

Species Datasheet

Datasheet No. A-031.001.001
(family.genus.species)

DBT- Network Programme

-

1. Taxon:

Species *Butomus umbellatus* L.

Subspecies

Variety

Cultivar

Hybrid

Image file

2. Synonyms: *Butomus caesalpini* Neck., *B. floridus* Gaertn., *B. scutariensis* Rohlena, *B. umbellatus* f. *albiflorus* F.Fromm, *B. umbellatus* var. *minor* Ledeb., *B. umbellatus* f. *natans* V.V.Petrovsky, *B. umbellatus* var. *parviflorus* Buchenau, *B. umbellatus* var. *scutariensis* Rohlena, *B. umbellatus* f. *submersus* Glück, *B. umbellatus* f. *terrestris* Glück, *B. umbellatus* f. *umbellatus*, *B. umbellatus* var. *vallisneriifolia* Sagorski, *B. vulgaris* Gueldenst.

3. Systematic Position:

APG IV (2016)

- Kingdom: Plantae
- Clade: Angiosperms
- Clade: Monocots
- Order: Alismatales R. Br. ex Bercht. & J. Presl
- Family: Butomaceae Mirb.
- Genus: *Butomus* L.
- Species: *B. umbellatus* L.

Bentham and Hooker (1862)

Kingdom: Plantae
Division: Phanerogamia
Class: Monocotyledones
Series: Apocarpae
Ordo: Alismaceae
Genus: *Butomus* L.
Species: *B. umbellatus* L.

4. Distribution:

Global: Northern Africa, North Caucasus, China, Middle Asia, Russia, Western Asia, West Himalaya, Europe

India: West Himalaya

5. Indigenous/Exotic/ Endemic; Cultivated/Wild: Wild

6. Threat Status:

IUCN:

BSI:

7. Habit and Habitat: Herb. Found in still or slowly-moving water.

8. Life Form: Hydrophyte

9. Economic Importance:

10. Probable Progenitor of:

11. DNA

C- value	Methodology
1C (7.6 pg) ¹	Flow cytometry ¹
2C (15.1 pg) ¹	
4C (30.2 pg) ¹	

12. Basic chromosome number(s):

13. Zygotic chromosome number(s): $2n=20$ ^{2,3}
 $2n=22$ ²⁴
 $2n=24$ ^{4,5}
 $2n=26$ ^{6,7,8,9,10,11,12,13,14,15,16,17,18}
 $2n=28$ ^{20,21}
 $2n=30$ ^{4,5,6}
 $2n=39$ ^{8,17,18,22,23,25}
 $2n=40$ ^{6,20,21,26}
 $2n=42$ ²⁶

14. Gametic chromosome number(s): $n=10$ ³
 $n=13$ ^{17,21}
 $n=14$ ²¹
 $n=17-21$ ²¹

15. Specialized chromosomes (B chromosomes/Sex chromosomes/Polytene chromosomes/Neocentric chromosomes):

Image file

16. Ploidy level: Diploid ^{7,17,18}

Triploid ^{17,18,20,26}

Polyploidy ¹⁰

Image file

17. Agametoploidy

18. Nature of polyploidy (auto, segmental, allo, autoallo): Autopolyploid ¹⁸

19. Genomic formula:

20. Aberrant chromosome number(s) (aneuploidy, aneusomaty, polysomaty):

21. Somatic chromosomes:

Karyotype Majority telocentric chromosomes ^{7,17}

Majority subtelocentric chromosomes ^{3,18}

Chromosome size Small to large ^{3,7}, Very small to small ¹⁷, Very small to medium ^{11,17,18}

NOR chromosome(s) 2 NOR ^{3,18}

Degree of asymmetry Asymmetrical ¹⁸

Image file

22. Banding pattern(s):

Image file

23. Physical mapping of chromosomes:

In situ hybridization

Image file

Fluorescent in situ hybridization

Image file

24. Genomic in situ hybridization:

Image file

25. Linkage map:

Image file

26. Chromosome associations:

Female meiosis

Male meiosis: 10 II ³, 13 II ¹⁸, (2 III+11 II+11 I) ¹⁸; In diploid stickyness of bivalents found at diakinesis ¹⁷

Image file

27. Chromosome distribution at anaphase I: Disturbed chromosome distribution at Anaphase I found in 48% of PMCs; retarded chromosome movement and bridge formation were most frequent irregularities ¹⁸

28. Genetic diversity:

Chromosomal level

Image file

DNA level

29. Any other information (Apomixis; Inversion; Male sterility; Pollen grain mitosis; Pollen stainability; Translocations etc): Pollen stainability 86.6 % ¹⁸, 80.3 % ¹⁸, Pollen mitosis showing 10

chromosomes³