew. Bull. 1947: 100. 1948; Sant. in Rec. Bot. Surv. India 16: 277. 1967. (ed. 3); Narasimh. in Sharma *et al.* Fl Maharashtra State : Monocots 88. 1996. *Musa superba* Roxb. Pl. Cor. t. 223. 1811 & Fl. Ind. Carey ed. 1: 667. 1832; Baker in Hook. f. Fl. Brit. India 6: 261. 1890; Cooke, Fl. Pres. Bombay 1958 (Repr. ed.). '*Rankel*'.

Small tree-like herbs, 3–3.5 m tall. Leaves oblong, 1.5–3 x 0.5–1 cm, narrowed to base. Spikes subterminal, stout; bracts 20–30 cm across, orbicular. Fruits oblong, subcoriaceous.

Fls. & Frts. : July–November.

Illus. : Wight, Ic. tt. 2017–18. 1853.

Distrib. : Wasali forests near Chinchpani forest nala.

Notes : Common on rocky hill slopes and in valleys.

CULTIVATED SPECIES

MUSA L.

Musa paradisiaca L. Sp. Pl. 1477; 1753; Cooke, Fl. Pres. Bombay 3: 249. 1958. (Repr. ed.); Narasimh. in Sharma *et al.* Fl Maharashtra State: Monocots 89. 1996. *M. sapientum* L. var. *paradisiaca* (L.) Backer in Ann. Bot. 7: 213. 1893; Hook. f. Fl. Brit. India 6: 262. 1890. '*Keli*'.

Tall, stoloniferous, erect, stout herbs, 2–6 m tall. Leaves large, oblong to elliptic-oblong, 1–2 x 0.5–0.6 m glabrous. Flowers monoecious, on stout, elongate, bracteate, drooping spikes; males above, females below and fruits baccate, oblong, trigonus, with fleshy pulp.

Fls. & Frts. : Throughout the year.

Distrib. : Nandura.

Notes : One of the dominant, irrigated crops of the district. Extensive cultivation is in the northern parts of the district and in Purna river valley.

Uses : Fruits are edible.

HYPOXIDACEAE

- | | | |
|---|-----|-----------|
| 1. Perianth separated from ovary by a short or long limb;
fruits indehiscent | ... | CURCULIGO |
| 1. Perianth sessile on top of ovary; fruits circumscissile or
valvular-dehiscent | ... | HYPOXIS |

CURCULIGO Gaertn.

Curculigo orchioides Gaertn. Fruct. 1: 63, t. 13. 1788; Hook. f. Fl. Brit. India 6: 279. 1892; Cooke, Fl. Pres. Bombay 3: 255. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 102. 1996.

Perennial, erect herbs, 10–30 cm tall, with stout, tuberous rootstocks. Leaves linear or linear-lanceolate, 6–20 x 0.5–4.5 cm, radical, sessile or petiolate, glabrescent. Flowers deep yellow, in small racemes. Capsules about 1–1.2 cm long, beaked. Seeds oblong.

Fls. & Frts. : July–September.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 733. 1982.

Distrib. : Gerumatergaon forests, Loni budruk near Gandhali forests.

Notes : Occasional on the hill slopes, under the bushes, in deciduous forests.

HYPOXIS L.

Hypoxis aurea Lour. Fl. Cochinch. 200. 1790; Hook. f. Fl. Brit. India 6: 277. 1892; Cooke, Fl. Pres. Bombay 3: 254. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State : Monocots 102. 1996.

Perennial-herbs 5–10 cm tall, with subglobose or elongate tuberous fibrous with rootstocks. Leaves narrowly linear, 4–20 x 0.2–0.5 cm, subcoriaceous. Flowers yellow, terminal, on 1 or 2 scapes. Capsules oblong or obovate-oblong, 0.6–0.9 cm long, 3-valved. Seeds black, finely tuberculate.

Fls. & Frts. : June–September.

Illus. : Fyson, Fl. Nilgiri Pulney Hill-tops 3: r. 531. 1920 (Repr. ed. 1975).

Distrib. : Loni budruk before Gandhali forest.

Notes : Occasional in open fields, among grasses, in shady areas.

AGAVACEAE

CULTIVATED SPECIES

AGAVE L.

Agave vera-cruz Mill. Gard. Dict. ed. 8, No. 7. 1768; Cooke, Fl. Pres. Bombay 3: 261. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State : Monocots 106. 1996. '*Kektad*'.

Large shrubs with short stems, hidden by the thick leaf-bases with leaves linear-oblong 1–1.5 x 0.1–0.2 m, scarcely constricted above the base; margins spinulose. Flowers white, in pairs bulbils oblong-cylindric, tip rounded.

Fls. & Frts. : March–June, *Bulbils* : October–November.

Distrib. : Buldhana–Motala road, 3rd km stone.

Notes : Planted in hedges around cultivated fields. Extensively planted in Deulgaon Raja range, by forest department on the hill slopes to control land sliding and soil erosion.

Uses : The fibre obtained from leaf is used in making quality ropes.

DIOSCOREACEAE

DIOSCOREA L.

- | | | |
|----------------------|-----|-----------------------|
| 1. Leaves simple | ... | <i>D. bulbifera</i> |
| 1. Leaves compound : | | |
| 2. Fertile stamens 6 | ... | <i>D. hispida</i> |
| 2. Fertile stamens 3 | ... | <i>D. pentaphylla</i> |

Dioscorea bulbifera L. Sp. Pl. 1033. 1753; Hook. f. Fl. Brit. India 6: 296. 1892; Cooke, Fl. Pres. Bombay 3: 265. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 111. 1996. 'Kadukand', 'Jatashankar'.

Perennial, herbaceous, stout, climbers, tuberous; bulbils in leaf-axils, warted. Leaves alternate, broadly ovate to orbicular-reniform, 5-15 x 3-13 cm, membranous. Flowers greenish-yellow in axillary, pendulous spikes. Capsules quadrately oblong, 1.5-2 x 0.5-1.2 cm, reflexed.

Fls. & Frts. : July-October.

Illus. : Wight, Ic. t. 878. 1845.

Distrib. : Botha forests.

Notes : Frequent in forest edges and hill slopes.

Uses : Tubers are cooked and eaten by tribals in times of scarcity.

D. hispida Dennst. Schl. Hort. Ind. Malab. 15. 1818; Sant. in J. Bombay Nat. Hist. Soc. 49: 629. 1951; Narasimh. in Sharma *et al.* Fl. Maharashtra State : Monocots 112. 1996. *D. daemona* Roxb. Fl. Ind. Carey ed. 3: 805. 1832; Hook. f. Fl. Brit. India 6: 289. 1892; Cooke, Fl. Pres. Bombay 3: 264. 1958 (Repr. ed.).

Extensive, prickly twiners, with depressed tubers. Leaves trifoliolate; leaflets ovate-oblong or ellipitic-oblong, 9-11 x 5-7 cm, hairy and glandular beneath. Flowers greenish-yellow; male in dense panicle-spikes; females in elongate, solitary spikes. Capsules oblong, with a short margin, winged. Seed brown, winged towards base.

Fls. & Frts. : August-December.

Illus. : Wight, Ic. t. 811. 1844 (*D. daemona*).

Distrib. : Chinchpani forests.

Notes : Rare on hill slopes along forest (dried) streams.

D. pentaphylla L. Sp. Pl. 1032. 1753; Hook. f. Fl. Brit. India 6: 289. 1892; Cooke, Fl. Pres. Bombay 3: 264. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State : Monocots 113. 1996.

Climbing shrubs with perennial, fusiform tubers. Leaves 3–5 foliolate; leaflets elliptic-lanceolate, ovate or obovate, 3–11 x 1–5 cm, pubescent. Flowers white or greenish-white; males in racemes; females in pendulous spikes. Capsules 3-winged, 1.5–2.5 cm long, retuse at both ends. Seeds winged only towards base.

Fls. & Frts. : July–October.

Illus. : Wight, Ic. t. 814. 1844.

Distrib. : Wasali forests, Pathardi forests.

Notes : Frequent on hill slopes, locally abundant in Pathardi forests.

LILIACEAE

1. Plants erect or scapigerous :
 2. Leaves radical; flowers in terminal racemes :
 3. Leaves thick, fleshy; flowers yellowish-red ... ALOE
 3. Leaves thin, not fleshy; flowers white or pink :
 4. Plants with underground bulb ... SCILLA
 4. Plants without underground bulb ... CHLOROPHYTUM
 2. Leaves cauline; flowers solitary, axillary ... IPHIGENIA
1. Plants scandent or climbing :
 5. Leaves reduced to spinescent scales; cladodes present; flowers small, white in racemes ... ASPARAGUS
 5. Leaves well-developed; cladodes absent; flowers large, yellow and red, solitary or in corymbs ... GLORIOSA

ALOE L.

Aloe vera (L.) Burm. f. Fl. Ind. 83. 1768; Cooke, Fl. Pres. Bombay 3: 283. 1958 (Repr. ed.); Gandhi in Sald. & Nicols. Fl. Hassan Dist. 793. 1976; Narasimh. in Sharma *et al.* Fl. Maharashtra State : Monocots 115. 1996. *A. perfoliata* var. *vera* L. Sp. Pl. 323. 1753. *A. barbadensis* Mill. Gard. Dict. No. 2. 1768. 'Korphad'.

Acaulescent, stoloniferous herbs with fibrous roots. Leaves radical, ensiform, 20–50 x 5–10 cm, dense, narrowed from base to apex, margins spinulose. Flowers yellow or orange, in terminal racemes. Capsules cylindric or ellipsoid-oblong.

Fls. & Frts. : October–March.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 740. 1982.

Distrib. : On way to Nalgangapur.

Notes : Occasional on roadsides. A native of Mediterranean region.

ASPARAGUS L.

- | | | |
|--|-----|-----------------------|
| 1. Cladodes more than 1.2 cm in length; bracts upto 0.15 cm long | ... | <i>A. racemosus</i> |
| 1. Cladodes less than 1.2 cm in length; bracts 0.25–0.3 cm long | ... | <i>A. laevissimus</i> |

Asparagus laevissimus Steud. ex Baker in J. Linn. Soc. 14: 623. 1875; Hook. f. *Fl. Brit. India* 6: 317. 1892; Cooke, *Fl. Pres. Bombay* 3: 270. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* *Fl. Maharashtra State : Monocots*. 119: 1996.

Subscandent undershrubs; stems terete, branchlets angular. Leaves 0.7–1.2 cm long at base with stout, conical, deflexed rigid spurs. Cladodes 3–6-nate, triquetrous. Racemes 2.5–5 cm long. Flowers white, solitary or in twins. Berries globose, 0.4–0.5 cm across.

Fls. & Frts. : July–October.

Illus. : Kamble & Pradhan, *Fl. Akola*, t. 222. 1988.

Distrib. : Lonar lake.

Notes : Rare in the region but locally ample on the edges of the forests. This species is confined to the southern parts of the district, especially the Lonar lake valley.

A. racemosus Willd. *Sp. Pl.* 2: 152. 1799; Hook. f. *Fl. Brit. India* 6: 316. 1892; Gandhi in Sald. & Nicols. *Fl. Hassan Dist.* 793. 1976; Narasimh. in Sharma *et al.* *Fl. Maharashtra State : Monocots* 119. 1996. '*Shatawari*'.

Spinous undershrubs. Leaves linear-subulate with stout conical spinous spurs, straight. Cladodes spinous pointed, linear, needle-like. Flowers white, in axillary racemes. Berries globose, 0.5–0.7 cm across, rugose, red.

Fls. & Frts. : June–November.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 741. 1982.

Distrib. : Ambabarwa hillocks, Chinchpani forests, Jamod forest.

Notes : Common in forest undergrowth on hill slopes and hedges. One of the common species, distributed throughout the district.

CHLOROPHYTUM Ker–Gawl.

- | | | |
|--|-----|------------------------|
| 1. Racemes branched, with flowers remotely scattered, solitary or in pairs | ... | <i>C. laxum</i> |
| 1. Racemes shortly branched with densely arranged flowers : | | |
| 2. Anther filaments papillose | ... | <i>C. tuberosum</i> |
| 2. Anther filaments glabrous | ... | <i>C. borivilianum</i> |

Chlorophytum borivilianum Sant. & Fernand. in J. Bombay Nat. Hist. Soc. 52: 898. 1955. '*Safed Musali*'.

Rhizomatous herbs; root tubers 1–9, 4.5–5 x 0.8–1 cm, sessile. Leaves radical, coriaceous, spirally imbricate at base, 12–17 x 1–1.5 cm, sessile, linear, lorate or ensiform, flat. Scapes 15–30 cm long. Flower white, 2–2.5 cm across in racemes, bracteate, pedicellate in clusters. Capsules loculicidal, greenish-yellow, trigonous, obcordate. Seeds discoid, orbicular, black.

Fls. & Frts. : July–August.

Illus. : Sant. & Fernand. *l.c.* 897 (opposite page)

Distrib. : Wasali forests and plains of Jalgaon–Jamod.

Notes : Rare in moist places along plains and lower hill slopes.

C. laxum R. Br. Prodr. 277. 1810; Hook. f. Fl. Brit. India 6: 336. 1892; Cooke, Fl. Pres. Bombay 3: 282. 1958 (Repr. ed.); Narashimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 127. 1996. *C. laxiflorum* Baker in J. Linn Soc. 15: 328. 1875. *C. parviflorum* Dalz. in Hook. J. Bot. & Kew Gard. Misc. 2: 141. 1850.

Small herbs, 10–15 cm tall, with roots ending in perennial tubers. Leaves ensiform, linear, falcate, 5–30 x 0.5–0.7 cm, glabrous. Flowers 1–2 and laxly placed on slender racemes, greenish–white. Capsules obcordate, 0.8–1 cm long, 5–angled, bluntly 3–winged. Seeds irregularly angled, black.

Fls. & Frts. : July–September.

Illus. : Wight, Ic. t. 2039. 1853.

Distrib. : Loni Budruk, near Gandhali forest edges.

Notes : Common on gravelly hill slopes and in grassland, under the shade.

C. tuberosum (Roxb.) Baker in J. Linn. Soc. 15: 332. 1875 & in Hook. f. Fl. Brit India 6: 334. 1892; Cooke, Fl. Pres. Bombay 3: 281. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 129. 1996. *Anthericum tuberosum* Roxb. Fl. Ind. Carey 1: 149. 1832.

Herbs upto 30 cm tall, with roots ending in fleshy, perennial ellipsoid–oblong tubers. Leaves sessile, linear, 10–25 x 1–2 cm, glabrous. Flowers white, in simple, densely flowered, bracteate racemes. Capsules obovoid, 0.8–1 cm long, trigonous. Seeds irregular orbicular, black.

Fls. & Frts. : June–August.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 742. 1982.

Distrib. : Hajam nala–Ambabarwa forests.

Notes : Rare on the gravelly and rocky hill slopes.

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.); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 137. 1996. '*Kal-lawi*', '*Kolhyacha maka*'.

Climbing herbs with perennial, cylindrical and branched rhizomes. Leaves ovate-lanceolate, 5–11 x 0.5–2 cm, glabrous, with tendrilar tips. Flowers large, reddish-yellow, solitary or in subcorymbose-cymes, towards the ends of branches. Capsules linear-oblong, 5–8 cm long, 3-grooved.

Fls. & Frts. : July–October.

Illus. : Wight, Ic. t 2047. 1853.

Distrib. : Deulgaon Sakharas, Lonar lake, Sultanpur.

Notes : Occasional in outskirts of villages but locally abundant in the southern corner of the district The flowers are attractive but the rhizome is said to be highly poisonous.

IPHIGENIA Kunth

Iphigenia indica (L.) A. Gray *apud* Kunth, Enum. Pl. 4: 213. 1843; Hook. f. Fl. Brit. India 6: 357. 1892; Cooke, Fl. Pres. Bombay 3: 275. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 139. 1996. *Melanthium indicum* L. Mant. 2: 226. 1771.

Erect herbs, 12–20 cm tall, with ovoid or subglobose, tunicated corms, with brownish sheaths. Leaves linear, grass-like, 8–15 x 0.3–0.6 cm, sub-coriaceous. Flowers brownish-purple or pale purple, axillary and extra-axillary, on terminal zig-zag stems. Capsules oblong-ellipsoid, 1–1.5 x 0.5–0.7 cm, 3-grooved, obtuse. Seeds many, brown.

Fls. & Frts. : July–September.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 744. 1982.

Distrib. : Lonar lake.

Notes : Occasional on hill slopes, among grasses.

SCILLA L.

Scilla hyacinthina (Roth) McBride in Contrib. Gray Herb. 2, 56: 14. 1918; Deb & Dasgupta in Bull. Bot. Surv. India 17: 46 (1975) 1978 & Fasc. Fl. India 7: 14. 1981; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 140. 1996. *Ledbouria hyacinthina* Roth, Nov. Pl. Sp. 195. 1821. *Scilla indica* (Wight) Baker in Saund. Refug. Bot. 3 App. : 12. 1870 & in J. Linn. Soc. 13: 250. 1872, *non* Roxb. 1832; Hook. f. Fl. Brit. India 6: 348. 1892; Cooke, Fl. Pres. Bombay 3: 276. 1958 (Repr. ed.). '*Ran kand*'.

Scapigerous herbs; bulbs subglobose or ovoid, 3 x 2 cm, tunicated with brown scales. Leaves oblong-lanceolate or oblanceolate, 5-10 x 1-2.5 cm, glabrous, usually mottled with purple spots above. Flowers purple or pink, in many-flowered, dense racemes. Capsules obovoid, 3-lobed, loculicidal. Seeds obovoid.

Fls. & Frts. : June-August.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 745. 1982.

Distrib. : Chinchphata forests, Dongar shewli forests, Lavhala near Mehkar, Lonar lake.

Note : Common on gravelly open areas, among grasses.

COMMELINACEAE

- | | | |
|---|-----|-----------|
| 1. Spathes solitary; flowers zygomorphic; fertile stamens 3 | ... | COMMELINA |
| 1. Spathes 2-many, arranged in scorpioid manner; flowers actinomorphic; fertile stamens 6 | ... | CYANOTIS |

COMMELINA L.

- | | | |
|--|-----|-----------------------|
| 1. Spathes pedunculate : | | |
| 2. Cleistogamous flowers absent; capsules with keeled posticous cells | ... | <i>C. hasskarlii</i> |
| 2. Cleistogamous flowers present; capsules with posticous cells not keeled | ... | <i>C. forskalaiei</i> |
| 1. Spathes sessile or subsessile : | | |

- | | | | |
|----|--|-----|------------------------|
| 3. | Cleistogamous flowers absent; all the ovary cells 1-ovuled; capsules 3-celled, 3-seeded | ... | <i>C. erecta</i> |
| 3. | Cleistogamous flowers present; 2 anticonic ovary cells 2-ovuled, posticous 1-ovuled; capsules 3-celled, 5-seeded | ... | <i>C. benghalensis</i> |

***Commelina benghalensis* L.** Sp. Pl. 41. 1753; Hook. f. Fl. Brit. India 6: 370. 1892; Cooke, Fl. Pres. Bombay 3: 291. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 149 1996.

Erect or creeping, fleshy herbs, upto 1 m long; rooting at nodes, glabrescent. Leaves ovate or ovate-oblong, 2-6 x 1-2.5 cm, glabrous or thinly pubescent, base inequilateral, margins ciliate or rufous hairy. Flowers blue, in short cymes, in axillary, turbinate spathes. Spathes auricled on one side, pubescent. Capsules pyriform, 0.5-0.6 cm long. Seeds oblong, pitted.

Fls. & Frts. : September-December.

Illus. : Wight, Ic. t. 2065. 1853; Maheshwari, Illus. Fl. Delhi t. 203. 1966.

Distrib. : Lonar lake.

Notes : Very common weed of wet, cultivated fields, river beds and lower hill slopes. In the absence of cleistogamous flowers, this species can be identified at once by its leaf sheath with long straight and jointed rufous bristly hairs along the margins.

C. erecta L. Sp. Pl. 41. 1753; Morton in J. Linn. Soc. Bot. London 60: 183. 1967; Rolla Rao in M.V.M. Patrika 6: 53. 1971; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 152. 1996. *C. kurzii* C.B.Cl. in J Linn. Soc. Bot. 11: 144. 1871; *C. undulata* R. Br.; Prodr. 270. 1810 Hook. f. Fl. Brit. India 6: 373. 1892.

Dichotomously branched, erect or suberect herbs, upto 50 cm high. Leaves lanceolate or ovate-lanceolate, 5-15 x 1.5-4 cm, pubescent beneath. Spathes 1.6-2.2 cm broad, glabrous. Flowers violet. Capsules ellipsoid, 0.3-0.4 cm long, apiculate, glabrous. Seeds oblong, blackish-brown.

Fls. & Frts. : September–December.

Illus. : Maheshwari, *Illus. Fl. Delhi* 202. 1966.

Distrib. : Lonar lake.

Notes : Occasional in moist places and hill slopes.

C. forskalaei Vahl, *Enum. Pl.* 2: 172. 1806; Hook. f. *Fl. Brit. India* 6: 371. 1892; Cooke, *Fl. Pres Bombay* 3: 292. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots* 153. 1996.

Spreading herbs; stems slender, rooting at nodes. Leaves linear-oblong or slightly elliptic, 1.5–4 x 0.5–1 cm, sparsely hairy. Spathes solitary, complicated or hooded, ovate, 0.7 x 1.5 cm, clothed with long, slender hairs. Flowers blue. Capsules oblong, 0.4 x 0.3 cm, laterally compressed. Seeds orange–brown.

Fls. & Frts. : September–December.

Illus. : Maheswari, *Illus. Fl. Delhi* t. 204. 1966.

Distrib. : Hatni near Buldhana, Sonala forest.

Notes : Common weed of cultivated fields and along river and stream beds.

C. hasskarlii C.B.Cl. in Comm. & Cyrt. Beng. 13, t. 3 1874 & DC. *Monogr. Phan.* 3: 157, 1881; Hook. f. *Fl. Brit. India* 6: 370. 1892; Cooke, *Fl. Pres. Bombay* 3: 291. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots* 153. 1996.

Decumbent ascending, fleshy herbs, dichotomously branched, often rooting at nodes. Leaves broadly oblong–lanceolate. Spathes 1–3 together, ovate–lanceolate. Flowers blue. Capsules 0.6–0.8 cm long, quadrate, subtruncate, glabrous. Seeds cylindric, brown.

Fls. & Frts. : August–October.

Illus. : Narasimh. *l.c.* 154.

Distrib. : Buldhana.

Notes : Frequent near swampy areas and streams. This species resembles *Commelina kotschy* Hassk. to some extent but can be distinguished by its seeds which are devoid of white appendages one each at either end.

CYANOTIS D. Don *nom. cons.*

- | | | | |
|----|--|-----|-----------------------|
| 1 | Stems glabrous or with spreading hairs; filaments bearded with hairs of one colour | ... | <i>C. cristata</i> |
| 1. | Stems floccosely silky or cobwebby; filaments bearded with hairs of two colours | ... | <i>C. fasciculata</i> |

Cyanotis cristata (L.) D. Don, Prodr. Fl. Nepal 46. 1825; Hook. f. Fl. Brit. India 6: 385. 1892; Cooke, Fl. Pres. Bombay 3: 304. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 163. 1996. *Tradescantia cristata* L. Sp. Pl. 42. 1753.

Diffuse, fleshy herbs, rooting at nodes. Leaves ovate-oblong, elliptic-lanceolate, or ovate-lanceolate or ovate-oblong, 2–6.5 x 0.5–1.5 cm, glabrous or sparsely hairy. Flowers violet-purple, enclosed in recurved, shortly peduncled or sessile cymes, 1.2–2.5 cm long. Capsules subglobose, about 0.2 cm long, sparsely hairy in the upper half.

Fls. & Frts. : September–December.

Illus. : Wight, Ic. t. 2082. 1853.

Distrib. : Common weed of cultivated fields and river and stream banks.

C. fasciculata (Heyne ex Roth) J.A. & J.H. Schult. in R. & S. Syst. Nat. 7: 1152. 1830; Hook. f. Fl. Brit. India 6: 387. 1892; Cooke, Fl. Pres. Bombay 3: 303. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 165. 1996. *Tradescantia fasciculata* Heyne ex Roth, Nov. Pl. Sp. 189. 1821.

Weak, erect, annual, small, branched herbs, rooting at lower nodes. Leaves linear-lanceolate, 2.5–4.5 x 0.2–0.5 cm, sessile, cobwebby. Flowers blue, or bluish-purple, in compact, axillary and terminal cymes. Capsules ellipsoid, about 0.2 cm long, hairy on upper half.

Fls. & Frts. : August–October.

Illus. : Wight, Ic. t. 2086 1853.

Distrib. : Lonar lake, Sultanpur.

Notes : Common in open areas. This taxon has two varieties, one is *fasciculata* with cobwebby leaves and woolly bracts and the other is *glabrescens* with leaves and bracts glabrous. All the specimens of the district are of var. *fasciculata*.

ARECACEAE (PALMAE)

PHOENIX L.

Phoenix sylvestris (L.) Roxb. Fl. Ind. Carey ed. 787. 1832; Becc. & Hook. f. in Hook. f. Fl. Brit. India 6: 425 1892; Cooke, Fl. Pres. Bombay 3: 311. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 195. 1996. *Elate sylvestris* L. Sp. Pl. 1189. 1753; Moore ex Dransfield in Taxon 28: 67. 1979. 'Shindi'.

Stunted or tall, deciduous trees, 5–10 m tall; trunks straight or crooked. Leaves pinnate; leaflets fasciculate, greyish-green, 15–35 x 2–2.5 cm. Flowers male and female in woody spathes, creamy-white, in several branched, axillary, erect, or drooping spadices. Fruits oblong-ellipsoid, 2–3 cm long. Seeds rounded at the end.

Fls. & Frts. : December–March.

Distrib. : A dried nala near Tunki, the foot-hills of Wasali forests of Satpuda range.

Notes : Rare in foot-hills.

TYPHACEAE

TYPHA L.

Typha angustifolia L. Sp. Pl. 971. 1753; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 207. 1996. *T. angustata* Bory & Chaub Exp. Sci. Morce. Bot. 1: 388. 1832; Hook. f. Fl. Brit. India 6: 489. 1893; Cooke, Fl. Pres. Bombay 3: 326. 1958 (Repr. ed.). 'Pan kanis'.

Robust, rhizomatous, tufted, aquatic or marshy, perennial herbs, 1–2 m tall. Leaves linear, as long as scapes, plano-convex, spongy. Female flowers in the lower brownish spikes, 10–20 cm long, rachis then naked 0.2–0.3 cm length and finally ending in a male spike, 10–20 cm long at the top. Nutlets ellipsoid, indehiscent, brown.

Fls. & Frts. : August–December.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 763. 1982.

Distrib. : Ayla killa, Ghatbori forest stream, Rajura lake, Yelgaon lake.

Notes : Common along streams, rivers and in marshes and swamps.

Uses : Powder of female flowers is applied to small wounds for healing purpose.

ARACEAE

SAUROMATUM Schott.

Sauromatum venosum (Ait.) Schott, *Prodr. Aroid.* 71. 1860; Narashim. in Sharma *et al.* *Fl. Maharashtra State: Monocots* 220. 1996. *Arum venosum* Ait. *Hort. Kew* 3: 315. 1789. *Sauromatum guttatum* (Wall). Schott in Schott & Endl. *Melet. Bot.* 1: 17. 1832; Hook. f. *Fl. Brit. India* 6: 508. 1893; Cooke, *Fl. Pres. Bombay* 3: 335. 1958 (Repr. ed.).

Perennial herbs with globose corms. Leaf solitary, pedatisect; segments 5–9 or more, 5–27 x 2–10 cm, elliptic-lanceolate, glabrous. Spathes 20–30 cm long. Spadix equalling or longer than the spathe.

Fls. : December–March.

Frts. : Not seen.

Illus. : Wight, *Ic.* t. 800. 1844.

Distrib. : Aampani forests.

Notes : Rare on hill slopes in deciduous forests.

CULTIVATED SPECIES

COLOCASIA Schott

Colocasia esculenta Schott in Schott & Endl. Melet Bot. 1: 18. 1832; Pursglove in Trop. Crops. Monocots 61. 1975; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 228. 1996.

Perennial herbs with short rhizomes. Leaves ovate, cordate-sagittate, 25–40 x 20–30 cm, glabrous shining. Spathes caudate-acuminate, 20–40 cm long.

Fls. : August–September.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic tt. 766 & 979c. 1982.

Distrib. : Forest edges of a tribal village, Goumal forests.

POTAMOGETONACEAE

POTAMOGETON L.

- | | | |
|--|-----|-----------------------|
| 1. Branchlets filiform; stipules adnate to leafsheath with free tips | ... | <i>P. pectinatus</i> |
| 1. Branchlets stout; stipules free, caducous | ... | <i>P. perfoliatus</i> |

Potamogeton pectinatus L. Sp. Pl. 127. 1753; Hook. f. Fl. Brit. India 6: 567. 1893; Cooke, Fl. Pres. Bombay 3: 350. 1958 (Repr. ed); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 241. 1996.

Grass-like, distichously branched, aquatic herbs; stems copious. Leaves 2–6.5 x 0.2–0.5, flaccid, opaque; peduncles 5–7 cm long, longer than leaves. Flowers white, in short, compact spikes. Drupelets oblique, 3–4 x 2–2.5 cm, obscurely beaked, 3-keeled on back.

Fls. & Frts. : December–April.

Illus. : Subr. Aquat. Ang. 95. 1962; Ramam. in Sald. & Nicols. Fl. Hassan Dt. 639, f. 108c. 1976.

Distrib. : Yelgaon lake.

Notes : Common in lakes and streams.

P. perfoliatus L. Sp. Pl. 126. 1753; Hook. f. Fl. Brit. India 6: 566, 1893; Cooke, Fl. Pres. Bombay 3: 349. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 241. 1996.

Dichotomously branched, submerged, slender, glabrous herbs. Leaves sessile, ovate-lanceolate, 1.5–3.5 x 0.6–1 cm, glabrous, flaccid, obtuse; peduncles short. Spikes 0.6–2.5 cm long. Drupes obliquely ovoid with curved beak, slightly compressed.

Fls. : Not seen; *Frts.* : December–April.

Illus. : Raman in Sald. & Nicols. Fl. Hassan Dt. 639, f. 108A. 1976.

Distrib. : Yelgaon lake near Buldhana.

Notes : Occasional in lakes and ponds.

CYPERACEAE

1. Flowering glumes spirally arranged :

2. Hypogynous structures or bristles present:

3. Leaves present :

4. Sheaths without annular membranes at mouth; hypogynous structures divided into linear segments	...	ERIOPHORIUM
---	-----	-------------

4. Sheaths with annular membranes at mouth; hypogynous structures not divided	...	FUIRENA
---	-----	---------

3. Leaves absent	...	ELEOCHARIS
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2. Hypogynous structures or bristles absent	...	FIMBRISTYLIS
---	-----	--------------

1. Flowering glumes distichously arranged :

5. Styles 3-fid	...	CYPERUS
-----------------	-----	---------

5. Styles 2-fid	...	JUNCCELLUS
-----------------	-----	------------

CYPERUS L.

1. Spikelets apicately arranged :
 2. Rachilla distinctly winged :
 3. Stolons present; glumes obtuse :
 4. Tubers zoned, golden to pale yellow ... *C. esculentus*
 4. Tubers not zoned, deep brown ... *C. rotundus*
 3. Stolons absent; glumes mucronate ... *C. exaltatus*
 2. Rachilla not winged :
 5. Annuals :
 6. Spikelets 1.2-3 cm long; nuts half as long as glumes ... *C. compressus*
 6. Spikelets 0.5-0.8 cm long; nuts as long as glumes :
 7. Glumes dorsally 3-5 nerved on either sides of glabrous keels ... *C. iria*
 7. Glumes dorsally 5-7-nerved on either sides of spinulose-ciliate keels ... *C. alulatus*
 5. Perennials ... *C. nutans*
1. Spikelets digitately or stellately arranged ... *C. difformis*

Cyperus alulatus Kern in Reinwardtia 1: 463, f. 1. 1952; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 278. 1996. *C. iria* var. *rectangularis* Kuekenh. in Engl. & Prantl, Pflanzenr. 4, 20, 101: 152. 1935. *C. rectangularis* (Kuekenh.) Bennet in Indian For. 95: 692 1969.

Erect, 5-30 cm tall, annual sedges. Leaves linear, 12-15 cm long, glabrous but serrulate margins near apex. Inflorescence a terminal, lax, compound umbel; spikelets 0.3-0.4 x 0.2 cm, greenish-yellow. Nuts obovoid, 0.1 cm long, triquetrous, mucronulate, brown.

Fls. & Frts. : September-October.

Illus. : Kern, *l.c.*; Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 780. 1982.

Distrib. : Sindkhed Raja.

Notes : Common in moist area like drying puddles and cultivated fields. This species closely resembles *Cyperus iria* L. "A name or an epithet has no priority outside its own rank." So Bennet's name is not acceptable and according to article 60.1 of I.C.B.N. (1978) Kern's name is correct.

C. compressus L. Sp. Pl. 46. 1753 *emend.* Dandy in Exell, Cat. S. Tome 357. 1944; C.B.Cl. in Hook. f. Fl. Brit. India 6: 605. 1893; Cooke, Fl. Pres. Bombay 3: 379. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 280. 1996.

Erect or diffuse, annual, tufted sedges, 10–25 cm tall, glabrous. Leaves basal, linear, 10–15 cm long, glabrous. Inflorescence a simple umbel; spikelets arranged on slightly elongated rachis, 1–1.5 x 0.4–0.5 cm, green with brown median line. Nuts obovoid-ellipsoid, 0.2 cm long, triquetrous.

Fls. & Frts. : July–October

Illus. : Maheshwari, Illus. Fl. Delhi t. 217. 1966.

Distrib. : Lonar lake.

Notes : Occasional in moist places.

C. difformis L. Sp. Pl. 67. 1753; C.B.Cl. in J. Linn. Soc. 21: 133. 1884 & in Hook. f. Fl. Brit. India 6: 599. 1893; Cooke, Fl. Pres. Bombay 3: 376. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 281. 1996.

Erect, annual, tufted sedges, 20–30 cm tall. Leaves linear, 15–20 cm long. Inflorescence a terminal, simple or compound umbel, with a sessile, capitate head at base of each umbel; spikelets 0.2 x 0.1 cm, brown. Nuts 0.1 cm long, ovate-oblong, minutely punctate.

Fls. & Frts. : August–December.

Illus. : Kuekenh. in Engl. & Prantl, Pflanzenr. 101: 238, f. 27. F–H. 1936; Matthew, Illus. Fl. Tamilnadu Carnaic, t. 781. 1982.

Distrib. : Buldhana near Ganesh lake, Loni–Gawali, Sindkhed Raja, Toradi forest stream.

Notes : Common along river beds and streams.

C. esculentus L. Sp. 45. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 6: 616. 1893; Cooke, Fl. Pres. Bombay 3: 390. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 235. 1996.

Erect, perennial herbs with rhizomes ending in tubers. Leaves linear, 5–12 x 0.1–0.3 cm, glabrous. Inflorescence a terminal, compound umbel; spikelets arranged on shortly elongated rachis, 0.7–1.5 x 0.2–0.3 cm, compressed. Nuts obovoid, 0.1 cm long, triquetrous.

Fls. & Frts. : July–October.

Illus. : Kuekenth. in Engl. & Prantl, Pflanzenr. 101: 116, f. A–E. 1936; Narasimh. *l.c.* 284.

Distrib. : Lonar lake.

Notes : Occasional along streams. This taxon is recorded by Cooke (*l.c.*) under doubtful species. However, Blatter and McCann reported it from several localities of Maharashtra.

C. exaltatus Retz. Obs. Bot. 5: 11. 1789; C.B.Cl. in Hook. f. Fl. Brit. India 6: 617. 1893; Cooke, Fl. Pres. Bombay 3: 389. 1958 (Repr. ed.) ; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots.285. 1996.

Tall, stout, rhizomatous herbs. Leaves linear, scabrous. Inflorescence a compound umbel, terminal; spikelets 0.4–0.9 x 0.18–0.2 cm. Nuts obovoid, trigonus, 0.6–0.7 cm long, smooth.

Fls. & Frts. : September–December.

Distrib. : Shara.

Notes : Occasional in marshy places along stream beds.

C. iria L. Sp. Pl. 45. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 6: 606. 1893; Cooke, Fl. Pres. Bombay 3: 360. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 287. 1996.

Erect, annual, glabrous herbs, with tufted, triquetrous, striate stems. Leaves basal, 10–15 x 0.1–0.5 cm, multistriate, finely acuminate. Inflorescence a terminal, simple or compound umbel; spikelets linear-oblong or ovate-lanceolate, 0.5–1 x 3–0.35 cm, greenish-yellow. Nuts obovoid, about 0.1 cm long, stipitate, triquetrous.

Fls. & Frts. : September–December.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 218. 1966; Matthew, *Further Illus. Tamilnadu Carnatic* 4: t. 640. 1988.

Distrib. : Buldhana.

Notes : Common on the moist beds of ponds, lakes and river etc.

C. nutans Vahl, *Enum. Pl.* 2: 363. 1806; C.B.Cl. in Hook. f. *Fl. Brit. India* 6: 607. 1893; Cooke, *Fl. Pres. Bombay* 3: 381. 1958 (Repr. ed.), var. *eleusinoides* (Kunth) Haines, *Bot. Bih. Or.* 3: 898. 1924; Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots* 287. 1996. *C. nutans* var. *eleusinoides* (Kunth) Koyama in *Gard. Bull. Singapore* 30: 136. 1977. *C. eleusinoides* Kunth, *Enum. Pl.* 2: 39. 1837; C.B.Cl. in Hook. f. *Fl. Brit. India* 6: 608. 1893; Cooke, *Fl. Pres. Bombay* 3: 382. 1958 (Repr. ed.).

Erect, perennial, tufted herbs, 50–60 cm tall. Leaves linear, 2.5–3 x 0.4–0.5 cm, rigid, glabrous, midribs stout. Inflorescence a simple but crowded umbel; spikelets linear-oblong, 1–2.5 x 0.2–0.4 cm, reddish-brown. Nuts oblong or obovoid-oblong, 0.1 cm long, spiculate.

Fls. & Frts. : September–March.

Illus. : Matthew, *Further Illus. Fl. Tamilnadu Carnatic* 4: t. 641. 1988.

Distrib. : Jalgaon Jamod, Lonar lake, Nandura, Rajura lake.

Notes : Common in drying lakes and marshy places along streams. ssp. *nutans* of this taxon is with compound umbels which are not crowded.

C. rotundus L. *Sp. Pl.* 45. 1753; C.B.Cl. in Hook. f. *Fl. Brit. India* 6: 614. 1893; Cooke, *Fl. Pres. Bombay* 3: 385 1958 (Repr. ed.); Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots* 293. 1996.

Erect, perennial, stout herbs. Leaves narrowly linear, 10–16 cm long, glabrous. Inflorescence a compound umbel; spikelets linear, 0.6–1 x 0.1 cm, compressed, brown. Nuts oblong, 0.15–0.18 cm long, triquetrous, apiculate.

Fls. & Frts. : July–September.

Illus. : Tadulingam & Venkatanarayana, Handb. S. Indian Weeds 420. t. 168 1955 (Rev. ed.); Hooper in Sald. & Nicols. Fl. Hassan Dt. 656, f. 110D. 1976.

Distrib. : Lonar lake.

Notes : Frequent near streams.

Uses : Tubers are anthelmintic.

ELEOCHARIS R. Br.

Eleocharis geniculata (L.) R. & S. Syst. Veg. 2: 150. 1817; Kern in Steenis, Fl. Males. Ser. I, 7: 536. 1974; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 299. 1996. *Scirpus geniculatus* L. Sp. Pl. 48. 1753. *Eleocharis capitata* R. Br. Prodr. 225. 1810, non *Scirpus capitatus* L. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 6: 627. 1893; Cooke, Fl. Pres. Bombay 3: 404. 1958 (Repr. ed.).

Erect, densely tufted herbs seldom with small rhizome 10–15 cm tall. Leaves absent. Spikelets globose–ovoid, greenish–yellow or brown, smooth, shining. Nuts globose–ovoid, brown, smooth, shining.

Fls. & Frts. : June–September.

Illus. : Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: t. 693. 1988.

Distrib. : Rajura lake.

Notes : Rare, in marshy places.

ERIOPHORUM L.

Eriophorum comosum (Wall.) Wall. ex Nees in Wight, Contrib. Bot. Ind. 110. 1834; C.B.Cl. in Hook. f. Fl. Brit. India 6: 664. 1893; Cooke, Fl. Pres. Bombay 3: 411. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 301. 1996. *Scirpus comosus* Wall. in Roxb. Fl. Ind. 1: 234. 1820.

Tufted, perennial herbs with woody rhizomes. Leaves longer than stems, linear. Inflorescence of terminal, decompound umbels; spikelets elliptic-oblong, 0.3–0.6 cm long, reddish-brown. Nuts linear-oblong, trigonus, 0.2 x 0.1 cm, vertically lineolate.

Fls. & Frts. : September–December.

Illus. : Narasimh. & Sharma, Fl. Nasik Dt. 505, f. 43. 1991.

Distrib. : Aampani forests, Hajampani forest.

Notes : Occasional hanging from rocky crevices of the hill slopes. This taxon is one of the scree vegetations of the rocky hill slopes in Ambabarwa forests of Satpuda ranges.

FIMBRISTYLIS Vahl *nom. cons.*

- | | | |
|---|-----|------------------------|
| 1. Style–3 fid | ... | <i>F. complanata</i> |
| 1. Style–2 fid : | | |
| 2. Annuals; spikelets 0.12–0.18 cm wide; glumes without distinct lateral nerves | ... | <i>F. bisumbellata</i> |
| 2. Perennials; spikelets 0.2–0.4 cm wide; glumes with 2–4 lateral nerves | ... | <i>F. dichotoma</i> |

Fimbristylis bisumbellata (Forssk.) Bub. Dodec. 30. 1850; Kern in Steenis, Fl. Males. Ser. I, 7: 579. 1974; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 306. 1996. *Scirpus bis-umbellatus* Forssk. Fl. Aeg.–Arab. 15. 1775. *Fimbristylis dichotoma sensu* C.B.Cl. in Hook. f. Fl. Brit. India 6: 635. 1893, *non* (L.) Vahl, 1806; Cooke, Fl. Pres. Bombay 3: 394. 1958 (Repr. ed.).

Small, erect, caespitose, tufted annual herbs; stems trigonous with fibrous roots. Leaves narrow, shorter than or as long as stems. Inflorescence a compound umbel; spikelets ovoid-oblong, 0.3–0.5 x 0.2 cm, spirally arranged. Nuts broadly obovoid, biconvex, 4–5 ribbed.

Fls. & Frts. : August–November.

Illus. : Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: t. 659. 1988.

Distrib. : Gandhali forests, near Loni Budruk.

Notes : Frequent in marshy places and wet fields. According to Kern, the present taxon is generally misidentified in Indian floras as *Fimbristylis dichotoma*.

F. complanata (Retz.) Link, Hort. Bot. Berol. 1: 292 1827; C.B.Cl. in Hook. f. Fl. Brit. India 6: 646. 1893; Cooke, Fl. Pres. Bombay 3: 400. 1958 (Repr. ed.); Narasimh. in Sharma Fl. Maharashtra State: Monocots 306. 1996. *Scirpus complanatus* Retz. Obs. Bot. 5: 14. 1789.

Erect, tufted, perennial herbs with short rhizomes and deeply grooved and ribbed stems. Leaves shorter than stems, linear, scabrid on margins. Inflorescence a compound umbel; spikelets ovoid-oblong, 0.3–0.6 cm long, brown. Nuts 0.5–0.6 cm long, trigonous, minutely tubercled.

Fls. & Frts. : October–November.

Illus. : Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: t. 661. 1988.

Distrib. Nandura, Nimhedi forest stream.

Notes. : Frequent in moist places along streams.

F. dichotoma (L.) Vahl, Enum. Pl. 2: 287. 1806; Kern in Steenis, Fl. Males. Ser. 1, 7: 574. 1974; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 307. 1996. *Scripus dichotomus* L. Sp. Pl. 50. 1753. *Fimbristylis diphylla* (Retz.) Vahl, *l.c.* 289; C.B.Cl. in Hook. f. Fl. Brit. India 6: 636. 1893, excl. var. *pluristriata*; Cooke, Fl. Pres. Bombay 3: 396. 1958 (Repr. ed.). *F. diphylla* var. *annua* (R. & S.) C.B.Cl. in Hook. f. *l.c.* 637.

Erect, perennial, tufted herbs, 5–15 cm tall. Leaves basal, linear, 4–6 cm long. Inflorescence a compound umbel; spikelets ellipsoid-oblong or ovoid-oblong, 0.2–0.4 x 0.1–0.2 cm, brownish. Nuts biconvex, broadly ovoid, 0.1 cm long, tuberculate.

Fls. & Frts. : September–October.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 223. 1966; Narasimh. *l.c.* 308.

Distrib. : Motala, Sindkhed Raja, Titwi village.

Notes : Frequent among grasses and in cultivated fields. This taxon is recorded in most of the Indian floras under *Fimbristylis diphylla*. *F. dichotoma* as understood by Clarke (*FBI l.c.*) is synonymous with *F. bisumbellata* (Forssk.) Bub.

FUIRENA Rottb.

Fuirena wallichiana Kunth, *Enum. Pl.* 2: 182. 1837; C.B.Cl. in Hook. f. *Fl. Brit. India* 6: 665. 1893; Cooke, *Fl. Pres. Bombay* 3: 412. 1958 (Repr. ed.); Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots* 325. 1996.

Erect, perennial herbs, 20–70 cm tall, with creeping rhizomes. Leaves linear-lanceolate, 5–18 x 0.4–0.5 cm. Inflorescence a simple umbel; spikelets oblong, terete, brown on drying. Nuts obovoid, 0.1 cm long, trigonous, strongly 3-ribbed and tuberculated.

Fls. & Frts. : September–December.

Illus. : Matthew, *Further Illus. Fl. Tamilnadu Carnatic* 4: t. 681. 1988.

Distrib. : Ayla killa, Motala, Rajura lake.

Notes : Common in swampy places along river banks and stream beds.

JUNCELLUS C.B.Cl.

- | | | |
|---|-----|----------------------|
| 1. Spikelets many, densely packed in a terminal heads | ... | <i>J. pygmaeus</i> |
| 1. Spikelets 1–30 in 1, apparantly lateral heads | ... | <i>J. laevigatus</i> |

Juncellus laevigatus C.B.Cl. in Hook. f. Fl. Brit. India 6: 596. 1893; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 328. 1996. *Cyperus laevigatus* L. Mant. 179. 1771; Cooke, Fl. Pres. Bombay 3: 373. 1958 (Repr. ed.).

Erect, perennial, tufted but sometimes solitary, slender, rhizomatous herbs. Leaves usually short or absent, if present, flat, linear, coriaceous. Spikelets in pseudolateral position; glumes distichously arranged, ovate, sub-compressed; stigma trilobed; anthers 3; glumes 7 nerved, sometimes 8 nerved. Nuts plano-convex, obovoid, 0.1 cm long, microscopically punctate.

Fls. & Frts. : September–November.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 783. 1982.

Distrib. : Lonar lake, in salt water beds.

Notes : Abundant locally in salty residual fringes of the Lonar lake, along with *Paspalidium geminatum* (Forssk.) Stapf, elsewhere not noticed in the district. This taxon resembles *Scirpus juncoides* Roxb. due to its pseudoscale like filaments.

J. pygmaeus (Rottb.) C.B.Cl. in Hook. f. Fl. Brit. India 6: 596. 1893; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 328. 1996. *Cyperus pygmaeus* Rottb. Descr. & Icon. Rar. Zot. 20. t. 14. 1773; Cooke, Fl. Pres. Bombay 3: 372. 1958 (Repr. ed.).

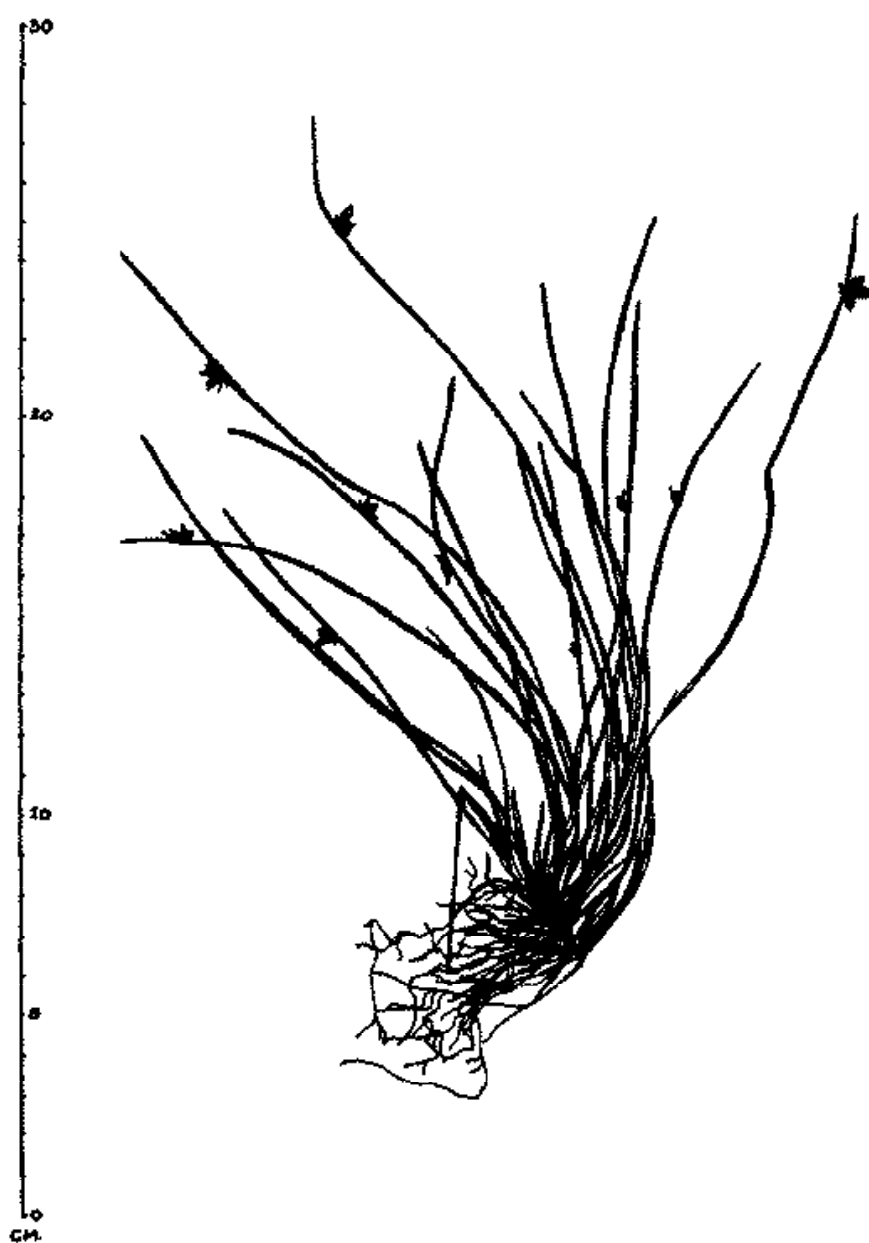
Prostrate or suberect, tufted, 5–15 cm tall herbs. Leaves narrowly linear, 2–10 cm long, glabrous. Inflorescence capitate, lobed; spikelets broadly ovate or lanceolate. Nuts ellipsoid or trigonus, 0.1 cm long, apiculate, brown.

Fls. & Frts. : October–March.

Illus. : Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: t. 646. 1988.

Distrib. : Nalgangapur, Rajura lake, Toradi talab.

Notes : Common in drying moist grounds and irrigated cultivated fields.



Juncellus laevigatus C.B.Cl.

Only aquatic species of Lonar lake, along the lake fringes.

POACEAE

1. Herbaceous culms upto 5 m tall; leaves sessile, not articulated with sheaths :
2. Spikelets 2-flowered, dorsally compressed :
3. Spikelets all hermaphrodite, or with male or barren and hermaphrodite spikelets mixed in the same inflorescence and so arranged that a male or barren spikelet is near a hermaphrodite spikelet or if unisexual then the lemma of the fertile floret indurated :
4. Spikelets often paired with one sessile and the other pedicelled, similar or often dissimilar, seldom solitary and all alike; glumes as long as the spikelets and enclosing the florets, more or less rigid and firmer than the lemmas hyaline or membranous; upper lemmas usually awned :
5. Lemma or glume or both awned :
6. Inflorescence without spathe :
7. Lower glume not prominently nerved :
8. Pedicelled spikelet well developed :
9. Inflorescence of twin, digitate, fascicled, corymbose racemes or panicles :
10. Upper lemma of sessile spikelets developed :
11. Upper lemma awned from back, often just above the base ... ARTHRAXON
11. Upper lemma 2-fid or lobed, awned from sinus ... ISCHAEMUM
10. Upper lemma of sessile spikelets reduced to hyaline base of the awn ... DICHANTHIUM
9. Inflorescence solitary (seldom 2) :
12. Lower glume of sessile spikelet 2-toothed or cuspidate, deeply grooved :

- | | | | |
|-----|---|-----|------------------|
| 13. | Lower glume of sessile spikelet when young with two tufts of hairs, upper glume with one tuft; ligule membranous | ... | Triplopogon |
| 13. | Lower and upper glumes without tufts of hairs; ligule a row of hairs : | | |
| 14. | Lower glume of sessile spikelet deeply channelled; joints and pedicels stout | ... | SEHIMA |
| 14. | Lower glume of sessile spikelet not channelled; joints and pedicels not stout but thickened | ... | SCHIZACHYRIUM |
| 12. | Spikelets obtuse or acute, not grooved | ... | HETEROPOGON |
| 7. | Lower glume with 5-9 prominent nerves | ... | SPODIOPOGON |
| 8. | Pedicelled spikelets usually reduced, often to a pedicel | ... | SORGHUM |
| 6. | Inflorescence with spathe : | | |
| 15. | Involucral spikelets absent : | | |
| 16. | Basal joints of the raceme not bilobous : | | |
| 17. | Joints not toothed at apex : | | |
| 18. | Inflorescence of subumbellate fascicles of racemes, 2-jointed, basal with one sessile and one pedicelled spikelet the upper with one sessile and 2-pedicelled spikelets | ... | PSEUDANTHISTIRIA |
| 18. | Inflorescence of paired racemes, usually one sessile, the other peduncled, collected into a frequently much branched panicle | ... | CYMBOPOGON |
| 17. | Joints toothed at apex | ... | ANDROPOGON |
| 16. | Basal joints of the raceme bulbous | ... | APLUDA |
| 15. | Involucral spikelets present | ... | ISELEMA |
| 5. | Both lemmas and glumes unawned : | | |
| 19. | Lower glume of sessile spikelet subglobose, cartilaginous, pitted; racemes fascicled | ... | MNESITHEA |
| 19. | Lower glume of sessile spikelet thickly coriaceous, nearly flat, oblong, obtuse, smooth or pitted in rows; racemes corymbose : | | |
| 20. | Spikelets solitary, sessile, the pedicelled suppressed or rudimentary | ... | OPHIUROS |
| 20. | Spikelets paired, one sessile, the other pedicelled; joints and pedicels fused | ... | ROTTBOELLIA |

4. Spikelets solitary or paired, more or less similar; glumes usually membranous, the lower usually smaller or sometimes suppressed; lower lemmas often resembling the upper glumes in texture; upper lemmas papery to very tough and rigid, usually awnless :
 21. Both glumes and lemmas unawned :
 22. Inflorescence of spiciform racemes arranged on common axis :
 23. Spikelets solitary, binate or ternate, not clustered :
 24. Lower glumes well developed :
 25. Lower glumes turned away from axis ... PASPALIDIUM
 25. Lower glumes turned towards axis ... BRACHIARIA
 24. Lower glumes usually absent or if present, minute, scale like :
 26. Lemma of the upper floret thinly cartilaginous, usually with flat hyaline margins ... DIGITARIA
 26. Lower glume and lowest internode of the rachilla forming a swollen callus at the base of the spikelet ... ERIOCHLOA
 23. Spikelets 1-6, clustered ... CENCHRUS
 22. Inflorescence of panicles :
 27. Spikelets subtended by an involucre of bristles :
 28. Bristles rigid; upper lemmas often rugose or transversely striate ... SETARIA
 28. Bristles soft; upper lemmas smooth :
 29. Bristles numerous, formed of highly modified bristle or scale-like branches ... Pennisetum
 29. Bristles solitary, formed by the prolongation of the branch beyond the terminal spikelet ... Pseudoraphis
 27. Spikelets not subtended by bristles ... Panicum
 21. Glumes or lemmas awned :

- 30. Upper lemmas unawned; lower lemmas unawned or awned; upper glumes awned or aristate :
 - 31. Lower glumes unawned ... ECHNOCHLOA
 - 31. Glumes and lower lemma awned ... OPLISMENUS
 - 30. Upper lemmas shortly aristate; lower lemmas unawned; margins of upper glumes densely ciliolate ... ALLOTEROPSIS
- 3. Male and female spikelets in separate inflorescence or in different parts of the same inflorescence and of different appearance; lemmas hyaline or membranous and thinner than glumes ... COIX
- 2. Spikelets 1-many flowered, usually laterally compressed :
 - 32. Glumes or lemmas awned :
 - 33. Spikelets 2-many flowered :
 - 34. Lemmas awned; glumes awned or awnless :
 - 35. Spikelets few to many flowered; often upper most floret or florets reduced, lower hermophrodite, rarely reduced :
 - 36. Glumes entire, unawned or aristate :
 - 37. Lower or upper or both glumes aristate :
 - 38. Spikelets in secund ... MELANOCENCHRIS
 - 38. Spikelets not in secund ... DACTYLOCTENIUM
 - 37. Glumes not aristate ... CHLORIS
 - 36. Glumes toothed or notched at apex ... TRIPOGON
 - 35. Spikelets 2-flowered; upper floret hermophrodite, lower male or barren or hermophrodite ... ARUNDINELLA
 - 34. Lemmas unawned; glumes aristate ... DINEBRA
 - 33. Spikelets 1-flowered ... ARISTIDA
 - 32. Glumes or lemmas unawned :

39. Spikelets 2-many flowered :
- 40. Inflorescence of panicles, or a solitary
secund spike ... ERAGROSTIS
 - 40. Inflorescence of spikes, heads or racemes ... ELEUSINE
39. Spikelets 1-flowered :
- 41. Inflorescence of spikes or spiciform racemes ... CYNODON
 - 41. Inflorescence of panicles ... SPOROBOLUS
- I. Large woody shrubs or trees with culms upto 8 m or more;
leaves usually with a petiole like blade, articulated with
sheaths ... DENDROCALAMUS

ALLOTEROPSIS J.S. ex C.B. Presl

Alloteropsis cimicina (L.) Stapf in Prain, Fl. Trop. Africa 9: 487. 1919; Blatt. et McC. Bombay Grass. 129. 1935; Bor. Grass. Ind. 276. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 389. 1996. *Milium cimicinum* L. Mant. Alt. 184. 1771. *Axonopus cimicinus* (L.) P. Beauv. Ess. Agrost. 12. 1812; Hook. f. Fl. Brit. India 7: 64. 1896; Cooke, Fl. Pres. Bombay 3: 441. 1958 (Repr. ed.).

Erect or decumbent, annual, tufted herbs, 30–40 cm tall. Leaves ovate or ovate-lanceolate, 2.5–6.5 x 0.5–1 cm, glabrous, hispid or glabrescent. Spikes terminal, digitate, 4–6, 4–7 cm long; lemma 2-fid or partite and that of upper lemma with basal auricled flaps. Grains ovoid.

Fls. & Frts. : August–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 801. 1982.

Distrib. : Jamod forests.

Nots : Occasional on open hill slopes.

ANDROPOGON L.

Andropogon pumilus Roxb. Fl. Ind. 1: 277. 1820; Hook. f. Fl. Brit. India 7: 170. 1896; Cooke, Fl. Pres. Bombay 3: 495. 1958 (Repr. ed.); Blatt. et McC. Bombay Grass. 93. 1935; Bor, Grass. Ind. 93. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 390. 1996.

Annual, tufted, slender herbs; culms 15–35 cm tall. Leaves linear, 4–9 cm long, glabrous, finely acuminate. Racemes in equal pairs on slender peduncles, 1.8–2 cm long. Sessile spikelets awned; pedicelled unawned; spathes flattened, glabrous.

Fls. & Frts. : September–January.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic tt. 802 & 803. 1982.

Distrib. : Aampani forests.

Notes : Frequent on grassy hills and in open grasslands. This plant turns reddish–purple at later stages and is considered to be a good fodder for cattle.

APLUDA L.

Apluda mutica L. Sp. Pl. 82. 1753; Bor, Grass. Ind. 93. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 390. 1996. *A. varia* Hack. in DC. Monogr. Phan. 6: 196. 1889; Hook. f. Fl. Brit. India 7: 150. 1896; Cooke, Fl. Pres. Bombay 3: 474. 1958 (Repr. ed.). *A. varia* var. *aristata* Hack. l.c. ; Blatt. et McC. Bombay Grass. 29. 1935.

Annual or perennial herbs, erect or geniculately ascending at base, 1–2 m tall. Leaves linear–lanceolate, 4.5–30 x 0.2–1.5 cm, petiolate, glabrous or hirsute on nerves. Spikes in clustered panicles, on short peduncles; spikelets 0.5–0.8 cm long, greenish–red or greenish–orange. Grains elliptic–oblong.

Fls. & Frts. : August–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic tt. 804 & 805. 1982.

Distrib. : Buldhana, Deulgaon Raja, Purna river bank, near Mehkar.

Notes : Very common throughout the district along river and stream banks and in hedges of cultivated fields under bushes.

ARISTIDA L.

- | | | |
|--|-----|------------------------|
| 1. Glumes long awned, awns 0.3–0.5 cm long | ... | <i>A. setacea</i> |
| 1. Glumes not long awned, upto 0.2 cm long | ... | <i>A. adscensionis</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.); Blatt. et McC. Bombay Grass. 209. 1935; Bor. Grass. Ind. 407. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 392. 1996.

Densely tufted, erect or ascending, annual or perennial herbs, 30–45 cm tall. Leaves convolute, 3–15 x 0.1–0.2 cm, filiform. Inflorescence of panicles or fascicled spikes. Spikelets ovoid-oblong or oblong-lanceolate, 0.4–0.8 cm long.

Fls. & Frts. : August–October.

Illus. : Maheshwari, Illus. Fl. Delhi t. 271. 1966.

Distrib. : Lonar lake.

Notes : Frequent on hill slopes.

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.); Blatt. et McC. Bombay Grass. 211. 1935; Bor. Grass. Ind. 412. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 397. 1996. '*Mothikusal*'.

Perennial tufted, erect or basally geniculate ascending herbs. Leaves convolute, 10–20 x 0.2–0.3 cm, scabereulous. Panicles sub-secund, contracted. Spikelets narrowly linear-cylindric, erect, 0.5–0.7 cm long.

Fls. & Frts. : September–November.

Illus. : Blatt. et McC. *l.c.* t. 139. 1935; Matthew, Further *Illus.* Fl. Tamilnadu Carnatic 4: t. 714. 1988.

Distrib. : Vayla near Shimba river bank, near Kalapathar forests.

Notes : Rare, on river bank.

ARTHRAKON P. Beauv.

Arthraxon lanceolatus (Roxb.) Hochst. *Flora* 39: 188. 1856; Hook. f. *Fl. Brit. India* 7: 143. 1896; Cooke, *Fl. Pres. Bombay* 3: 487. 1958 (Repr. ed.); Welzen in *Blumea* 27: 281. 1981; Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots* 460. 1996. *Andropogon lanceolatus* Roxb. *Fl. Ind.* 1: 262. 1820. *A. prionodes* Steud. *Syn.* 1: 383. 1854. *Arthraxon prionodes* (Steud.) Dandy in Andrews, *Fl. Sudan* 3: 399. 1956; Bor, *Grass. Ind.* 101, 1960.

Suberect or subscandent, tufted, annual herbs, 40–80 cm tall, slender, glabrous. Leaves ovate to narrowly lanceolate, 1.5–6.5 x 0.3–1.2 cm, glaucous, glabrous or nearly so. Racemes 1–5 x 3–5 cm long; sessile spikelets linear-lanceolate; pedicelled spikelets well developed and like sessile spikelets. Grains upto 0.3 cm long, terete.

Fls. & Frts. : September–March.

Distrib. : Borkhedi village, Buldhana.

Notes : Very common along the bunds of cultivated fields and near canals.

ARUNDINELLA Raddi

Arundinella pumila (Hochst. ex A. Rich.) Steud. *Syn. Pl. Glum.* 1: 114. 1854; Bor in *Kew Bull.* 1955: 402. 1955 & *Grass. Ind.* 423. 1960; Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots*. 407. 1996. *Acratherum pumilum* Hochst. ex A. Rich. *Tent. Fl. Abyss.* 2: 414, t. 100. 1851. *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.); Blatt. et McC. *Bombay Grass.* 193. 1935.

Annual, erect, herbs, 10–25 cm tall; culms terete, smooth, glabrous. Leaves ovate-lanceolate or linear-lanceolate, 5–10 x 0.5–1 cm, glabrous, membranous. Panicles broadly ovate, 5–15 cm long; spikelets delicately awned. Grains sub-ellipsoid.

Fls. & Frts. : September–October.

Illus. : Blatt. et McC. *l.c.* t.127. 1935; Matthew, Further *Illus.* Fl. Tamilnadu Carnatic 4: 718. 1988.

Distrib. : Nalgangapur project area.

Notes : Frequent in the district along river banks.

BRACHIARIA Griseb.

- | | | |
|---|-----|-----------------------|
| 1. Spikelets less than 2.5 mm long; lower glume a minute scale | ... | <i>B. eruciformis</i> |
| 1. Spikelets 2.5–3 mm long; lower glume upto half as long as spikelet | ... | <i>B. ramosa</i> |

Brachiaria eruciformis (Sm.) Griseb. in Ledeb. Fl. Ross. 4: 469. 1853; Bor, Grass. Ind. 283. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 416. 1996. *Panicum eruciforme* Sm. in Sibth. et Sm. Fl. Graeca 1: 44, t. 59. 1809. *P. isachne* Roth ex R. & S. Syst. Veg. 2: 458. 1817; Hook. f. Fl. Brit. India 7: 28. 1896; Cooke, Fl. Pres. Bombay 3: 448. 1958 (Repr. ed.). *Brachiaria isachne* Stapf in Prain, Fl. Trop. Africa 9: 552. 1919; Blatt. et McC. Bombay Grass. 133. 1935.

Decumbent or creeping, tufted, annual herbs, 30–40 cm tall. Leaves lanceolate, 3–4 x 0.2 cm, appressed hairy. Panicles erect, 5–8 cm long, racemosely arranged, 6–8 spikes; spikelets sessile or shortly pedicelled, sparsely hairy, secund or sub-sekund. Grains ellipsoid to oblong.

Fls. & Frts. : June–September.

Illus. : Blatt. et McC. *l.c.* t. 85. 1935; Matthew, Further *Illus.* Fl. Tamilnadu Carnatic 4: t. 725. 1988.

Distrib. : Deulgaon Sakharsa, Lonar lake.

Notes : Common weed of cultivated fields.

B. ramosa (L.) Stapf in Prain, Fl. Trop. Africa 9: 542. 1919; Blatt. et McC. Bombay Grass. 134. 1935; Bor, Grass. Ind. 284. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 417. 1996. *Panicum ramosum* L. Mant. Pl. 1: 29. 1767; Hook. f. Fl. Brit. India 7: 36. 1896; Cooke, Fl. Pres. Bombay 3: 449. 1958 (Repr. ed.).

Erect, annual, tufted herbs, sometimes rooting at nodes. Leaves linear-lanceolate, 5–10 x 0.5–1.5 cm, flat, glabrous or sparsely hairy. Panicles 6–8 cm long; spikes 1.5–3.5 cm long; spikelets ovoid, often in pairs, lower sessile, upper long-pedicelled. Grains broadly ellipsoid, rugose.

Fls. & Frts. : June–October.

Illus. : Blatt. et McC. l.c. t. 86. 1935; Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: t. 726 1988.

Distrib. : Hiwarkheda village fields, Jalgaon Jamod, Loni budruk near Lonar.

Notes : Common on the hill slopes and around cultivated fields.

CENCHRUS L.

- | | |
|---|-------------------------------|
| 1. Bristles connate at base only | ... <i>C. ciliaris</i> |
| 1. Bristles connate into a cup, 0.1–0.3 cm long | ... <i>C. pennisetiformis</i> |

Cenchrus ciliaris L. Mant. Alt. 302. 1771; Bor, Grass. Ind. 287. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 421. 1996. *Pennisetum cenchroides* L.c. Rich. in Pres. Syn. 1: 72. 1805; Hook. f. Fl. Brit. India 7: 88. 1896; Cooke, Fl. Pres. Bombay 3: 432. 1958 (Repr. ed.). *P. ciliare* Link Hort. Berol. 1: 213. 1827; Blatt. et McC. Bombay Grass. 181, t. 116. 1935.

Slender, perennial herbs, tufted, 30–45 cm tall. Leaves linear, 10–25 x 0.5–0.8 cm, glabrous. Racemes cylindric, 3–4 cm long. Spikelets oblong-lanceolate or subglobose, 1–3 in each involucre; glumes sub-orbicular, shortly cuspidate; lower lemma sub-orbicular, upto 0.3 cm long.

Fls. & Frts. : September–March

Illus. : Blatt. et McC. *l.c.* t. 116. 1935; Matthew, *Illus. Fl. Tamilnadu Carnatic* tt. 819. & 820. 1982.

Distrib. : Lonar lake.

Notes : Cultivaed at some places, also as an escape.

C. pennisetiformis Hochst. & Steud. ex Steud. *Syn. Pl. Glum.* 1: 109. 1854; Bor. Grass. Ind. 239. 1960; Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots* 421. 1996. *Pennisetum cenchroides* *l.c.* Rich. var. *echinoides* (Wight ex Steud.) Hook. f. *Fl. Brit. India* 7: 88. 1896.

Perennial, tufted herbs, 25–30 cm tall, hairy at nodes. Leaves narrowly linear, 6–14 x 0.2–0.3 cm, finely acuminate, glabrous or so. Panicles 4–6 cm long; spikelets 0.6–0.8 cm long, glabrous, red.

Fls. & Frts. : June–August.

Distrib. : Lonar lake.

Notes : Introduced fodder grass, frequent as an escape along roadsides and waste lands.

CHLORIS Swartz

Chloris virgata Swartz, *Fl. Ind. Occ.* 1: 203. 1797; Hook. f. *Fl. Brit. India* 7: 291. 1896; Blatt. et McC. *Bombay Grass.* 255. 1935; Bor. Grass. Ind. 468. 1960; Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots.* 427. 1996.

Erect or ascending herbs, creeping and rooting at nodes, glabrous. Leaves linear, 4–25 x 0.2–0.5 cm, flat, glabrous at length. Spikes 5–15, 2–6 cm long, in umbels; spikelets ovate-lanceolate, 0.2–0.3 cm long, 2-awned. Caryopsis upto 0.2 cm long, subtrigonus.

Fls. & Frts. : September–October.

Illus. : Blatt. et McC. *l.c.* t. 170. 1935; Patunkar, *Grass. Marathw.* 218. f. 64. 1980.

Distrib. : Buldhana, Nalgangapur.

Notes : Frequent in open fields.

COIX L.

- | | | | |
|----|---|-----|------------------------|
| 1. | Lower glume of male spikelets broadly winged | ... | <i>C. gigantea</i> |
| 1. | Lower glume of male spikelets narrowly or hardly winged | ... | <i>C. lacryma-jobi</i> |

Coix gigantea Koen. ex Roxb. Fl. Ind. ed. Carey 3: 570. 1832; Bor, Grass. Ind. 264. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 437. 1996. *C. lacryma-jobi* var. *gigantea* (Koen. ex Roxb.) Stapf ex Hook. f. Fl. Brit. India 7: 100. 1896.

Stilt rooted, coarse, 1.5–2 m tall, annual herbs, erect. Leaf blade and sheath bristly. Leaves 2–3 cm broad with a few conspicuous glands on upper surface. Racemes 1–many with flat peduncles; female spikelets usually solitary, upto 0.5 cm long; males many, lanceolate, 0.8–1.5 cm long. Grains flat, broadly ovoid.

Fls. & Frts. : September–November.

Illus. : Narasimh. *l.c.* 436. t. 1–4.

Distrib. : Buldhana, Gondankheda forests, Lonar lake.

Notes : Common and locally abundant along temporary water courses.

C. lacryma-jobi L. Sp. 972. 1753; Hook. f. Fl. Brit. India 7: 100. 1896; Cooke, Fl. Pres. Bombay 3: 517. 1958 (Repr. ed.); Blatt. *et* McC. Bombay Grass. 3. 1935; Bor, Grass. Ind. 264. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State : Monocots. 438. 1996.

Annual herbs, erect, rooting at lower nodes, 1–1.5 m tall. Leaves linear-lanceolate, 15–35 x 0.8–1.5 cm, glabrous or sparsely hairy. Racemes 1–many, with flat peduncles; female spikelets solitary, about 1 cm long, enclosed by hard, ovoid, shining bead-like structure; males elliptic-lanceolate, upto 1.2 cm long. Grains flat, reddish-brown.

Fls. & Frts. : September–December.



Coix lacryma-jobi L.

One of the dominant species of the district.

Illus. : Blatt. et McC. l.c. t. 1. 1935; Matthew, *Illus. Fl. Tamilnadu Carnatic* tt. 834 & 835. 1982.

Distrib. : Ghatbori forest stream, Tarawadi lake, Yelgaon nallah.

Notes : Common weed of cultivated fields and drying ponds, growing along with *Typha* and *Polygonum*.

CYMOPOGON Spr.

Cymbopogon martinii (Roxb.) Wats in Atkins. Gaz. N.W. Prov. Ind. 392. 1882; Blatt. et McC. Bombay Grass. 104. 1935; Bor, Grass. Ind. 129. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 439. 1996. *Andropogon martinii* Roxb. Fl. Ind. 1: 280. 1820. 'Rosha'.

Erect, perennial herbs, aromatic, 0.5–1 m tall. Leaves linear-lanceolate or ovate-lanceolate, 8–15 x 0.5–1 cm, glabrous and margins scabrous. Panicles 12–15 cm long; spikes 1.5–3.0 cm long; sessile spikelets elliptic-oblong or oblong, 0.35–0.4 cm long, awned.

Fls. & Frts. : August–October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* tt. 836 & 837. 1982.

Distrib. : Chunkhedi–Mangeri forests, Hiwarkheda, Lonar lake.

Notes : Common throughout the district and locally abundant on the gravelly, grassy hill slopes of Satpuda ranges. The rossha grass oil is distilled largely in Chumkehdi–Mangeri tribal villages, in Satpuda ranges.

Uses : The aromatic oil 'Rossha oil' is extracted from this grass which is of commercial value.

CYNODON A. Rich. *nom. cons.*

Cynodon dactylon (L.) Pers. Syn. Pl. 1: 85. 1805; Hook. f. Fl. Brit. India 7: 288. 1896; Cooke, Fl. Pres. Bombay 3: 554. 1958 (Repr. ed.); Blatt. et McC. Bombay Grass. 249. 1935; Bor, Grass. Ind. 469. f. 52. 1960; Jain in Bull. Bot. Surv. India 9: 139 (1967) 1968; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 442. 1996. *Panicum dactylon* L. Sp. Pl. 58. 1753. 'Durwa.' 'Harali'.

Perennial, weak herbs; culms ascending, forming tufts, rooting at nodes. Leaves narrowly linear or lanceolate, 2–7 x 0.1–0.2 cm, finely acute at apex. Spikes 1–5 cm long; spikelets sessile, 0.2 cm long; lemmas silky pubescent on keels. Caryopsis ovoid, turgid.

Fls. & Frts. : Throughout the year.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 260. 1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 838. 1982.

Distrib. : Buldhana, Lonar lake.

Notes : Frequent in cultivated fields, roadsides and waste lands.

Uses : Used as one of the excellent fodders for cattle, also used as lawn grass.

DACTYLOCTENIUM Willd.

Dactyloctenium aegyptium (L.) Willd. *Enum. Hort. Berol.* 1029. 1809; Blatt. *et* McC. *Bombay Grass.* 262. 1935; Bor, *Grass. Ind.* 489. 1960; Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots* 445. 1996. *Cynosurus aegyptius* L. *Sp. Pl.* 72. 1753. *Eleusine aegyptia* (L.) Desf. *Fl. Atlant.* 1: 85. 1798; Hook. f. *Fl. Brit. India* 7: 295. 1896; Cooke, *Fl. Pres. Bombay* 3: 560. 1958 (Repr. ed.).

Stoloniferous, annual herbs, erect, suberect or basally geniculate ascending, tufted. Leaves linear, 2–5–12 x 0.1–0.4 cm, glabrous or sparsely hairy, ciliate on margins. Spikes digitately arranged, 2–6, bearded at base; spikelets 0.3–0.4 cm long, rigid, laterally compressed. Grains sub-globose, red, strongly rugose.

Fls. & Frts. : July–September.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 263. 1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* tt. 841 & 842. 1982.

Distrib. : Warwat Bakal.

Notes : Frequent on edges of the fields.

DENDROCALAMUS Nees *nom. cons.*

Dendrocalamus strictus (Roxb.) Nees in Linnaea 9: 476. 1834; Gamble in Hook. f. Fl. Brit. India 7: 404. 1896 & in Ann. Roy. Bot. Gard. Calcutta 7: 78. 1896; Cooke, Fl. Pres. Bombay 3: 572. 1958 (Repr. ed.); Blatt. et McC. Bombay Grass. 285 1935; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 449. 1996. *Bambos stricta* Roxb. Pl. Corom. 1: 58, t. 80. 1795. 'Bamboo'.

Deciduous, densely tufted bamboos with strong, solid culms. Leaves linear-lanceolate or ovate-lanceolate, 4–12 x 0.5–1.5 cm. Heads 1.5–3.5 cm in diam; spikelets 0.8–1 cm long, hairy, spinescent. Caryopsis 0.5–0.7 cm long, ovoid, beaked with persistent style bases.

Fls. & Frts. : March–June.

Illus. : Gamble in Ann. Roy. Bot. Gard. Calcutta 7: t. 68 & 69. 1896; Narasimh. *l.c.* 448. f. 1–3.

Distrib. : Ambabarwa forests, Borkhedi forests, Sultanpur.

Notes : Frequent, forming dense strands in valleys. The first author has witnessed the bamboos in flowering in Buldhana range, in the month of March, 1983.

DICHANTHIUM Willd.

- | | | |
|---|-----|------------------------|
| 1. Joints and pedicels with a translucent groove | ... | <i>D. pertusum</i> |
| 1. Joints and pedicels solid, not grooved : | | |
| 2. Racemes solitary : | | |
| 3. Lower glume pitted, nerves smooth | ... | <i>D. foveolatum</i> |
| 3. Lower glume not pitted, nerves tuberculate | ... | <i>D. tuberculatum</i> |
| 2. Racemes 2–many : | | |
| 4. Lower glume 7 nerved; leaf-sheaths densely ciliate, terete | ... | <i>D. annulatum</i> |
| 4. Lower glume 11 nerved; leaf-sheaths glabrous, compressed | ... | <i>D. caricinum</i> |

Dichanthium annulatum (Forssk.) Stapf in Prain, Fl. Trop. Africa 9: 178. 1917; Blatt. et McC. Bombay Grass. 94 1935; Bor. Grass. Ind. 133. 1960; Deshpande in Fasc. Fl. India 15: 5. 1984; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 452. 1996. *Andropogon annulatus* Forssk. Fl. Aeg.-Arab. 508. 1775; Hook. f. Fl. Brit. India 7: 196. 1896; Cooke, Fl. Pres. Bombay 3: 508. 1958 (Repr. ed.).

Tufted, perennial, geniculately ascending herbs. Leaves linear, 5-20 x 0.3-0.4 cm, flat, glabrous. Racemes 2-9, 3-8 cm long; sessile spikelets hermaphrodite, narrowly oblong, closely imbricating; pedicelled spikelets as long as sessile ones, awnless.

Fls. & Frts. : July-October.

Illus. : Maheshwari, Illus. Fl. Delhi t. 268 1966; Matthew, Illus. Fl. Tamilnadu Carnatic tt. 844 & 845. 1982.

Distrib. : Buldhana, Chinchphata forests.

Notes : Common in open fields and along the hedges of the cultivated fields.

D. caricosum (L.) A. Camus in Bull. Mus. Hist. Nat. Paris 27: 549. 1921; Blatt. et McC. Bombay Grass. 92 1935; Bor. Grass. Ind. 134. 1960; Deshpande in Fasc. Fl. India 15: 7. 1984; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 453. 1996. *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.). *Dichanthium aristatum* (Poir.) C.E. Hubb. in Kew Bull. 1939: 654. 1939; Bor. l.c. 134.

Tufted, perennial herbs; nodes glabrous or patently hairy. Leaves narrowly linear, 5-15 x 0.1-0.2 cm, glabrous or sparsely hairy. Racemes 1-6, 3-6 cm long; sessile spikelets 0.3-0.5 cm long; pedicelled as long as sessile ones.

Fls. & Frts. : June-September.

Illus. : Blatt. et McC. l.c. 61. 1935; Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: tt. 744 & 745. 1988.

Distrib. : Buldhana, Hiwarkheda, village.

D. foveolatum (Del.) Roberty in Boissiera 9: 170. 1960; Cope in Kew Bull. 35: 703 1980; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 455. 1996. *Andropogon foveolatus* Del. Fl. d' Egypte 16, t. 8, f. 2. 1812; Hook. f. Fl. Brit. India 7: 168. 1896; Cooke, Fl. Pres. Bombay 3: 496. 1958 (Repr. ed.). *Eremopogon foveolatus* (Del.) Stapf in Prain, Fl. Trop. Africa 9: 183. 1917; Blatt. *et* McC. Bombay Grass. 96, t. 64. 1935; Bor, Grass. Ind 148. 1960.

Erect or geniculate herbs, 50–60 cm, tall. Leaves narrowly linear, 4–15 cm long; mouth of sheath ciliate, silky; ligules truncate, short. Spikes on weak peduncles, 4–5 cm long; spikelets oblong-lanceolate, 0.2–0.3 cm long; lower glume dorsally pitted; pedicelled with or without pit.

Fls. & Frts. : July–September.

Illus. : Maheshwari, Illus. Fl. Delhi t. 232. 1966; Matthew. Illus. Fl. Tamilnadu Carnatic tt. 866 & 867. 1982.

Distrib. : Lonar lake.

Notes : A good fodder grass.

D. pertusum (L.) Clayton in Kew Bull. 32: 4. 1977; Deshpande in Fasc. Fl. India 15: 22. 1984; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 459. 1996. *Holcus pertuseus* L. Man Alt. 301. 1771. *Andropogon pertusus* (L.) Willd. Sp. Pl. 4: 922, 1806; Hook. f. Fl. Brit. India 7: 173. 1896; Cooke, Fl. Pres. Bombay 3: 497. 1958 (Repr. ed.). *Amphilophis pertusa* (L.) Nash ex Stapf in Agric. News W. Ind. 15: 179. 1916; Blatt. *et* McC. Bombay Grass. 84. 1935. *Bothriochloa pertusa* (L.) A. Camus in Ann. Soc. Linn. Lyon 1930. n.s. 76: 164. 1931; Bor, Grass. Ind. 109. 1960.

Erect or geniculately ascending, tufted, perennial herbs; nodes bearded. Leaves narrowly linear, 25–30 cm long, glabrous or hairy. Racemes 3–15, 2–5 cm long, silky pubescent; sessile spikelets oblong-lanceolate, 0.3–0.4 cm long; pedicelled narrower than sessile ones.

Fls. & Frts. : June–September.

Illus. : Blatt. *et* McC. L.c. t. 54. 1935; Maheshwari, Illus. Fl. Delhi t. 267. 1966; Ugamuge, Fl. Nagpur Dt. t. 178. 1986 (*Bothriochloa pertusa*).

Distrib. : Lonar lake.

Notes : Frequent on hill slopes.

D. tuberculatum (Hack.) Cope in Kew Bull. 35: 703. 1980; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 460 1996. *Andropogon tuberculatus* Hack. in DC. Monogr. Phan. 6: 404. 1889; Hook. f. Fl. Brit. India 7: 168. 1896. *Eremopogon tuberculatus* (Hack.) A. Camus in Ann Soc. Linn. Lyon, in J. Bombay Nat. Hist. Soc. 76(1): 204. 1979 (1980).

Erect, robust, 80–100 cm tall herbs; culms stout, pale yellow, basal sheaths glabrous. Leaves linear, 10–40 cm long, flat, rigid, glaucous, strongly, closely nerved. Panicles leafy; sheaths with hairs. Spikes solitary upto 0.5 cm long, on long peduncle; lower glume of sessile spikelet tuberculate at keels and nerves not pitted; pedicelled spikelet male.

Fls. & Frts. : September–October.

Illus. : Deshpande & Singh, Grasses of Maharashtra 60, t. 7. 1986. (*Eremopogon tuberculatus*).

Distrib. : Salwan beat of Sonala forest range, on way to Mangeri–Chunghedi, foot hills of Satpuda ranges.

Notes. : Rare on gravelly, grassy hill slopes, endemic to Madhya Pradesh and Maharashtra states.

DIGITARIA Haller *nom. cons. prop.*

- | | | |
|----------------------------------|-----|----------------------|
| 1. Spikelet hairs verrucose | ... | <i>D. longiflora</i> |
| 1. Spikelets hairs not verrucose | ... | <i>D. ciliaris</i> |

Digitaria ciliaris (Retz.) Koel. Descr. Gram. 27. 1802; Veldk. in Blumea 21: 32. 1973; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 462. 1996. *Panicum ciliare* Retz. Obs. Bot. 16. 1786. *Paspalum sanguinale* (L.) Lamk. var. *ciliare* (Retz.) Hook. f. Fl. Brit. India 7: 15. 1896. *Digitaria marginata* Link. var. *fimbriata* (Link.) Stapf in Prain, Fl. Trop. Africa 9: 440. 1919, p.p; Blatt. et McC. Bombay Grass. 125. 1935. *D. adscendens* (H.B & K.) Henr. in Blumea 1: 92. 1934; Bor. Grass. Ind. 298. 1960.

Erect or suberect, tufted herbs; culms branched; branches ascending, rooting at base; sheaths with spreading hairs. Leaves linear or linear-lanceolate, 4–16 x 0.3–0.7 cm, glabrous or sparsely pubescent. Racemes 2–6, 7–16 cm long; spikelets in pairs, narrowly elliptic, the lower one subsessile, the upper pedicelled. Grains ellipsoid.

Fls. & Frts. : June–September.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 259. 1966; Matthew, *Further Illus. Fl. Tamilnadu Carnatic* 4: tt. 748 & 749. 1988.

Distrib. : Lonar lake valley.

Notes : Frequent on hill slopes. This grass is a very good fodder for cattle.

D. longiflora (Retz.) Pers. *Syn. Pl.* 1: 85. 1805; Cooke, *Fl. Pres. Bombay* 3: 458. 1958 (Repr. ed.); Blatt. *et* McC *Bombay Grass* 127. 1935; Bor, *Grass. Ind.* 302. 1960; Veldk. in *Blumea* 21: 66. 1973; Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots* 463. 1996. *Paspalum longiflorum* Retz. *Obs. Bot.* 4: 15. 1786; Hook. f. *Fl. Brit. India* 7: 17. 1896.

Diffuse, annual or perennial herbs with ascending culms, rooting at lower nodes; sheaths smooth or hairy. Leaves linear or ovate-lanceolate. Racemes digitate, 2–5, 3–7 cm long; spikelets elliptic-oblong, 0.2–0.3 cm long, hairy.

Fls. & Frts. : August–October.

Illus. : Blatt. *et* McC. *l.c.* t. 81. 1935; Mathew, *Further Illus. Fl. Tamilnadu Carnatic* 4: tt. 750 & 751. 1988.

Distrib. : Buldhana.

Notes : Rare, on grassy hill slopes.

DINEBRA Jacq.

Dinebra retroflexa (Vahl) Panz. in *Denkschr. Acad. Wiss. Munchen*, 270, t. 12. 1814; Blatt. *et* McC. *Bombay Grass*. 264. 1935; Bor, *Grass. Ind.* 491. 1960; Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots* 470. 1996. *Cynosurus retroflexus* Vahl, *Symb. Bot.* 2: 20. 1791. *Dinebra arabica* Jacq. *Fragm.* 77, t. 121, f 1. 1807; Hook. f. *Fl. Brit. India* 7: 297. 1896; Cooke, *Fl. Pres. Bombay* 3: 562. 1958 (Repr. ed).

Erect or geniculately ascending herbs, tufted, branched, upto 60 cm tall. Leaves linear, 7–16 x 0.3–0.5 cm, glabrous, flat. Inflorescence pyramidal, spicate, 12–15 cm long; racemes oblong, stiff; spikelets 0.3–0.4 cm long; lower glumes of spikelets aristate.

Fls. & Frts. : September–October.

Illus. : Matthew, *Illus. Fl. Tamilnadu Carnatic* tt. 849 & 850. 1982.

Distrib. : Nalgangapur project area, Shegaon, on way to Basanbir near Purna river bank, Zadegaon.

Notes : Very common along river and stream beds and in cotton fields.

ECHINOCHLOA P. Beauv.

Echinochloa colona (L.) Link, *Hort. Berol.* 2: 209. 1833; Blatt. et McC. *Bombay Grass.* 148. 1935; Bor, *Grass. Ind.* 308 1960; Narasimb. in Sharma *et al.* *Fl. Maharashtra State: Monocots* 472. 1996. *Panicum colonum* L. *Syst. Nat. ed.* 10, 2: 870. 1759; Hook. f. *Brit. India* 7: 32. 1896; Cooke, *Fl. Pres. Bombay* 3: 447. 1958 (Repr. ed.).

Suberect or diffuse, sometimes stunted and tufted annual herbs, rooting at nodes. Leaves linear or narrowly lanceolate, 10–15 x 0.4–0.5 cm, flat, glabrous or sparsely hairy. Inflorescence spiciform racemes, distant, 5–10, 1.5–2.0 cm long; spikelets globosely ovoid, 0.2–0.3 cm long; upper glume cuspidate, hairy; lower lemma ovate, hairy.

Fls. & Frts. : June–September.

Illus. : Blatt. et McC. *l.c.* t. 94. 1935; Patunkar, *Grass. Marathw.* 146, f. 43. 1980.

Distrib. : Warwat Bakal.

Notes : Frequent in cultivated fields.

ELEUSINE Gaertn.

Eleusine indica (L.) Gaertn. Fruct. 1: 8. 1789; Hook. f. Fl. Brit. India 7: 293. 1896; Cooke, Fl. Pres. Bombay 3: 560. 1958. (Repr. ed.); Blatt. et McC. Bombay Grass. 259. 1935; Bor, Grass. Ind. 493. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 473. 1996. *Cynosurus indicus* L. Sp. Pl. 72. 1753.

Erect, tufted, annual, compressed herbs upto 25 cm; culms slightly high. Leaves linear, 8–10 x 0.2–0.3 cm flat, glabrous. Spikes 2–7 or more, 4–5 cm long, digitately or sub-digitately umbellate; spikelets alternately bi-seriate, 0.2–0.3 cm long, ovate or oblong, green, secund. Grains oblong or globose.

Fls. & Frts. : August–June.

Illus. : Maheshwari, Illus. Fl. Delhi t. 261. 1966; Matthew, Illus. Fl. Tamilnadu Carnatic tt. 855 & 856. 1982.

Distrib. : Buldhana.

Notes : Common weed along roadsides.

ERAGROSTIELLA Bor.

Eragrostiella brachyphylla (Stapf) Bor in Indian For. 66: 270. 1940 & Grass. India 494. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 477. 1996. *Eragrostis brachyphylla* Stapf in Hook. f. Fl. Brit. India 7: 327. 1896; Blatt. et McC. Bombay Grass. 242. 1935.

Erect, perennial, densely tufted herbs, 20–35 cm tall. Leaves linear, 2–6 x 0.1–0.2 cm, glabrous, flat or conduplicate. Spikes 7–20 cm long; spikelets ovate-oblong, secund, bi-seriate; florets upto 20; keels of paleas narrowly winged. Grains reddish-brown

Fls. & Frts. : August–October.

Illus. : Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: t. 770. 1988.

Distrib. : Nalgangapur project area.

Notes : Occasional on the exposed rocky hill slopes and on open grasslands.

ERAGROSTIS P. Beauv.

1. Spikelets breaking up from below upwards; rachis tough :
 2. Ligules densely ciliate; spikelets not fascicled, pedicels long, filiform ... *E. pilosa*
 2. Ligules glabrous; spikelets more or less fascicled; pedicels short ... *E. gangetica*
1. Spikelets breaking up from above downwards; rachis fragile :
 3. Panicles effuse, lax ... *E. tenella*
 3. Panicles spicate, compact ... *E. ciliaris*

Eragrostis ciliaris (L.) R. Br. in Tuckey, Narr. Exp. Congo. App. 478. 1818; Stapf in Hook. f. Fl. Brit. India 7: 314. 1896; Blatt. et McC. Bombay Grass. 231. 1935, *p.p.*; Bor, Grass. Ind. 506. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 483. 1996. *Poa ciliaris* L. Syst. Nat. ed. 10, 2: 875. 1759.

Erect or ascending, tufted, annual herbs geniculate at base, 8–45 cm tall. Leaves linear, 2–7 x 0.2–0.4 cm, glabrous; sheaths and ligules hairy. Panicles 1–8 cm long, lobed or interrupted; spikelets broadly ovate, compressed, on slender pedicels. Caryopsis oblong-ovoid.

Fls. & Frts. : August–October.

Illus. : Maheshwari, Illus. Fl. Delhi t. 252. 1966.

Distrib. : Botha forests, Nalgangapur project area, Toradi forests.

Notes : Common on grassy hill slopes and along roadsides.

E. gangetica (Roxb.) Steud. Syn. Fl. Glum 1: 266. 1854; Cooke, Fl. Pres. Bombay 3: 547. 1958 (Repr. ed.) *p.p.*; Blatt. et McC. Bombay Grass. 236. 1935, *p.p.*; Bor, Grass. Ind. 508. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 483. 1996. *Poa gangetica* Roxb. Fl. Ind. 1: 341. 1820. *Eragrostis stenophylla* Hochst. ex Miq. in Verh. Konink.-Ned. Inst. 3, 4: 39. 1851. *p.p.*; Stapf in Hook. f. Fl. Brit. India 7: 318. 1896.

Erect, tufted, perennial herbs, 30–40 cm tall. Leaves linear, 8–20 x 0.2–0.4 cm, glabrous, few; mouth of sheaths bearded; ligule a minutely ciliolate rim. Panicles oblong, 5–15 cm long; spikelets linear to linear-oblong, 0.4–0.6 cm long. Grains upto 0.05 cm long, oblong, brown.

Fls. & Frts. : October–June.

Illus. : Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: t. 774. 1988.

Distrib. : Hiwarkheda village.

Notes. : Frequent on stream beds.

E. pilosa (L.) P. Beauv. Ess. Agrost. 71. 162, 175. 1812; Stapf in Hook. f. Fl. Brit. India 7: 323. 1896; Cooke, Fl. Pres. Bombay 3: 550. 1958 (Repr. ed.); Blatt. et McC. Bombay Grass. 241. 1935; Bor, Grass. Ind. 512. 1960; Narasimh. in Sharma et al. Fl. Maharashtra State: Monocots. 487. 1996. *Poa pilosa* L. Sp. Pl. 1: 68. 1753.

Tufted, annual herbs, 20–25 cm tall; culms erect or geniculately ascending. Leaves narrowly linear, 5–12 x 0.1–0.3 cm, glabrous, flat sheaths bearded at mouth; ligule a softly hairy ridge. Panicles broadly elliptic, 8–20 cm long, erect; spikelets narrow, 0.3–0.5 cm long, purplish-green, with long capillary pedicels. Caryopsis ellipsoid, reddish-brown.

Fls. & Frts. : September–November.

Illus. : Maheshwari, Illus. Fl. Delhi t. 251. 1966; Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: t. 778. 1988.

Distrib. : Bhingara forest stream, Sultanpur.

Notes. : Frequent along streams and in open fields. This grass is a very good fodder for cattle.

E. tenella (L.) P. Beauv. ex R. & S. Syst. Veg. 2: 576. 1817; Stapf in Hook. f. Fl. Brit. India 7: 315. 1896; Blatt. et McC. Bombay Grass. 232. 1935; Bor, Grass. Ind. 513. 1960; Narasimh. in Sharma et al. Fl. Maharashtra State: Monocots. 489. 1996. *Poa tenella* L. Sp. Pl. 69. 1753. *Eragrostis tenella* var. *plumosa* (Retz.) Stapf in Hook. f. l.c.; Cooke, Fl. Pres. Bombay 3: 545. 1958 (Repr. ed.); Blatt. et McC. l.c.

Tufted, annual herbs, 10–30 cm tall, slender, geniculate. Leaves narrowly linear, 2–8 x 0.2–0.4 cm, glabrous, flat or convolute. Panicles ovate-oblong or cylindric, 8–12 cm long, open or contracted; spikelets oblong, 0.2–0.4 cm long, red. Caryopsis ovoid, reddish-brown.

Fls. & Frts. : October–December.

Illus. : Blatt. & McC. *L.c.* t. 154.

Distrib. : Sonala hills, near Bawanbir, Toradi forests.

Notes : Frequent on grassy hill slopes and in open grasslands.

ERIOCHLOA H. B. & K.

Eriochloa procera (Retz.) Hubb. in Kew Bull. 1930: 256. 1930; Bor, Grass. Ind. 312. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 494. 1996. *Agrostis procera* Retz. Obs. Bot. 4: 19. 1786. *Eriochloa polystachya* Hook. f. Fl. Brit. India 7: 20. 1896, *non* H. B. & K. 1816; Cooke, Fl. Pres. Bombay 3: 461. 1958 (Repr. ed.).

Perennial herbs, 60–100 cm tall, densely tufted; culms glabrous, rootstock creeping. Leaves linear-lanceolate, 3–12 x 0.5–1 cm, glabrous, flat. Panicles of simple or branched racemes, 6–12 cm long, erect or sub-erect; spikelets elliptic-lanceolate, 0.3–0.4 cm long, shortly pedicellate, secund dorsally compressed. Grains ellipsoid-oblong.

Fls. & Frts. : October–March.

Illus. : Patunkar, Grass. of Marathw. 150, f. 44. 1980; Matthew, Illus. Fl. Tamilnadu Carnatic 2: 868 & 869. 1982.

Distrib. : Yelgaon lake area near Buldhana.

Notes. : Frequent along lake beds, streams and river.

MNESITHEA Kunth

Mnesithea granularis (L.) Koeing & Sosef in Blumea 31: 295. 1986; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 539. 1996. *Cenchrus granularis* L. Mant. 2, App. 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.); Blatt. et McC. Bombay Grass 32. 1935. *Hachelochloa granularis* (L.) O. Ktze. Rev. Gen. Pl. 2: 776. 1891; Bor, Grass. Ind. 159. 1960.

Erect, annual herbs, 10–35 cm tall; culms much branched from the base, nodes hairy. Leaves linear to linear-lanceolate, 3–9 x 0.3–0.6 cm, pubescent; ligules ciliate. Racemes solitary or seemingly fascicled in axils of leaves, 0.5–2.5 cm long; sessile spikelets 0.1–0.2 cm long, upper glumes narrowly crested at apex; pedicelled spikelets ovate-lanceolate.

Fls. & Frts. : September–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic tt. 874 & 875. 1982.

Distrib. : Ayla killa, Loni budruk.

Notes. : Frequent in open fields.

HETEROPOGON Pers.

- | | | |
|--|-----|---------------------|
| 1. Lower involucral glumes dorsally deeply grooved | ... | <i>H. triticeus</i> |
| 1. Lower involucral glumes not dorsally grooved | ... | <i>H. contortus</i> |

Heteropogon contortus (L.) P. Beauv. ex R. & S. Syst. Veg. 2: 836. 1817; Blatt. et McC. Bombay Grass. 109. 1935; Bor, Grass. Ind. 163. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 503. 1996. *Andropogon contortus* L. Sp. Pl. 1045. 1753; Hook. f. Fl. Brit. India 7: 199. 1896; Cooke, Fl. Pres. Bombay 3: 510. 1958 (Repr. ed.). '*Kali kusali*'.

Densely tufted, perennial herbs, culms 10–80 cm tall, erect or basally geniculate. Leaves linear, 5–15 x 0.2–0.3 cm, usually at the base of culms; sheaths compressed. Racemes 3–5 cm long; sessile spikelets 0.4–0.6 cm long, long-awned; pedicelled spikelets longer than sessile ones. Grains enclosed by lemmas.

Fls. & Frts. : August–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic tt. 876 & 877. 1982.

Distrib. : Deulgaon Raja.

Notes : Common in open fields and in grasslands.

H. triticeus (R. Br.) Stapf ex Craib in Kew Bull. 1912: 432. 1912; Bor, Grass. Ind. 165. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 504. 1996. *Andropogon triticeus* R. Br. Prodr. 201. 1810; Hook. f. Fl. Brit. India 7: 200. 1896; Cooke, Fl. Pres. Bombay 3: 509. 1958 (Repr. ed.). *Hetropogon insignis* Thw. Enum. Pl. Zeyl. 437. 1864; Blatt. *et* McC. Bombay Grass. 108. 1935.

Robust, perennial herbs; culms 1–1.5 m tall, smooth, polished. Leaves narrowly linear, 30–50 x 0.6–2 cm, sparsely hairy; sheaths compressed; ligule a rounded with ciliate membrane. Racemes 10–15 cm long, glabrous. Spikelets imbricating; sessile spikelets 1–1.2 cm long; pedicelled spikelets 1.5–2 cm long, neuter.

Fls. & Frts. : October–November.

Illus. : Blatt. *et* McC. l.c. t. 69. 1935.

Distrib. : Aampani forests, Ambabarwa.

Notes : Frequent on open hill slopes and hill tops.

ISCHAEMUM L.

Ischaemum pilosum (Kleine ex Willd.) Wight in Madras Lit. Sci. J. 138. 1835; Hook. f. Fl. Brit. India 7: 130. 1896; Cooke, Fl. Pres. Bombay 3: 479. 1958 (Repr. ed.); Blatt. *et* McC. Bombay Grass. 14. 1935; Bor, Grass. Ind. 183. 1960; Narasih. in Sharma *et al.* Fl. Maharashtra state: Monocots. 523. 1996. *Andropogon pilosus* Kleine ex Willd. Sp. Pl. 4: 920. 1806.

Erect, perennial, tufted, herbs, 60–100 cm tall. Leaves linear, 9–10 x 0.3–0.6 cm, glabrous; ligules membranous. Racemes 4–5, 10–15 cm long; pilose. Spikelets sessile, narrowly lanceolate, 0.5–0.6 cm long; pedicelled spikelets 0.4–0.5 cm long, awns short.

Fls. & Frts. : September–October.

Illus. : Blatt. *et* McC. l.c. t. 9. 1935.

Distrib. : Ambabarwa tribal fields, Buldhana.

Notes : Common weed of cotton fields. It grows vigorously in cotton fields.

ISEILEMA Anderss.

Iseilema laxum Hack. in DC. Monogr. Phan. 6: 682. 1889; Hook. f. Fl. Brit. India 7: 218, 1896; Cooke, Fl. Pres. Bombay 3: 516. 1958 (Repr. ed.); Blatt. et McC. Bombay Grass. 173. 1935; Bor, Grass. Ind. 188. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 533. 1996.

Annual, tufted, erect or ascending herbs, upto 50 cm high. Leaves all cauline or lower radical with equitant sheaths, linear. Panicles racemiform. Spikelets whorled, pedicelled; pedicelled spikelets lanceolate, hermophrodite spikelets narrowly lanceolate. Grains oblong, dorsally compressed.

Fls. & Frts. : September–October.

Illus. : Maheshwari, Illus. Fl. Delhi t. 229. 1966; Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: tt. 794 & 795. 1988.

Distrib. : Deulgaon Sakharasa.

Notes. : Frequent in open fields. This grass is considered as one of the best fodder grasses.

MELANOCENCHRIS Nees

Melanocenchris jacquemontii Jaub. et Spach. Ill. Pl. Or. 4: 36, t. 325. 1851; Bor, Grass. Ind. 473. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots 537. 1996. *Gracilea royleana* Hook. f. Fl. Brit. India 7: 284. 1896; Cooke, Fl. Pres. Bombay 3: 553. 1958 (Repr. ed.); Blatt. et McC. Bombay Grass. 248. 1935.

Annual, tufted herbs, erect or diffuse, 15–18 cm tall. Leaves narrowly linear, 3–6 cm long, flat or convolute; ligule a hairy ridge. Spikes 2–4 cm, filiform; spikelets in clusters, 0.5–0.7 cm long. Grains oblong–ellipsoid, brown, compressed.

Fls. & Frts. : August–October.

Illus. : Blatt. et McC. l.c. t. 166. 1935; Patunkar, Grass. Marathw. 222, f. 67. 1980.

Distrib. : Loni Budruk near Gandhal forests.

Notes. : Common in open fields and on the edge of the forests.

OPHIUROS Gaertn.

Ophiuros exaltatus (L.) O. Ktze Rev. Gen. Pl. 2: 780. 1891; Bor, Grass. Ind. 199. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 541. 1996. *Aegilops exaltata* L. Mant. 2: 575. 1771. *Ophiuros corymbosus* Gaertn. f. Fruct. 3: 4. t. 181. 1805; Hook. f. Fl. Brit. India 7: 160. 1896; Cooke, Fl. Pres. Bombay 3: 468. 1958 (Repr. ed.); Blatt. et McC. Bombay Grass. 40. 1935.

Erect, tufted, perennial herbs; stems 1–1.5 m tall, cylindrical. Leaves linear-lanceolate, 11–13 x 0.7–0.8 cm; ligules short. Spikes many arising from a leafy spathe, 3–8 cm long, corymbosely fasciculate; spikelets sunken in the rachis, 0.2–0.3 cm long Grains oblong.

Fls. & Frts. : August–October.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic tt. 899 & 900. 1982.

Distrib. : Ambabarwa forests.

Notes : Common and locally abundant along stream beds.

OPLISMENUS P. Beauv.

Oplismenus 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.); Blatt. et McC. Bombay grass. 154. 1935; Bor, Grass. Ind. 317. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 541. 1996. *Panicum burmannii* Retz. Obs. Bot. 3: 10. 1783.

Slender herbs, 15–50 cm tall, ascending, rooting at lower nodes diffusely branched. Leaves ovate or ovate-lanceolate, 2–6 x 0.5–1 cm; ligule rim of hairs. Panicles 2–6 cm long; spikelets lanceolate, 0.2–0.3 cm long, solitary or 2-nate. Grains ellipsoid-oblong.

Fls. & Frts. : August–October.

Illus. : Patunkar, Grass. Marathw. t. 50. 1980; Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: t. 804. 1988.

Distrib. : Buldhana.

Notes : Frequent in open fields.

PANICUM L.

Panicum psilopodium Trim. Gram. Panic. 217. 1826; Hook. f. Fl. Brit. India 7: 46. 1896; Blatt. et McC. Bombay Grass. 158. 1935; Bor, Grass. Ind. 329. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State : Monocots. 551. 1996.

Erect, or basally geniculate, slender, tufted herbs, 15–30 cm tall. Leaves linear, 6–10 x 0.4–0.6 cm, flat, glabrous. Panicles effuse, 7–10 cm long, distant, solitary. Spikelets 0.2–0.4 cm long, oblong–ellipsoid. Grains ellipsoid, firmly enclosed by yellowish lemma.

Fls. & Frts. : August–October.

Illus. : Patunkar, Grass. Marathw. t. 50. 1980; Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: t. 804. 1988.

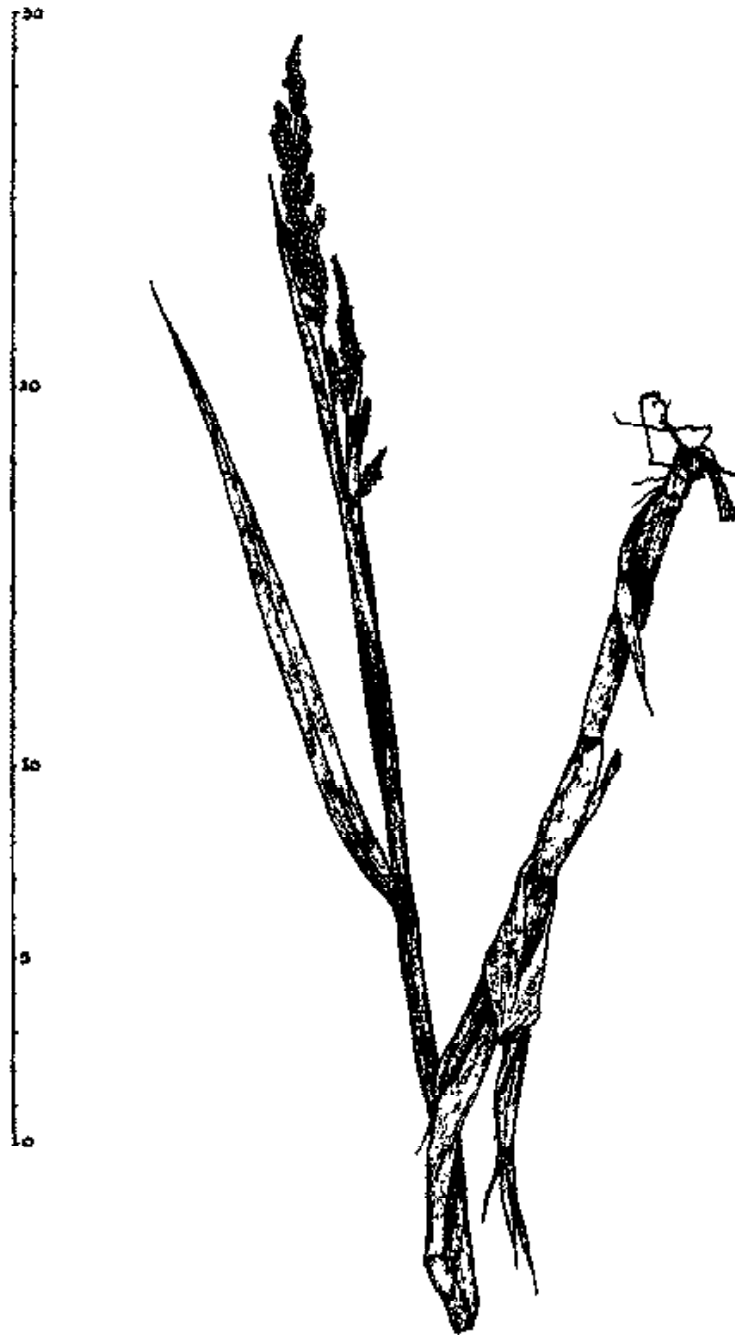
Distrib. : Buldhana.

Notes : Frequent in open fields.

PASPALIDIUM Stapf

- | | | |
|--|-----|---------------------|
| 1. Leaves blunt; spikes shorter than internodes | ... | <i>P. flavidum</i> |
| 1. Leaves setaceously acuminate; spikes longer than internodes | ... | <i>P. geminatum</i> |

Paspalidium flavidum (Rez.) A. Camus in Lecomte, Fl. Gen. Indo-Chine 7: 419. 1922; Blatt. et McC. Bombay Grass. 141. 1935; Bor, Grass. Ind. 333. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 555. 1996.



Paspalidium geminatum (Forssk.) Stapf
One of the dominant species of Lonar lake.

Perennial, herbs, 15–40 cm tall, erect or ascending from decumbent base. Leaves linear-lanceolate, 5–13 x 0.4–0.6 cm, glabrous; sheaths hairy at throat. Racemes 15–20 cm long; spikelets ovate, about 0.2 cm long. Grains orbicular.

Fls. & Frts. : August–October.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 264. 1966; Ugemuge, *Fl. Nagpur Dt.* t. 190. 1986.

Distrib. : Buldhana.

Notes. : Frequent in moist situations.

P. geminatum (Forssk.) Stapf in Prain, *Fl. Trop. Africa* 9: 583. 1920; Blatt. et McC. *Bombay Grass*. 142. 1935; Bor, *Grass. Ind.* 333. 1960; Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots*. 556. 1996. *Panicum geminatum* Forssk. *Fl. Aeg.-Arab.* 18. 1775. *P. fluitans* Retz. *Obs. Bot.* 3: 8. 1783; Cooke, *Fl. Pres Bombay* 3: 446. 1958 (Repr. ed.). *P. paspaloides* Pers. *Syn. Pl.* 1: 81. 1805; Hook. f. *Fl. Brit. India* 7: 30. 1896.

Ascending, perennial, upto 90 cm tall herbs with floating stolons. Leaves linear, 10–20 x 0.6–1 cm, flat, finely acuminate, glabrous; ligule a ridge of hairs. Racemes 5–20, sessile, erect, 1.5–3 cm long, acute, imbricate, shortly pedicelled. Grains ovoid.

Fls. & Frts. : September–March.

Illus. : Rangachary & Tadulingam, *S. Indian Gr.* 71 & 72, t. 84 & 85. 1921; Matthew, *Further Illus. Fl. Tamilnadu Carnatic* 4: tt. 809 & 810. 1988.

Distrib. : Lonar lake.

Notes : Occasional in the district but locally abundant. This grass is growing vigorously and abundantly in the salty residual bed of famous salt water Lonar lake, along with *Juncellus laevigatus* C.B.Cl. in submerged condition. These are the only 2 species growing on lake bed along the marshy fringes.

PENNISETUM Rich.

Pennisetum pedicellatum Trim. in Mem. Acad. Sci. Petersb. Ser. 6, 3: 184. 1834; Hook. f. Fl. Brit. India 7: 86. 1896; Cooke, Fl. Pres. Bombay 3: 431 1958 (Repr. ed.); Blatt. et McC. Bombay Grass. 180. t. 115. 1935; Bor, Grass. Ind. 346. 1960; Narasimh. in Sharma et al. Fl. Maharashtra State: Monocots. 564. 1996.

Herbs, upto 1 m high, branched from the base; nodes glabrous. Leaves linear-lanceolate, 10–25 x 0.5–1 cm, flat, flaccid, glabrous or sparsely hairy. Panicles 5–12 cm long; rhachis winged. Spikelets shortly pedicellate, lanceolate, 0.3–0.4 cm long, often solitary. within the involucre; involucre bristles purple, densely villous below, middle; lower glume about half the length of lower lemma, woolly; upper glume oblong-lanceolate; lower lemma oblong.

Fls. & Frts. : August–October.

Illus. : Blatt et McC. l.c. t. 115.

Distrib. : Buldhana, Gaumal forests, Bhinagara range, Salwan beat, Sonala range, Wasali forests, Ambabarwa range.

Notes : Common throughout the district. A handsome grass with an attractive inflorescence.

PSEUDANTHISTIRIA (Hack.) Hook. f.

Pseudanthistiria hispida Hook. f. Fl. Brit. India 7: 219. 1896; Cooke, Fl. Pres. Bombay 3: 512. 1958 (Repr. ed.); Blatt. et McC. Bombay Grass. 120. 1935; Bor, Grass Ind. 203. 1960; Narasimh. in Sharma et al. Fl. Maharashtra State: Monocots. 593. 1996.

Erect, annual herbs, 20–50 cm tall, stout. Leaves linear, 5–10 x 0.3–0.5 cm, bulbous hairy on both sides. Panicles elongate, 5–8.5 cm long; sessile spikelets 0.3–0.4 cm long, ovate-oblong; pedicelled spikelets lanceolate, hairy.

Fls. & Frts. : August–December.

Illus. : Patunkar, Grass. Marathw. 88, f. 26. 1980.

Distrib. : Deulgaon Raja.

Notes : Rare, in open grassy hill slopes.

PSEUDORAPHIS Griff.

Pseudoraphis spinescens (R. Br.) Vickery in Proc. Roy. Soc. Queensl. 62, n. 7: 67. 1952; Bor, Grass. Ind. 353. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 577. 1996. *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.). *Pseudoraphis aspera* (Koen.) Pilger in Notizbl. Bot. Gard. Berlin 10: 210. 1928; Blatt. *et* McC. Bombay Grass. 168, t. 109. 1935.

Annual or perennial herbs; culms decumbent, 15–30 cm tall, rooting at lower nodes in mud or floating in water; ligule a membranous rim. Leaves linear-lanceolate, 2–6 x 0.3–0.4 cm, flat or involute. Panicles oblong to pyramidal, 3–8 cm long; spikelets lanceolate, 0.5–0.6 cm long, dorsally compressed; lower glumes ovate, 0.6 cm long; upper glumes lanceolate, scabrid along margins.

Fls. & Frts. : September–March.

Illus. : Matthew, Illus. Fl. Tamilnadu Carnatic t. 922 & 923. 1982.

Distrib. : Chinchpani forests, Ambabarwa.

Notes : Rare along streams in Satpuda ranges.

ROTTBOELLIA L.f.

Rottboellia cochinchinensis (Lour.) Clayton in Kew Bull. 35: 817. 1981; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 582. 1996. *Stegosia cochinchinensis* Lour. Fl. Cochinch. 1: 51. 1790. *Rottboellia exaltata* L.f. Suppl. Pl. 114. 1781, *non* (L.) L.f. 1779; Hook. f. Fl. Brit. India 7: 156. 1896; Cooke, Fl. Pres. Bombay 3: 472. 1958. (Repr. ed.); Blatt. *et* McC. 38, t. 27. 1935; Bor, Grass. Ind. 206. 1960.

Erect, Perennial herbs, 1–2 m tall, branching from the base; nodes glabrous. Leaves linear or linear-lanceolate, 10–30 x 2–3 cm, hispidly hairy above, spinulosely scabrid on margins. Spikes terete, 8–14 cm long, upper part with imperfect spikelets; sessile spikelets 0.4–0.6 cm long; pedicelled spikelets male. Grains ovoid, compressed white.

Fls. & Frts. : September–October.

Illus. : Blatt. & McC. l.c.; Matthew, *Illus. Fl. Tamilnadu Carnatic* tt. 926 & 927. 1982.

Distrib. : Kingaon Raja.

Notes : Rare in cotton fields.

SCHIZACHYRIUM Nees

Schizachyrium brevifolium (Sw.) Nees ex Buese in Miquel, *Pl. Junghn.* 359. 1854; Blatt. *et* McC. *Bombay Grass.* 98. 1935; Bor, *Grass. Ind.* 215. 1960; Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots.* 587. 1996. *Andropogon brevifolius* Sw. *Prodr. Veg. Ind. Occ.* 26. 1788; Hook. f. *Fl. Brit. India* 7: 165. 1896.

Erect, annual herbs, 10–40 cm tall, slender, sparingly branched; nodes glabrous. Leaves oblong-lanceolate, 1–4.5 x 0.3–0.5 cm, glabrous; apex rounded or shortly mucronulate. Racemes concealed in the spathes; sessile spikelets linear-lanceolate, 0.3–0.35 cm long; pedicelled spikelets represented by aristulate glumes. Grains cylindric, brown.

Fls. & frts. : August–October.

Illus. : Hermann in Engl. & Prant, *Pflanzenfam.* 14c, 167, t. 87. 1960 (Repr. ed.); Matthew, *Illus. Fl. Tamilnadu Carnatic* t. 932. 1982.

Distrib. : Salwan beat, Sonala forest range.

Notes : Rare on hill slopes. Except Jalgaon district, this grass is confined to Vidharbha and Marathwada regions of Maharashtra.

SEHIMA Forssk.

Sehima nervosum (Rottl.) Stapf in Prain, *Fl. Trop. Africa* 9: 36. 1917; Blatt. *et* McC. *Bombay Grass.* 21. 1935; Bor, *Grass. Ind.* 218. 1960; Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots.* 589. 1996. *Andropogon nervosus* Rottl. in Verh. Ges. Naturf. Freund. Berlin, *Neue Schr.* 4: 218. 1809. *Ischaemum laxum* R. Br. *Prodr.* 205. 1810; Hook. f. *Fl. Brit. India* 7: 136. 1896; Cooke, *Fl. Pres. Bombay* 3: 482. 1958 (Repr. ed.).

Erect, tufted, perennial, 60–80 cm tall herbs. Leaves linear, 15–30 x 0.2–0.4 cm, flat, narrowed to a long capillary tips; ligule a tuft of silky hairs. Racemes solitary, terminal, 5–10 cm long; sessile spikelets linear-oblong, 0.8–0.9 cm long; pedicelled spikelets ovate-oblong, 0.8–0.9 cm long. Grains oblong, brown.

Fls. & Frts. : September–October.

Illus. : Blatt. & McC. l.c. t. 14; Matthew, *Illus. Fl. Tamilnadu Carnatic* tt 933 & 934. 1982.

Distrib. : Hiwarkheda village.

Notes : One of the very common grasses of the district.

SETARIA P. Beauv. *nom. cons.*

- | | | |
|---|-----|----------------------|
| 1. Inflorescence of cylindric, spiciform spikes | ... | <i>S. pumila</i> |
| 1. Inflorescence of distinctly branched, interrupted panicles | ... | <i>S. intermedia</i> |

Setaria intermedia R. & S. *Syst. Veg.* 2: 489. 1817; Hook. f. *Fl. Brit. India* 7: 79. 1896; Cooke, *Fl. Pres. Bombay* 3: 436. 1958 (Repr. ed.); Blatt. *et* McC. *Bombay Gras.* 174. 1935; Bor, *Grass. Ind. App. Ill.* 1973; Narasimh. in Sharma *et al.* *Fl. Maharashtra State: Monocots.* 593. 1996. *S. tomentosa* (Roxb.) Kunth, *Rev. Gram.* 1: 47. 1829; Bor, *Grass. Ind.* 365. 1960.

Erect or ascending, tufted, 60–90 cm tall herbs. Leaves linear-lanceolate, 5–25 x 0.4–0.9 cm, sparsely hairy on both sides; ligule a ridge of hairs. Panicles narrow, interrupted, 5–15 cm long; spikelets ovoid, 0.1–0.2 cm long; upper lemma rugose. Grains plano-convex.

Fls. & Frts. : September–October.

Illus. : Maheshwari, *Illus. Fl. Delhi* t. 240. 1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* tt. 935 & 936. 1982.

Distrib. : Buldhana, Sultanpur.

Notes : Frequent along roadsides and on wastelands.

S. pumila (Poir.) R. & S. Syst. Veg. 2: 891. 1817; Narasimh in Sharma *et al.* Fl. Maharashtra State: Monocots. 595. 1996. *Panicum pumilum* Poir. in Lamk. Encycl. 4: 273. 1816. *Setaria pallide-fusca* (Schum.) Stapf & Hubb. in Kew Bull. 1930: 259. 1930; Bor, Grass. Ind. 363. 1960. *S. glauca non* (L.) P. Beauv. 1812; Hook. f. Fl. Brit. India 7: 78. 1896; Cooke, Fl. Pres. Bombay 3: 435. 1958. (Repr. ed.); Blatt. & McC. Bombay Grass. 172. 1935.

Erect, or spreading, ascending, annual herbs, 20–60 cm high. Leaves linear-lanceolate, 3–12 x 0.4–0.6 cm, glabrous; ligule a rim of hairs. Inflorescence cylindric; spikes 1.5–5.5 x 0.3–0.7 cm; spikelets ovoid or ellipsoid, 0.2–0.3 cm, glabrous; upper lemma rugose. Grains plano-convex.

Fls. & Frts. : September–October.

Illus. : Tadulingam & Venkatanarayana, Handb. & Indian Weeds 438. t. 175. 1955 (Rev. ed.); Matthew, Further, Illus. Fl. Tamilnadu Carnatic 4: t. 823. 1988.

Distrib. : Botha forests, Sonala forests, Udhera tank, Deulgaon Raja.

Notes : Common along roadsides and on hill slopes.

CULTIVATED SPECIES

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.); Blatt. *et* McC. Bombay Grass. 171. 1935; Bor, Grass. Ind. 362. 1960. *Panicum italicum* L. Sp. Pl. 56. 1753. 'Warai'.

Annual herbs; culms much branched. Leaves linear-oblong, 20–44 x 0.5–2 cm, tapering to a fine point at apex, with scabrid margins; ligule a dense ridge of hairs. Racemes cylindric, interrupted, 8–20 cm long; drooping spikelets broadly oblong or elliptic, 0.3–0.4 cm long.

Fls. & Frts. : September–November.

Distrib. : Kingaon Raja, Naygaon Dattapur.

Notes. : Cultivated at a few places in the district.

SORGHUM Moench. *nom. cons.*

- | | | |
|---|-----|----------------------|
| 1. Sheath nodes densely bearded | ... | <i>S. deccanense</i> |
| 1. Sheath nodes glabrous or sparsely pubescent, but not bearded | ... | <i>S. halepense</i> |

Sorghum deccanense Stapf ex Bor, Grass. Ind. 245. 1960; Narasimh. in Sharma *et al.* Fls. Maharashtra State: Monocots. 598. 1996. 'Kokala'.

Erect, annual stout herbs, 50–100 cm tall, glabrous but with villous nodes. Leaves linear, 15–25 x 0.5–0.7 cm, sparsely appressed hairy, scabrous on the margins. Panicles erect, 10–18 cm long with filiform branches; sessile spikelets 0.7–0.8 cm long, elliptically flask-shaped, densely villous, reddish-brown; pedicelled spikelets linear-lanceolate, equalling sessile spikelets, but narrow. Grains ellipsoid.

Fls. & Frts. : September–November.

Distrib. : Bhingara forests, Chinchpani forests, Janephal.

Notes : Occasional in the district along the stream beds but locally abundant in Satpuda ranges.

S. halepense (L.) Pers. Syn. Pl. 1: 101. 1805; Blatt. *et* McC. Bombay Grass. 55. 1935; Bor, Grass. Ind. 22. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 598. 1996. *Holcus halepensis* L. Sp. Pl. 1047. 1753. *Andropogon halepensis* (L.) Brot. Fl. Lusit. 1: 89. 1804; Stapf in Hook. f. Fl. Brit. India 7: 182. 1896; Cooke, Fl. Pres. Bombay 3: 502. 1958 (Repr. ed.). 'Boru'.

Erect, perennial 1–2 (or more) m tall herbs with simple or branched solid culms. Leaves linear-lanceolate, 25–40 x 2.4 cm, flat, glabrous; ligule short, membranous, ciliate. Panicles decompound, 15–30 cm long; sessile spikelets ovoid-lanceolate, 0.4–0.5 cm long; pedicelled spikelets as long as sessile but narrower. Grains terete, dark brown.

Illus. : Blatt. *et* McC. *l.c.* t. 37. 1935; Matthew, *Illus.* Fl. Tamilnadu Carnatic tt. 937 & 938. 1982.

Distrib. : Pathardi forests, Purna river bank near Mehkar, Sonala forests.

Notes : Common throughout the district, on the banks of rivers and streams. This grass is a good soil binder.

SPODIOPOGON Trin.

Spodiopogon rhizophorus (Steud.) Pilger in Engl. & Prantl, Pflanzenfam. 2: 14e: 119. 1940; Bor, Grass. Ind. 246. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 608. 1996. *Andropogon rhizophorus* Steud. Syn. Pl. Glum. 1: 381. 1854. *Spodiopogon albidus* Benth. in J. Linn, Soc. 19: 66. 1881; Hook. f. Fl. Brit. India 7: 108. 1896; Cooke, Fl. Pres. Bombay 3: 464. 1958 (Repr. ed.); Blatt. *et* McC. Bombay Grass. 51. 1935.

Erect or suberect, tufted, annual herbs, 50–100 cm tall. Leaves oblong-lanceolate, 5–15 x 1–2.5 cm, petiolate, glabrous or sparsely hairy; ligule oblong. Panicles 5–12 cm long; sessile spikelets awned, 0.6–0.7 cm long; pedicelled spikelets 0.5–0.6 cm long, awned. Grains oblong, reddish-brown.

Fls. & Frts. : September–October.

Illus. : Blatt. *et* McC. l.c. t. 34. 1935; Patunkar, Grass. Marathw. 112, t. 30. 1980.

Distrib. : Shimba river bank, near Kalapathar.

Note. : Occasional along river beds and on hill slopes. The first author has collected this grass with milky white inflorescence.

SPOROBOLUS R. Br.

Sporobolus indicus (L.) R. Br. var. **flaccidus** (R. & S.) Veldk. in Blumea 35: 433. 1991; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 613. 1996. *Agrostis elongata* (R. Br.) Roth ex R. & S. var. *flaccida* Roth ex R. & S. Syst. Veg. 2: 368. 1817 var. *diandrus* (Ret.) Jovet & Guedes in Bull. Centre *et* Rech. Sc. Buarritz. 7: 65. 1968 & in Taxon 22: 163. 1973. *Sporobolus diander* (Retz.) P. Beauv. Ess. Agrost. 26: 147. 178. 1812; Hook. f. Fl. Brit. India 7: 247. 1896; Cooke, Fl. Pres. Bombay 3: 539. 1958 (Repr. ed.); Blatt. *et* McC. Bombay Grass. 221. 1935; Bor, Grass. Ind. 629. 1960.

Erect, perennial, tufted grass, 20–60 cm tall. Leaves narrowly linear, 6–13 cm long, convolute; ligule a narrow ridge of minute hairs. Panicles pyramidal, 6–13 cm long; spikelets ovate, shortly pedicelled, 0.15–0.2 cm long. Grains obovoid, reddish-brown.

Fls. & Frts. : September–October.

Illus. : Blatt. et McC. l.c. t. 148. 1935; Matthew, Further Illus. Fl. Tamilnadu Carnatic 4: t. 826. 1988.

Distrib. : Lavhala near Mchkar.

Notes : Occasional in open fields.

TRIPOGON R. & S.

Tripogon jacquemontii Stapf in Kew Bull. 1892: 85. 1892; Hook. f. Fl. Brit. India 7: 286. 1896; Cooke, Fl. Pres. Bombay 3: 558. 1958 (Repr. ed.); Blatt. et McC. Bombay Grass. 267. 1835; Bor, Grass. Ind. 522. 1960; Narasimh. in Sharma *et al.* Fl. Maharashtra State: Monocots. 628. 1996.

Tufted, perennial herbs, 30–50 cm tall, slender, glabrous. Leaves linear, 10–20 x 0.1–0.12 cm, conolute; ligule a narrow ridge of minute hairs. Spikes 10–25 cm long, with racemosely arranged sub-terete; spikelets oblong; lemmas bilobed.

Fls. & Frts. : September–October.

Illus. : Blatt. et McC. l.c. t. 181; Patunkar, Grass. Marathw. 260, t. 79. 1980.

Distrib. : Loni Budruk, near Lonar.

Notes : Frequent on rocky hill slopes and in open fields.

CULTIVATED SPECIES

ZEAL.

Zea mays L. Sp. Pl. 971. 1753; Hook. f. Fl. Brit. India 7: 102. 1896; Cooke, Fl. Pres. Bombay 3: 574. 1958 (Repr. ed.); Blatt. et McC. Bombay Grass. 2. 1935; Bor, Grass. Ind. 270. 1960. 'Maha'.

Tall, stout, monoecious, annual herbs, 1–2 m tall. Leaves linear, 20–50 x 3–5 cm, glabrous; ligule membranous. Male inflorescence terminal, in large panicles; female inflorescence solitary, axillary; spikelets numerous, seated on a spongy axis.

Fls. & Frts. : July–October.

Distrib. : Lonar lake fields.

Notes : Occasional under cultivation in the district.

PTERIDOPHYTES

CHEILANTHACEAE

CHEILANTHUS Swartz

Cheilanthes farinosa (Forsk.) Kaulf. Enum. Fil. 212. 1824; Bedd. Handb. Ferns Brit. India 92: 1883; Blatt. & Almeida, Ferns Bombay 77. 1922; Dixit, Census Ind. Pteridophytes 64. 1984. *Pteris farinosa* Forssk. Fl. Aeg.-Arab. 187. 1775.

Sori : June–September.

Illus. : Blatt. & Almeida, l.c. opp. page 79, t. 6. 1922.

Distrib. : Dongar Shewli forests.

Notes : Frequent in moist shady areas of forest undergrowth.

ACTINOPTERIDACEAE

ACTINOPTERIS Link

Actinopteris radiata (Swartz) Link, Fil. Sp. 80. 1841; Dixit, Census Ind. Pteridophytes 68. 1984. *Asplenium radiatum* Swartz, Schrad. Journ. Bot. 1800: 50. 1801. *Actinopteris dichotoma* Kuhn, Bot. Zeit. 503. 1871; Bedd. Handb. Ferns Brit. India 197. 1883; Blatt. & Almeida, Ferns Bombay 122. 1922.

Sori : July–October.

Illus. : Bedd. l.c. 198, t. 98. 1883; Blatt. & Almeida l.c. opp. page 122, t. 10. 1922.

Distrib. : Dongar Khandale, Warwand.

Notes : Frequent in rocky crevices of drying streams of forests.

ADIANTACEAE

ADIANTUM L.

Adiantum philippense L. Sp. Pl. 1094, 1753; Dixit, Census Ind. Pteridophytes 75. 1984. *A. lunulatum* Burm. f. Fl. Ind. 235. 1768; Bedd. Handb. Ferns Brit. India 82. 1883; Blatt. & Almeida, Ferns Bombay 59. 1922.

Sori : July–October.

Illus. : Blatt. & Almeida, *l.c.* 60, t. 19.

Distrib. : Ambabarwa forests, Gaumal forests.

Notes : Common in moist rocky crevices.

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BIBLIOGRAPHY

- Almeida, M. R. Notes on *Boerhavia*. *J. Bombay Nat. Hist. Soc.* 65: 266-268. 1968.
- Anonymous. Socio-Economic Review & District Statistical Abstract of Buldhana District. Directorate of Economic & Statistics, Govt. of Maharashtra, Bombay. 1981-85.
- Working plan for the Akola and Buldhana forest divisions, Amrawati Circle, Maharashtra State for the years 1966-67 to 1980-81.
- . Gazetteer of India. Maharashtra State. Buldhana district (Revised Edition), Bombay Gazetteers Department, Govt. Maharashtra. 1976.
- . Geology of Buldhana district, Maharashtra. Geological Survey of India. 1976.
- Bakuizen, van Der Brick, R.C. & Steenis C.G.G.J. van. A note on *Pogostemon* Desr. & *Dysophylla* Bl. *Taxon* 17: 235-236. 1968.
- Balakrishnan, N.P. Studies in Indian Euphorbiaceae 5: the genus *Chrozophora* Neck. *Bull. Bot. Surv. India* 15: 1-7. 1976.
- Banerjee, S.P. Identity of *Trichodesma amplexicaule* DC. (*non* Roth). *Bull. Bot. Soc. Bengal* 16: 9-11. 1963.
- . & P.K. Pramanik. Studies in the Rhamnaceae -3. A taxonomic revision of Indian Ventilagineae. *Indian Forester* 96: 203-217, f. 1. 1970.
- . & B.B. Pramanik. A taxonomic revision of Indo-Burmese *Trichodesma* R. Br. (Boraginaceae). *Bull. Bot. Surv. India* 17: 108-123, f. 2. (1975) 1978.
- Bates, David, M. Typefication of *Malvastrum* A. Gray, one last time? *Taxon* 27: 495. 1978.
- Bennet, S.S.R. The taxonomic status of the genus *Pongamia* Vent. *J. Bombay Nat. Hist. Soc.* 68: 302-304. 1971.
- Blatter, E. Revision of the Flora of the Bombay Presidency. *J. Bombay Nat. Hist. Soc.* 31: 547 - 57, 897 - 917; 32: 14 - 33*, 281 98*, 408 - 35*, 622 - 49*; 33: 7 - 25*, 229 - 43*, 480 - 96*, 753 - 75*; 34: 26*, 291 - 306, 623 37, 877 900; 35: 13 31, 254 - 75*, 484 - 95*, 722 - 36*; 36: 13 - 28*, 307 -20, 524 - 37*, 781- 95*; 37: 15 35*, 255 77*, 532 48*, 764 794 79*, 38: 6 18*. 1926 35 (*Asterisk marked jointly with C. McCann)
- . & D' Almeida, J.F. *The Ferns of Bombay* 227 p.p. (C.D.B. Taraporewala Sons & Co., Bombay) 1922.

- . & C. McCann. *The Bombay Grasses*. Sci. Monogr. N. 5. Imp. Counc. Agric. Res. India pp. xxi + 324, f. 189. 1935.
- Bor, N.L. *The Grasses of Burma, Ceylon, India and Pakistan*. Pergamon Press London. pp. xvii + 767, f. 80, pl. 1, t. 1. 1960 (Repr. by Otto Koeltz Antiquariat, Federal Republic of Germany, 1973).
- Borssum Walkees, J. van. Malesian Malvaceae revised. *Blumea* 14: 1-213, f. 21. 1966.
- Burkart, A. A monograph of genus *Prosopis* (Leguminosae, sub-fam. Mimosoideae) *J. Arnold Arbor.* 57: 219-49. 1976.
- Burt, B.L. *Polygala arvensis, chinensis & glomerata*. *Notes R.B.G. Edinb.* 32: 403-404. 1973.
- Chakravarty, H.L. Monograph on Indian Cucurbitaceae (Taxonomy & Distribution). *Rec. Bot. Surv. India* 17: iii + 234, f. 96. 1959.
- . Cucurbitaceae. *Fasc. Fl. India* 11: 1-136, f. 11, pl. 2. 1982.
- Champion, H.G. A revised Survey of the forest types of India. Manager of publications, Delhi, pp. xxv + 404, pl. 103. map 7. 1968.
- Chatterjee, D. *Acacia chundra* or *Acacia sundra*? *Sci & Cult.* 14: 290-291. 1949.
- Chaudhari, A.B. Studies on the Meliaceae of India and neighbouring countries. *Bull. Bot. Soc. Bengal* 21: 1-24. 1967.
- Chavan, A.R. & G.M. Oza. *Cucumis setosus* Cogn.—A new record for Bombay. *J. Bombay Nat. Hist. Soc.* 57: 699, pl. 1. 1960.
- Clayton, W. D. Studies in the Gramineae: 6. Sporoboleae. The *Sporobolus indicus* Complex. *Kew. Bull.* 19: 287. 98, f. 2. 1965.
- . Notes on the tribe Andropogoneae (Gramineae). *Ibid.* 35: 813-18, 1981.
- Cook, C.D.K. A revision of the genus *Rotala* (Lythraecae). *Boissiera* 29: 1-158, f. 28, t. 1. maps 16. 1979.
- Cooke, T. *The Flora of the Presidency of Bombay* 2 Vols, London. 1901-1908. (Repr. ed. 1958, 3 Vols.).
- Cope, T.A. New Combinations in Asiatic Grasses. *Kew Bull.* 35: 701-704, map 1. 1980.
- Dandy, J.E. & A.W. Excell. Nomenclature of three species of *Caesalpinia*, *C. bonducella*, *C. cristata* and *C. bonduc* (L.) Roxb. *J. Bot. London* 76: 178-80. 1938.

- Daniel, P. & E. Vajravelu. Name changes in some south Indian flowering plants. *J. Econ. Tax. Bot.* 3: 675-76. 1982.
- Davies, F.G. The genus *Gynura* (Compositae) in India, Sri Lanka and Seychelles. *Kew Bull.* 35: 363-67. 1980.
- Deb., D.B. Enumeration, synonymy and distribution of Solanaceae in India. *J. Econ. Tax. Bot.* 1: 33-54, t. 1. 1980.
- . & S. Dasgupta. Revision of the genus *Scilla* L. in India (Liliaceae.). *Bull. Bot. Surv. India* 17: 41-50, f. 3 (1975) 1978.
- & ———. Liliaceae : Tribe-Scilleae. Fasc. Fl. India 7: 1-23, f. 51. 1981.
- & K.C. Malick. Revision of the genus *Rubia* L. in India and adjoining regions. *Bull. Bot. Surv. India* 10: 1-16. f. 9. 1968.
- & Ratna Dutta. Revision of the genus *Spermacoce* (Rubiaceae) in India and adjoining regions. *J. Econ. Tax. Bot.* 5: 1037-63, f. 9. 1984.
- Deshpande U.R. Poaceae : Tribe Andropogonae. Fasc. Fl. India 15: 1-30. 1983.
- Ding Hou. A revision of the genus *Celastrus*. *Ann. Missouri Bot. Gard.* 42: 215-302. 1955.
- Ellis J.L. Nomenclatural notes on some plants from India. *Bull. Bot. Surv. India* 24: 209 (1982) 1983.
- Furtado, C. X. & M. Srisuko. A revision of *Lagerstroemia* L. (Lythraceae). *Gdn's Bull. Singapore* 24: 135-335, f. 56, map 4. 1989.
- Gamble, J.S. *Flora of the Presidency of Madras*. 3 vols London, 1915-1936 [(Repr. ed.) 1957, (3 vols.)].
- . The Indian species of *Mimosaceae*. *Kew Bull.* 1920: 1-6, f. 7. 1920.
- Garabedian, S. A revision of *Emilia*. *Kew Bull.* 1924: 137-44. 1924.
- Geesink, R. An account of the genus *Portulaca* in Indo-Australia and Pacific (Portulacaceae). *Blumea* 17: 275-302, f. 4, pl. 2, t. 1. 1969.
- . Proposal to conserve *Milletia* W. & A. and revise the conservation of *Pongamia* Vent. (Leguminosae.-*Pongamia* Vent. (Leguminosae.-Papilionoideae). *Taxon* 30: 327-20. 1981.
- Hawke, J. G. Systematic notes on the Solanaceae. *Bot. J. Linn. Soc.* 76: 287-95. 1978.

- Hepper, F.N. Proposal to list *Solanum indicum* L. and *S. sodomium* L. as rejected names under Article 69 of the I.C.B.N. *Taxon* 27: 555. 1978.
- Hill, Steven Richard. A monograph of genus *Malvastrum* A. Gray (Malvaceae : Malveae). *Rhodora* 84: 1-83, 159-264. 317-409, f-72, t. 5. 1982.
- Hooker, J.D. et al. *The Flora of British India*, London. Vols. 7. 1872-1897.
- Hutchinson, J. The families of Flowering plants ed. 2, Oxford. 1959.
- Iltis, H.H. Studies in the Capparidaceae 1. *Brittonia* 12: 279-9A. 1960.
- Jacobs, M. The genus *L. Capparis* (Capparaceae) from the Indus to the Pacific. *Blumea* 12: 385-541, f. 36. 1965.
- Jain, S.K. The genus *Cynodon* Rich. ex Pers. In India. *Bull. Bot. Surv. India* 9: 134-51, f. 12 (1967) 1968.
- . The genus *Arthraxon* P. Beauv. (Poaceae) in India *J. Indian Bot. Soc.* 51: 165-83, f. 23. 1972.
- . Further observations on the genus *Arthraxon* (Poaceae). *Indian Forester* 107: 668. 72, f. 1. 1981.
- . & U.R. Deshpande Transfer of some Indian species of *Bothriochloa* and *Capillipedium* to *Dichanthium*. *Bull. Bot. Surv. India* 20: 13-36 (1973) 1979.
- Jeffrey, C. Notes on Cucurbitaceae : Including a proposed new classification of the family. *Kew Bull.* 15: 337-71, f. 3. 1962.
- . Further notes on Cucurbitaceae : 5. The Cucurbitaceae of the Indian Subcontinent. *Ibid.* 34: 789-809. 1980.
- Jessop, J.P. The genus *Asparagus* L. in Southern Africa. *Bothalia* 9(1): 31-96. 1966.
- Johnson, M.F. A monograph of the genus *Ageratum* L. (Compositae-Eupatorieae). *ABR. Missouri Bot. Gard.* 58: 6-88. 1971.
- Jovet, P.M. Guedes Validation of names in *Sporobolus*. *Taxon* 22: 163. 1973.
- Kalkman, C. Revision of the Burseraceae of the Malaysian area in wider sense-6. Revision of the genus *Garuga* Roxb. *Blumea* 7: 459-72, f. 3. 1953.

- Kamble, S.Y. & S.G. Pradhnan Flora of Akola District, Maharashtra 1988.
- Kern, J.H. A neglected Indian species of *Cyperus*. *Reinwardtia* 1: 463-66, f. 1. 1952.
- Korlahalli, B.C. Notes on Indian Cyperaceae. *Bull. Bot. Surv. India* 9: 23-39. f. 6. (1967) 1968.
- Koyama, T. Nomenclatural remarks on some Cyperaceae from south eastern Asia. *J. Jap. Bot.* 51: 316-17. 1976.
- . The Cyperaceae tribe Cyperaceae of Ceylon. *Gdn's Bull.* Singapore 30: 123-64, F. 10. 1977.
- Kundu, B.C. & D' Anima. Taxonomic position of the genus *Nyctanthes* L. *Bull. Bot. Surv. India* 10: 397-408. f. 4 (1968) 1969.
- Larsen, K. Notes on some Asian *Bauhinia* L. *Nord. J. Bot.* 2: 324-32. 1982.
- Lewis, W. H. The Asian genus *Neanotis nomen novum* (Anotis) and allied taxa in the America (Rubiaceae). *Ann. Missouri Bot. Gard.* 53: 32-46. 1966.
- Lisboa, J.C. List of Bombay Grasses. *J. Bombay Nat. Hist. Soc.* 5: 116-31, 226-32, 337-49. 1890; 6: 189-219. 1891; 7: 357-90. 1892; 8: 107-119. 1893 (1890. 1893).
- Lobreau-Callen, D. Deux genres de Celastraceae *Cassine* L. et *Maytenus* Mol. revus a l'alumicre de la Palynologie. *Adansonia* 15: 215-25, t. 1. Pl. 3. 1975.
- Lucas, Gren & Hugh Syuge. *The IUCN Plant Red Data Book*; KUCN Switzerland. 1978.
- Maheshwari, J.K. Vegetation of marshes, swamps and riverside in Khandwa District; Madhya Pradesh *J. Bombay Nat. Hist. Soc.* 57: 371-87. 1960.
- . On the identity and nomenclature of some Indian plants. *Bull. Bot. Surv. India* 3: 91-94 (1961) 1962.
- Maiti, G.G. & J.K. Sikdar. A census to Polygonaceae of West Bengal *Indian J. For.* 8: 187-98. 1965.
- Majumdar, N.C. The genus *Panicum* Linn. in India. *Bull. Bot. Soc. Bengal* 27: 39-54, f. 23. 1973.
- Malic, K.C. & R. Prasad. Notes on the identity and distribution of *Cyperus alulatus* Kern in India. *Indian Forester* 94: 885. 1968.
- Marechal, R. Arguments for a global conception of the genus *Vigna* *Taxon* 31: 280-83. 1982.

- Mathew, K.M. Illustrations for Flora of Tamilnadu Carnatic. 1988.
- Melanie, Wilmot-Bear. *Ceratophyllum* revised—Study in fruit and leaf variations. *Kew Bull.* 40(2): 243–71.
- Mohlenbrock, A. A. A monograph of the Leguminous genus *Zornia*. *Webbia* 16: 1–141. 1961.
- Mukherjee, A.K. Revision of the family Nyctaginaceae in India. *J. Econ. Tax. Bot.* 5: 581–80. 1984.
- . Revision of the family Flacourtiaceae of India, Burma & Ceylon. *Bull. Bot. Soc. Bengal.* 26: 31–45, t. 3. 1972.
- . Nomenclatural notes on some species of Flacourtiaceae of India, Burma & Ceylon. *Bull. Bot. Surv. India* 14: 183–84. (1972) 1975.
- Mukherjee, P.K. Nomenclatural changes in Indian Umbelliferae. *Ibid.* 24: 42–45 (1982) 1983.
- Mukherjee, S.K. A revision of the Labiatae of the Indian Empire. *Rec. Bot. Surv. India* 14, vii + 1–228. 1940.
- . A synopsis of Indian and Burmese *Polygala*. *Bull. Bot. Surv. Bengal* 12: 29–49. mfl. 1(1958) 1960.
- . Sapindaceae of peninsular India. *J. Econ. Tax. Bot.* 1; 77–81. 1980.
- Munk, W. J. de. Preliminary revisions of some genera of Malaysian Papilionaceae—3— & Census of the genus *Crotalaria*. *Reinwardtia* 6: 195–223. 1962.
- Murthy, G.S.R. *et al.* Vessel of Oleaceae and Verbenaceae. *Feddes Repert.* 89: 359–68, f-2, t. 2, t. 2. 1978.
- Mgendran, C.R. & G.D. Arekal. Studies on Indian Pogostemonaceae. *Bull. Bot. Surv. India* 23: 228–34, f. 13 (1981) 1983.
- Naik, V.N. An artificial key to the Leguminosae of Osmanabad district. *Marathwada Univ. J. Sci.* 8: 15–19. 1969.
- . Critical notes on the Flora of Aurangabad district— I. *Ibid.* 9: 19–21–1970.
- . Critical notes on the Flora of Aurangabad district—II, *Ibid.* 10: 39–44. 1971.
- . An artificial key to the Compositae of Marathwada. *Ibid.* 10: 33–38. 1971.
- . Critical notes on the Flora of Aurangabad district — III. *Ibid.* 12: 11–13. 1973.

- . Key to the Angiospermic families and certain genera of Marathwada, Aurangabad, 1977.
- . *The Flora of Osmanabad district*. Venus publishers, Aurangabad. 1979.
- . Notes on the two Indian Grasses. *Bull. Bot. Surv. India* 24: 192–92, f. 1. (1982) 1983.
- Nair, K.K.N. An interpretation of *Bauhinia* L. (*sensu lato*) species illustrated in van Rheedee's Hortus Malabaricus (1678–1703). *J. Bombay Nat. Hist. Soc.* 81: 531–35, 1984.
- . & M.P. Nayar. Genus *Melanocenchris* Nees— a critical review. *Bull. Bot. Surv. India* 16: 141–44, f. 3, t. 1 (1974) 1977.
- Nayar, M.P. & G.S. Giri. A synopsis of the genus *Tribulus* Linn. (Zygophyllaceae) In India. *Bull. Bot. Sur. India* 24: 160–64, pl. 2 (1982) 1983.
- Ngan, P.T. A revision of the genus *Wrightia* (Apocynaceae). *Ann. Missouri Bot. Gard.* 52: 114–75, f. 14. 1969.
- Nicolson, Dan, H. Nomenclature of *Bombax ceiba* (Bombacaceae) and *Cochlospermum* (Cochlopermaceae) and their type species. *Taxon* 28: 367–73. 1979.
- Neilsen, I. Notes on the genus *Albizia* Durazz. (Leguminosae—Mimosoideae) in Mainland S.E. Asia *Adansonia* 19/2: 199–229, f. 5, pl. 1, t. 2. 1979.
- . Notes on Indo-Chinese Mimosaceae. *Ibid.* 19/3: 339–63, pl. 3. 1980.
- Ohashi, H. The Asiatic species of *Desmodium* and its allied genera (Leguminosae). *Ginkgoana* 1: 1–318, pl. 76, f. 86. 1973.
- Ooststroom, S.J. Van. A monograph of the genus *Evolvulus*. *Meded. Bot. Mus. Herb. Rijks. Utrecht*. No. 14. 1934.
- Oza, G. M. Correct name for *Ventilago calyculata* Tulasne. *J. Bombay Nat. Hist. Soc.* 63: 455. (1966) 1967.
- . Key to the *Ventilago* of India. *Indian Forester* 96: 406–407. 1970.
- . The genus *Madhuca* Gmelin in Bombay *Ibid.* 97: 651–53. 1971.
- . Notes on the identity and nomenclature of *Ventilago bombaiensis* Dalz. *J. Bombay Nat. Hist. Soc.* 70: 591–92. (1972) 1974.

- . Nomenclatural note on *Mimusops elengi* Linn *Ibid.* 72: 601–602. (1975) 1976.
- Pandey, Y. Cassias commonly occurring in cultivated fields of India. 68: 311–18. 1971.
- Panigrahi, G. Nomenclatural notes on two species of *Rotala* L. (Lythraceae) from the Indian region. *Indian Forester* 102: 766–67. 1976.
- . Proposal to reject the name *Limonia acidissima* L. *nom. amoig. rejec.* in favour of *L. elephantum* (Corr.) comb. nov. *Taxon* 26: 576–77. 1977.
- . & G.C. Das. A revision of *Haplanthodes*. O. Kuntze (Acanthaceae). *Bull. Bot. Surv. India* 23: 197–203, (1981) 1983.
- Patunkar, B.W. Grasses of Marathwada. 1980.
- Philcox, D. Clarification of the name *Bacopa monnieri* (Scrophulariaceae). *Kew Bull.* 33: 679–80. 1979.
- Phillips, S.M. The genus *Dinebra* Jacq. (Graminae). *Ibid.* 28: 411–18, f. 2, map 1. 1973.
- Powell, A.M. Taxonomy of *Tridax* (Compositae). *Brittonia* 17: 47–96, f. 33. 1965.
- Prain, D. & I.H. Burkill. An account of the genus *Dioscorea*. *Ann. Roy. Bot. Gard. Calcutta.* 14: 1–528, f. 150. 1936 & 1938.
- Raizada, M. B. Editorial notes. *Indian J. For.* 3: 278. 1980.
- . & S.S.R. Bennet. Nomenclatural changes in some flowering plants. *Indian Forester* 107: 432–37. 1981.
- . Six new names and two new combinations of flowering plants. *Ibid.* 109: 219–31. 1983.
- . & R. N. Chatterji. The correct name of Indian Babul. *Ibid.* 79: 420–21. 1953.
- Rajgopal, T. & N. Ramayya. Two new combinations in Indian flowering plants. *Kew. Bull.* 23: 465–67, f. 1. 1969.
- Rakshit, S.C. & B.C. Kundu. Revision of the Indian species of *Hibiscus*. *Bull. Bot. Surv. India* 12: 151–75, pl. 1, f. 1. (1970) 1972.
- Randeria, A.J. The compositae genus *Blumea*, a new taxonomic revision. *Blumea* 10: 176–317, pl. 28, t. 2. 1960.
- Rao, Rolla. *Parthenium hysterophorus* Linn.—a new record for India. *J. Bombay Nat. Hist. Soc.* 54: 118–20, pl. 1. 1956.

- . Indian species of Commelinaceae, Miscellaneous notes. *Notes R. B. G. Edinb.* 25: 179–89. 1964.
- Rau, M. A. An Annotated list of the Indian Ranunculaceae. *J. Mysore Univ.* 28 B: 42–80. 1980–81.
- Raynal, A. Revision du genre *Enicostemma*, *Blumea* (Gentianaceae). *Adansonia* 9: 57–85, f. 10. 1969.
- Ridsdale, C.E. A revision of *Mitragyna* and *Vecaria* (Rubiaceae). *Blumea* 24: 43–100, f. 12. 1978.
- Saldanha, C. J. The genus *Striga* Lour. in Western India. *Bull. Bot. Surv. India.* 5: 67–70, pl. 1. 1963.
- Sanjappa, D. A. new name for an Indian *Desmodium* Desv. (Fabaceae). *Ibid.* 22: 229. (1980) 1982.
- Santapau, H. Notes on the Convolvulaceae of Bombay *J. Bombay Nat. Hist. Soc.* 47: 337–55. 1947.
- . Notes on the Scrophulariaceae of Bombay *Ibid.* 49: 25–49. 1950.
- . Notes on the Solanaceae of Bombay *Ibid.* 47: 652–62. 1948.
- . The genus *Dioscorea* in Bombay State. *Ibid.* 49: 624–36, t. 3. 1951.
- . On a common species of *Curcuma* of Bombay and Salsette Islands. *Ibid.* 51: 135–39, pl. 1. 1952.
- . Acanthaceae of Bombay *Univ. Bombay Bot. Mem.* 2: iii + 104, f. 16. 1952.
- . Notes on the Acanthaceae of Bombay *J. Bombay Nat. Hist. Soc.* 51: 349–68, t. 1, f. 63, chart 1. 1953.
- . Critical notes on the identity and nomenclature of some Bombay plants—2. The genus *Zizyphus* Mill. *Ibid.* 51: 801–804. 1953.
- . The Flora of Khandala on the Western Ghats of India *Rec. Bot. Surv. India* 16(1): xxvii + 396, map, f. 3. 1953 (III revised ed.) 1967
- . The species of *Crotalaria* in Bombay. *J. Bombay Nat. Hist. Soc.* 51: 960–63. 1954.
- . Further notes on the Indian species of *Curcuma* (Zingiberaceae). *Ibid.* 54: 966–67. 1957.
- . & N. A. Irani. The Asclepiadaceae and Periplocaceae of Bombay. *Univ. Bombay Bot. Mem.* 4: iv + 118 t. 12. 1962.

- . & K. P. Janardhanan. Critical notes on the nomenclature of some Menispermaceae. *Bull. Bot. Surv. India* 10: 367–68 (1968) 1969.
- . & Y. Marchant (Miss) Critical notes on the Rubiaceae of Bombay *Ibid.* 3: 107–110. (1961) 1962.
- . & V. Patel. The genus *Cuscuta* in Bombay *J. Bombay Nat. Hist. Soc.* 54: 707–713, Pl. 1. 1957.
- . & S. K. Wagh. Nomenclatural changes in Indian plants. *Bull. Bot. Surv. India* 5: 105–109. (1963) 1964.
- Santisuk, T. Notes on Asiatic Bignoniaceae. *Kew Bull.* 28: 171–85. 1973.
- Scott, A. J. A revision of *Anogeissus* (Combretaceae). *Ibid.* 33: 555–66, f. 1. 1979.
- Sedgwick, L. J. The Cyperaceae of Bombay Presidency. *J. Bombay Nat. Hist. Soc.* 25: 682–700; 26: 192–209. 1918.
- . On the species of *Ziziphus* in Bombay Presidency *Indian Forester* 45: 67–74. 1919.
- . On the *Alysicarpus rugosus* DC, and its allied species. *J. Indian Bot.* 1: 14–18. 1919.
- . *Trichodesma indicum* R. Br. and *T. amplexicaule* auct. *Rec. Bot. Surv. India* 6: 347–50. 1919.
- Shah, G. L. Nomenclatural notes on some Bombay plants. *J. Bombay Nat. Hist. Soc.* 59: 320–22. 1962.
- . Nomenclatural notes on some Bombay plants–2. *Ibid.* 60: 296–98. 1963.
- . Notes on some Bombay plants. *Ibid.* 60: 481–84. 1963.
- . Nomenclatural changes in some Bombay plants–3. *Ibid.* 66: 231–33. 1969.
- . & D.V. Yogi. Nomenclatural changes in some Bombay plants 4. *Ibid.* 69: 444–49. 1972.
- Sharma, B.D. *et al.* Flora of India Vols. 3. 1993 .
- . Flora of Maharashtra State: Monocots. 1996.
- Sherff, E. E. The genus *Bidens*. *Field Mus. Nat. Hist. Chicago, Bot. ser.* 16: 1–709, f. 189. 1937.

- Singh, Vijendra. Critical taxonomic notes on some species of *Cassia* L. found in India. *J. Bombay Nat. Hist. Soc.* 75: 434-43, f. 3 (1978) 1979.
- Sivarajan, V. V. Taxonomic notes of the genus *Portulaca* L. in India. *Ibid.* 78: 256-60. 1981.
- Soenarko, S. The genus *Cymbopogon* Sprengel (Gramineae). *Reinwardtia* 9: 225-375, f. 30, t. 11. 1977.
- Sreemadhavan, C.P. Notes on Indian species of *Ludvigia* Bull. *Bot. Surv. India* 8: 79-80. 1966.
- Stant, M.Y. Anatomical evidence for including *Nyctanthes* and *Dimeria* in the family Verbenaceae. *Kew Bull.* 1952: 275-76 1952.
- Stone, B.L. & D.H. Nicolson. Argumenta for *Limonia acidissima* L. (Rutaceae) and against its rejection as *nomen ambiguum*. *Taxon* 27: 551-52. 1978.
- Tadulingam C. & G. Venkatanarayana, *A Handbook of some South Indian Weeds*. Re. & Enl. (1st ed. 1932) by C. R. Mudaliar & T. Saktharam Rao, Superintendent. Govt. Press. Madras.
- Talbot, W. A. *Forest Flora of the the Bombay Presidency & Sind*. Poona I to 1: 1909. II vol. : 1911 (1909-1911).
- Taylor, P. The genus *Anagallis* in Tropical and South Africa. *Kew Bull.* 1955: 321-55. 1955.
- Thomas, C.A. Jack fruit, *Artocarpus heterophyllus* (Moraceae) as source of food and income. *Econ. Bot.* 34: 154-69, f. 6. 1980.
- Thothathri, K. Studies in Leguminosae-2. The genus *Pongamia* Vent. In India. *Bull. Bot. Surv. India* 3: 417-23, pt. 2 (1961) 1962.
- . Studies in Leguminosae-5. taxonomic and nomenclatural notes on the Indo-burmese species of *Bauhinia* Linn. *Bull. Bot. Soc. Bengal* 19: 130-34, t. 1, f. 2. 1965.
- Townsend, C.C. A Survey of *Pupalia* Juss. *Kew Bull.* 34: 131-42. 1979.
- Vaishampayan, Neeta & Y.N. Sharma. On the taxonomic position of *Nyctanthes arbor-tristis* L. *Curr. Sci.* 52: 723-25, t. 1. 1983.
- Van Royen, P. *Mimusops* L. (Sapot.) *Blumea* 6: 594-95. 1952.
- Vartak, V. D. Some species of *Datura* round near Poona. *Ayurvedya Mag.* 21: 323-30; Pl. 3. 1957.
- . Taxonomic study of genus *Fuirena* Rottl. from India. *J. Poona Uni. (Sci. & Tech.)* 40: 186-203. 1971.

- Veldkamp, J. F. A synopsis of the genus *Enicosteria* Bl. *nom. cons.* (Gentianaceae). *Blumea* 16: 433–36, f.
- . Revision of *Digitaria* Haller (Gramineae) in Malesia. Notes on Malsian grasses : 6. *Blumea* 21: 1–80, f. 14, t. 3. 1973.
- Verdcourt, B. New combinations in *Vigna* Savi (Leguminosae–Pipilionoideae). *Kew Bull.* 23: 464. 1969.
- . A new genus of Leguminosae–Phaseolaceae. *Ibid.* 24: 322. 1970.
- . Notes on Mascarene Rubiaceae. *Ibid.* 37: 521–74, f. 7. 1983.
- . A synopsis of the Moringaceae. *Ibid.* 40: 1–23, f. 2. 1985.
- Wagh, S.K. The genus *Zornia* Gmel. in India. *J. Bombay Nat. Hist. Soc.* 61: 213–15. 1964.
- Webster, Grady L. A monographic study of the Western Indian species of *Phyllanthus*. *J. Arnold Arbor.* 37: 51–80, 217–68. 1956; 38: 51–79, 170–98, 285–373. 1937; 39: 49–100, 111–212. 1958. (1956–1958).
- Welzen, P.C. Van. A taxonomic revision of the genus *Arthraxon* Beauv. (Gramineae). *Blumea* 27: 255–300, f. 16, m 4. 1981.
- Willis, J. C. A revision of the Podostemaceae in India and Ceylon. *Ann. R. Bot. Gdn. Parademiya* 1: 181–250. 1902.
- . *A Dictionary of the Flowering plants and ferns*. 8th ed. Re. by H. K. Airy Shaw Cambridge, at the University Press. 1973.
- Windler, D.R. A revision of the genus *Neptunia* (Leguminosae). *Aust. J. Bot.* 14: 379–420, f. 21. 1966.
- Witt, D.O. A list of Trees, shrubs and climbers and other plants of economic importance found in the Berar Forest Circle of the Central Provinces, 1908.
- Wood, J. R., I. D. Hillcoat & R. K. Brummitt. Notes on the types of some names of Arabian Acanthaceae in Forsskal herbarium. *Kew Bull.* 38 : 429–56. 1983.
- Woodrow, G.M. The Flora of Western India. *J. Bombay Nat. Hist. Soc.* 11: 118–30, 265–73. 1897; 420–30. 635–51. 1898; 12: 162–76. 1898; 354–73, 515–26. 1899; 13: 427–42. 1901 (1897–1901).
- Wulf, E.V. An Introduction to Historical Plant Geography. Waltham, Mass. 1943.
- Yuncker, T.G. The genus *Cuscuta*. *Mam. Torrey Bot. Cl.* 18: 116–331. 1928 or 1932.

INDEX TO BOTANICAL NAMES

A		Agave L.		300
Abelmoschus Medik.	51	vera-cruz Mill.		300
manihot (L.) Medik.	51	Ageratum L.		179
ssp. tetraphyllus		conyzoides L.		179
(Roxb. ex Horan.) Borssum	51	<i>Agrositis diandra</i> Retz.		349
Abrus Adans.	95	<i>elongata</i> (R. Br.) Roth ex R. & S.		363
precatorius L.	95	<i>paucera</i> Rez.		349
Abutilon Mill.	51	Ailanthus Desf.		74
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