

**Flora of India**  
**Series 2**

**FLORA OF MAHARASHTRA STATE**  
**MONOCOTYLEDONES**

Editors  
B. D. Sharma, S. Karthikeyan  
and  
N. P. Singh



**BOTANICAL SURVEY OF INDIA**

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## **MONOCOTYLEDONES**

P. Lakshminarasimhan



**BOTANICAL SURVEY OF INDIA**

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## FOREWORD

The Botanical Survey of India since its re-organisation in 1954 has been engaged in floristic survey of unexplored and under-explored parts of the country. From early 1980s, the department has started the publication of **Flora of India** under four series; Series 1 on the National Flora comprising taxonomic revisions of families, tribes and genera—primarily—of flowering plants for the whole country; Series 2 on the floristic inventories of different States/Union territories; Series 3 pertaining to the floras of important districts and Series 4 to include special publications.

Cooke's **Flora of the Presidency of Bombay** (1901–1908) continues till today to be the most important floristic work for identification of the species that would be collected in the localities of the erstwhile Bombay Presidency viz., parts of Gujarat, Maharashtra, Goa, North Kanara and Sind which is now in Pakistan. However, this work has become obsolete due to changes in the regional boundaries and changing patterns of flora. Since its publication nearly 1000 species have been added to Cooke's **Flora** which include many new species. Therefore, revising and rewriting this flora on modern lines has become an absolute necessity. The flora of Maharashtra is very varied and interesting. Vegetation of N.W. Ghats – **Sahyadris** – has captured the imagination of many scientists and environmentalists. At the same time the vegetation of Deccan, Marathwada and Vidarbha regions also have their own interesting floristic features.

It is proposed to bring out the rich floristic account of this state in 3–4 volumes. The need to publish this **Flora** cannot be over-emphasised. Cooke (*op. cit.*) described for monocots alone, 23 families, 164 genera, 431 species, 1 subspecies and 10 varieties of wild species. In the present **Flora** 34 families, 256 genera, 904 species, 2 subspecies, 39 varieties, 1 subvariety and 1 forma of wild plants are being described (the increase in the number of families is due to the changed concepts and addition of the family – Hydatellaceae). Some other salient features brought out by this work are, that, for monocots alone, 10 new genera, 84 species, 11 subspecies and 1 variety have been described from Maharashtra; 330 species, 1 subspecies and 13 varieties have been recorded as new since publication of Cooke's *Flora*. Further,

2 genera and 303 species have undergone name changes. A total of 120 species and 23 varieties are being cultivated in the state. Nearly 77 species and 2 varieties of monocots are endemic to Maharashtra. Line drawings of 144 plants and 8 colour photographs have also been given. An exhaustive bibliography has been provided to help in further study of plants of this region.

The portion containing Dicotyledones of Maharashtra is in press and will be published shortly.

It is hoped that this **Flora** will be useful to the students, nature lovers, environmentalists, foresters and others interested in identification, conservation and utilisation of plant resources of Maharashtra State.

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Calcutta – 700 001.

**P. K. HAJRA**  
Director

January, 1996.

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*Vanda tessellata* (Roxb.) Hook. ex G. Don



*Typha angustifolia* L.



**Sauromatum venosum (Ait.) Schott**



**Eriocaulon robusto - brownianum Ruhl.**



**Fimbristylis tetragona**  
R. Br.



**Juncellus alopecuroides** (Rottb.) C.B.Cl.



**Saccharum spontaneum L.**



**Spinifex littoreus (Burm. f.) Merr.**

## HYDROCHARITACEAE

- |   |     |              |
|---|-----|--------------|
| 1. Salt water plants  | ... | HALOPHILA    |
| 1. Fresh water plants :   |     |              |
| 2. Stems branched, leafy throughout:                                |     |              |
| 3. Leaves in whorls; perianth double; stamens 3;<br>style undivided | ... | HYDRILLA     |
| 3. Leaves alternate; perianth single; stamens 2;<br>style notched   | ... | LAGAROSIPHON |
| 2. Stemless or stoloniferous; leaves radical :                      |     |              |
| 4. Petioles distinct; spathes winged                                | ... | OTTELIA      |
| 4. Petioles indistinct; spathes not winged :                        |     |              |
| 5. Perianth single; peduncle of female spathes<br>spirally coiled   | ... | VALLISNERIA  |
| 5. Perianth double; peduncle not as above                           | ... | BLYXA        |

### BLYXA Noron. ex Petit-Thou.

- |  |     |                 |
|--|-----|-----------------|
| 1. Flowers unisexual; stamens 9  | ... | B. octandra     |
| 1. Flowers bisexual; stamens 3 :   |     |                 |
| 2. Seeds with 8 rows of blunt spines, with a 0.1–0.5 cm long<br>filiform tail at both ends | ... | B. echinosperma |
| 2. Seeds with 8 rows of more or less tubercled ribs,<br>without filiform processes         | ... | B. aubertii     |

**Blyxa aubertii** Rich. in Mem. Inst. Paris 12, 2: 19,23,77, t. 4. 1812; Hartog in Steenis, Fl. Males. 1, 5: 390, t. 5. 1957; Subr. Aquat. Ang. 59. 1962; Hemadri in Indian Forester 94: 810. 1968. *B. oryzetorum* (Decne.) Hook. f. Fl. Brit. India 5: 661. 1888. *B. griffithii* Planch. ex Hook. f. *op.cit.* p.p. *B. ceylanica* Hook. f. *op.cit.*

Herbs, monoecious. Leaves 15–20 x 0.5–1.0 cm, linear, 5–7-nerved, sheathed at base. Flowers in 1-flowered, tubular spathes; spathes 4–6 cm long, tip obtuse. Fruits cylindrical, c 6 cm long. Seeds many, 0.15–0.20 cm long, ellipsoid to ovoid.

*Fls. & Frts.* : August–February.

*Illus.* : Hartog in Steenis, *op.cit.*; Subr. *op.cit.* 152, f. 40.

*Distrib.* : Submerged hydrophytes in stagnant water pools. Chandrapur; Pune; Ratnagiri; Satara; Sindhudurg.

**B. echinosperma** (C. B. Cl.) Hook. f. Fl. Brit. India 5: 661. 1888; Cooke, Fl. Pres. Bombay 3: 172. 1958 (Repr. ed.); Hartog in Steenis, Fl.

Males. 1, 5: 391, f. 6a. 1957; Subr. Aquat. Ang. 59. 1962. *Hydrotopus echinospermus* C. B. Cl. in J. Linn. Soc. Bot. 14: 8, t. 1. 1875. *Blyxa echinospermoides* Blatt. in J. Proc. Asiat. Soc. Beng. (N. S.) 26: 354. 1931. *B. lancifolia* Hook. f. *op.cit.* *B. talbotii* Hook. f. *op.cit.*

Herbs, annual. Leaves 10–20 cm long, sheathing at base. Flowers white, in 1-flowered spathes. Fruits 3.5–7.0 cm long, linear, ribbed. Seeds oblong.

*Fls. & Frts.* : July–December.

*Illus.* : Hartog in Steenis, *op.cit.*; Matthew, *Illus. Fl. Tamilnadu Carnatic 2: t. 684. 1982.*

*Distrib.* : Submerged hydrophytes in stagnant water pools. Bombay; Raigad; Satara; Sindhudurg.

*B. octandra* (Roxb.) Planch. ex Thw. Enum. Pl. Zeyl. 332. 1864; Hartog in Steenis, *Fl. Males. 1,5: 392, f. 6b. 1957; Subr. Aquat. Ang. 60. 1962. Vallisneria octandra* Roxb. Pl. Cor. 2: 34, t. 165. 1802. *Blyxa roxburghii* Rich. in Mem. Inst. Paris 12, 2: 77, t. 5. 1812; Hook. f. *Fl. Brit. India 5: 660. 1888; Cooke, Fl. Pres. Bombay 3: 172. 1958 (Repr. ed.). B. griffithii* Planch. ex. Hook. f. *op.cit. p.p.*

Herbs, gregarious. Leaves 20–35 cm long, linear, sheathing, narrowed at base. Flowers white; male spathes enclosing 5–10 flowers; female spathes 1-flowered. Capsules linear, finely ribbed. Seeds oblong–ellipsoid, white.

*Fls. & Frts.* : June–February.

*Illus.* : Hartog in Steenis, *op. cit.*; Subr. *op cit.* 153, f. 41; Matthew, *Illus. Fl. Tamilnadu Carnatic 2: t. 684 & 977a. 1982.*

*Distrib.* : Submerged hydrophytes in stagnant water pools. Bhandara; Chandrapur; Kolhapur; Pune; Satara; Sindhudurg.

#### HALOPHILA Petit–Thou.

- |  |     |                     |
|--|-----|---------------------|
| 1. Lateral shoots scarcely or not developed, glabrous; leaf margins entire; plants dioecious | ... | <i>H. ovalis</i>    |
| 1. Lateral shoots 0.5–1.0 cm long, hairy; leaf margins serrulate; plants monoecious          | ... | <i>H. decipiens</i> |

*Halophila decipiens* Ostenf. in Bot. Tidsskr. 24:260.1902; Dixit in J. Bombay nat. Hist. Soc. 36: 284. 1932; Hartog in Steenis, *Fl. Males. 1, 5: 410, f. 18. 1957.*

Herbs; stems thin. Leaves 1.0–2.3 x 0.3–0.6 cm, oblong–elliptic, apex obtuse or rounded, base cuneate, faintly covered with short unicellular hairs on one or both sides. Spathes ovate, tearing at top as fruit is ripening, containing 1 male and 1 female flower, spathe segments enclosing female flower embracing the other. Fruits c 0.25 x 0.15 cm, broadly ellipsoid, beak 0.15–0.2 cm long. Seeds c 30, ovate.

*Fls. & Frts.* : January.

*Illus.* : Hartog in Steenis, *op. cit.*

*Distrib.* : Rare along coasts of Bombay.

*H. ovalis* (R. Br.) Hook. f. *Fl. Tasm.* 2: 45. 1858; Dixit in *J. Bombay nat. Hist. Soc.* 36: 284. 1932; Hartog in Steenis, *Fl. Males.* 1, 5: 408, f. 16. 1957; Subr. *Aquat. Ang.* 62. 1962. *Caulina ovalis* R. Br. *Prodr.* 1: 339. 1810. *Halophila ovata sensu* Hook. f. *Fl. Brit. India* 5: 663. 1888 *non* Gaud. 1829.

Herbs, slender, creeping. Leaves opposite, up to 7.5 x 1.0 cm, linear–oblong to ovate, palminerved; stipular scales 2, convolute. Spathes sessile, solitary, bracteate. Male flowers pedicelled; female usually sessile. Fruits ovate or subglobose, included, beaked. Seeds ovoid, finely reticulate.

*Fls. & Frts.* : January.

*Illus.* : Hartog in Steenis, *op.cit.*; Subr. *op. cit.* 156. f. 44; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 685. 1982.

*Distrib.* : Rare. Bombay.

#### HYDRILLA L.C. Rich.

*Hydrilla verticillata* (L. f.) Royle, *Ill. Bot. Himal.* t. 376. 1839; Hook. f. *Fl. Brit. India* 5: 659. 1888; Cooke, *Fl. Pres. Bombay* 3: 170. 1958 (Repr. ed.); Hartog in Steenis, *Fl. Males.* 1, 5: 385, f. 1. 1957; Subr. *Aquat. Ang.* 55. 1962. *Serpicula verticillata* L. f. *Suppl.* 416. 1781. *Hydrilla polysperma* Blatt. in *J. Proc. Asiat. Soc. Beng. (N.S)* 26: 356. 1931. 'Sheval'.

Herbs, slender, submerged, free floating or rooting, c 45 cm long; roots fibrous. Leaves 3–9, 0.6–1.5 cm long, linear or linear–oblong, apex apiculate, margins entire or serrulate. Flowers unisexual, white; male flowers minute, shortly pedicelled, solitary, in subsessile, subglobose, muricate spathes; female flowers sessile, solitary in cylindrical, membranous spathes. Fruits smooth, muricate. Seeds oblong.

*Fls. & Frts.* : August–February.

*Illus.* : Hartog in Steenis, *op.cit.*; Subr. *op. cit.* 149, f. 37; Mahesh. *Illus. Fl. Delhi* f. 200. 1966; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 686. 1982.

*Distrib.* : In ponds and tanks. Ahmednagar; Amaravati; Bombay (Cooke *op.cit.*); Kolhapur; Nagpur; Pune; Raigad; Ratnagiri; Satara; Sindhudurg; Thane; Yavatmal.

#### LAGAROSIPHON W. H. Harvey

*Lagarosiphon alternifolia* (Roxb.) Druce in *Rep. Bot. Exch. Cl. Brit. Is.* 1916: 630. 1917; Govind. in *Proc. Indian Acad. Sci. (Pl. Sci.)* 93: 15. 1984. *Vallisneria alternifolia* Roxb. *Pl. Cor.* 2: t. 165. 1802 & *Fl. Ind.* 3: 750. 1832. *Nechamandra alternifolia* (Roxb.) Thw. *Enum. Pl. Zeyl.* 332. 1864; Subr. & Balakr. in *Bull. Bot. Surv. India* 3: 23. 1961; Subr. *Aquat. Ang.* 56. 1962. *Lagarosiphon roxburghii* (Planch.) Bth. in *Bth. & Hook. f. Gen. Pl.* 3: 451. 1883; Hook. f. *Fl. Brit. India* 5: 659. 1888; Cooke, *Fl. Pres. Bombay* 3: 170. 1958 (Repr. ed.).

Herbs, c 15 cm high, perennial, submerged, lower portion tightly adhering to substratum with fibrous roots, upper portion floating. Leaves linear–lanceolate, acute, often twisted. Male spathes ovate, axillary, sessile, paired, 2–valved; female flowers solitary, axillary, sessile. Fruits ovoid, oblong or linear. Seeds numerous.

*Fls. & Frts.* : August–February.

*Illus.* : Subr. *op.cit.* 150, f. 38; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 687. 1982 (*Nechamandra alternifolia*).

*Distrib.* : In ponds and tanks. Nagpur; Pune; Raigad; Thane; Yavatmal.

#### OTTELIA Pers.

*Ottelia alismoides* (L.) Pers. *Syn. Pl.* 1: 400. 1805; Hook. f. *Fl. Brit. India* 5: 662. 1888; Cooke, *Fl. Pres. Bombay* 3: 173. 1958 (Repr. ed.); Hartog in Steenis, *Fl. Males.* 1,5: 398, f. 10. 1957; Subr. *Aquat. Ang.* 61. 1962. *Stratiotes alismoides* L. *Sp. Pl.* 535. 1753.

Herbs, annual, submerged, flaccid. Leaves of two kinds; submerged leaves shortly petioled, narrow or oblong, tapering to base; floating ones oblong or orbicular, cordate or rounded at base, then narrowed into angled petiole, up to 18 cm in diam., 7–11–nerved,



margins undulate. Flowers white with yellow blotched base. Fruits 2.0–3.5 cm long, ellipsoid. Seeds oblong–fusiform.

*Fls. & Frts.* : September–April.

*Illus.* : Hartog in Steenis, *op.cit.*; Subr. *op.cit.* 155, f. 43; Matthew, *Illus. Fl. Tamilnadu Carnatic 2*: t. 688. 1982.

*Distrib.* : In ponds and tanks. Ahmednagar; Akola; Bhandara; Bombay; Chandrapur; Kolhapur; Nagpur; Pune; Raigad; Sindhudurg; Thane; Yavatmal.

#### VALLISNERIA L.

*Vallisneria spiralis* L. Sp. Pl. 1015. 1753; Hook. f. *Fl. Brit. India* 5: 660. 1888; Cooke, *Fl. Pres. Bombay* 3: 171. 1958 (Repr. ed.); Subr. *Aquat. Ang.* 57. 1962. 'Saivala'

Herbs, tufted, submerged. Leaves linear, ribbon-shaped, sheathing at base, apex obtuse, margins faintly dentate or entire. Flowers dioecious, on long or short scapes; male spathes shortly peduncled, ovate; female spathes connate, tubular. Fruits 5–10 cm long, linear, included in spathes. Seeds numerous, oblong to fusiform, embedded in a gelatinous mass.

*Fls. & Frts.* : October–April.

*Illus.* : Subr. *op.cit.* 151, f. 39; Matthew, *Illus. Fl. Tamilnadu Carnatic 2*: t. 689. 1982.

*Distrib.* : In ponds and tanks. Ahmednagar; Akola; Amaravati; Bhandara; Kolhapur; Nagpur; Pune; Raigad; Satara; Thane; Yavatmal.

#### BURMANNIACEAE

##### BURMANNIA L.

- |  |     |                       |
|--|-----|-----------------------|
| 1. Saprophytic herbs; radical rosette–leaves absent                                | ... | <i>B. candelabrum</i> |
| 1. Autotrophic herbs; radical rosette–leaves present :                             |     |                       |
| 2. Flowers 0.8–1.5 cm long; wings elliptical; perianth–lobe margins double         | ... | <i>B. coelestis</i>   |
| 2. Flowers 0.45–0.7 cm long; wings orbicular–obovate; perianth–lobe margins single | ... | <i>B. pusilla</i>     |

*Burmattia candelabrum* Gagnep. in *Bull. Soc. Bot. Fr.* 54: 462. 1907; A.S. Rao & Verma in *Bull. Bot. Surv. India* 12: 143. (1970) 1972;

Hajra in Nayar, *et al.* Fasc. Fl. India 19: 7. 1988. *B. candida* Griff. ex Hook. f. Fl. Brit. India 5: 665. 1888, *p.p.*

Stems 6–20 cm high, filiform, simple or branched. Scales c 0.2 cm long, appressed, lanceolate, acute. Flowers 0.8–1.0 cm long, solitary or few on curved branches, usually blue, prominently 3-winged. Capsules obovoid or clavate.

*Fls. & Frts.* : August–November.

*Distrib.* : Rare. Konkan (Hajra in Nayar, *et al. op.cit.*).

*B. coelestis* D. Don, Prodr. Fl. Nepal. 44. 1825; Hook. f. Fl. Brit. India 5: 665. 1888; Jonker in Steenis, Fl. Males. 1,4: 17. 1948; A.S. Rao & Verma in Bull. Bot. Surv. India 12: 142. (1970) 1972; Hajra in Nayar, *et al.* Fasc. Fl. India 19: 9. 1988.

Stems 8–30 cm high, simple or branched. Rosulate–leaves 0.3–2.0 x 0.15–0.2 cm, linear–lanceolate, acute or acuminate, 3-nerved; cauline leaves up to 1 cm long, linear–lanceolate, subulate. Flowers blue or purplish with yellow lobes, solitary or few in fascicles. Capsules obovoid, truncate, transversely dehiscent.

*Fls. & Frts.* : June–November.

*Illus.* : Mathew, Illus. Fl. Tamilnadu Carnatic 2: t. 690. 1982.

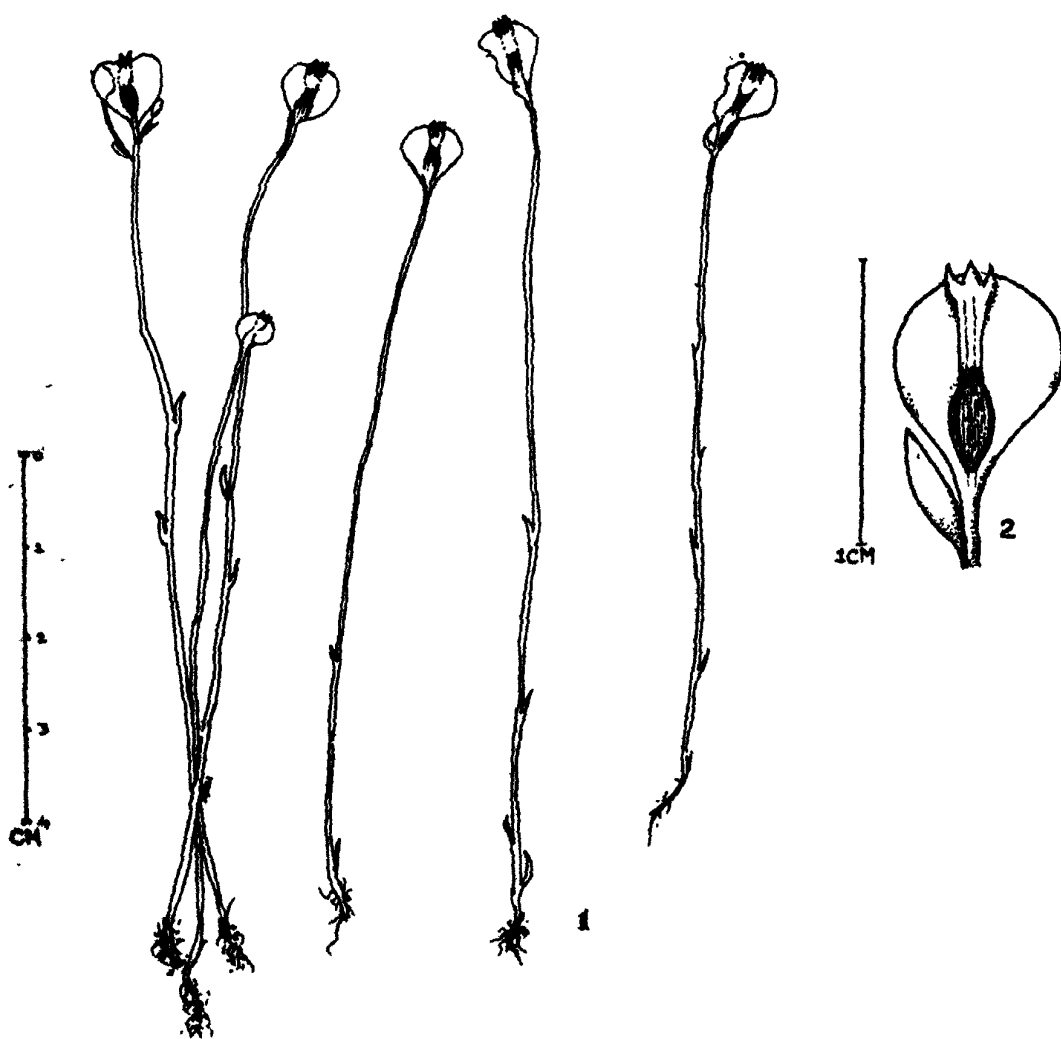
*Distrib.* : Rare. Maharashtra (Hajra in Nayar, *et al. op.cit.*).

*B. pusilla* (Wall. ex Miers) Thw. Enum. Pl. Zeyl. 325. 1864; Hook. f. Fl. Brit. India 5: 665. 1888; A.S. Rao & Verma in Bull. Bot. Surv. India 12: 142. (1970) 1972; Hajra in Nayar, *et al.* Fasc. Fl. India 19: 13. 1988. *Tripteranthus pusilla* Wall. ex Miers in Trans. Linn. Soc. 18: 537. 1841 *Burmannia coelestis* var. *pusilla* (Wall. ex Miers) Trim. Handb. Fl. Ceylon 4: 131. 1898; Cooke, Fl. Pres. Bombay 3: 174. 1958 (Repr. ed.).

Stems 5–20 cm high, slender, simple or branched, green. Rosulate–leaves 0.3–0.5 x 0.15 cm. Scales 0.1–0.2 cm long, lanceolate or elliptic, acute–acuminate. Flowers violet or bluish, solitary. Capsules obovoid, indehiscent.

*Fls. & Frts.* : August–September.

*Distrib.* : In marshy places along streams on higher ghats. Ahmednagar; Kolhapur; Pune; Raigad; Ratnagiri; Satara; Sindhudurg; Thane.



*Burmannia coelestis* D. Don  
1. Habit 2. Capsules

## ORCHIDACEAE

1. Pollinia granular, powdery or in small masses :
2. Anther cells adnate to column :
3. Lip 2 –spurred ... SATYRIUM ✓
3. Lip 1 –spurred :
4. Flowers c 7.5 cm across; stigmatic surfaces flat, almost confluent ... PECTELIS
4. Flowers less than 3 cm across; stigmatic surfaces not as above, separate :
5. Ovaries and capsules erect and parallel to peduncle; stigmatic surfaces in form of small swelling on edge of lip ... PERISTYLUS
5. Ovaries and capsules widely spreading at an angle to peduncle; stigmatic lobes standing out as stalked appendages ... HABENARIA ✓
2. Anther cells distinct :
6. Roots tuberous; anther opercular, incumbent or suberect ... NERVILEA
6. Roots not tuberous; anther erect or inclined forward, parallel to elongate rostellum :
7. Lip ventricose above base ... SPIRANTHES ✓
7. Lip not as above :
8. Sepals combined in a tube ... CHEIROSTYLIS
8. Sepals free, dorsal with the petals cohering in a hood ... ZEUXINE
1. Pollinia waxy :
9. Cells of anther usually confluent :
10. Leaves on pseudobulbs, plaited and nerved :
11. Lip spurred ... EULOPHIA
11. Lip not spurred :
12. Epiphytes ... CYMBIDIUM
12. Terrestrials ... GEODORUM
10. Leaves not as above :
13. Lip not spurred :
14. Sepals spreading widely, broader than petals; stipes of pollinia long, narrow ... COTTONIA
14. Sepals and petals not spreading widely; stipes of pollinia ovate, flat ... LUISIA

18. Lip spurred :
15. Spur distant from base of lip :
16. Leaves with a sharply-pointed praemorse apex ... RHYNCHOSTYLIS
16. Leaf-apex bilobed, lobes unequal or subequal, rounded or subacute ... AERIDES
15. Spur at base of lip :
17. Spurs 2 ... DIPLOCENTRUM
17. Spur 1 :
18. Leaf - apex acute or sharply pointed :
19. Interior of spurs with callus and a vertical septum ... CLEISOSTOMA
19. Interior of spurs without callus and vertical septum ... GASTROCHILUS
18. Leaf-apex irregularly toothed or bilobed :
20. Leaf-apex irregularly toothed with 2-3 sharp teeth ... VANDA
20. Leaf-apex bilobed, lobes unequal or subequal, rounded or subacute :
21. Midlobe of lip semi-circular forming a brim on large ventricose, saccate spur; pollinia shorter than narrow linearcaudicle, with a small linear gland ... LOXOMA
21. Midlobe of lip not as above; spur narrow, linear or rarely a small conical sac; pollinia equalling oblong caudicle with a small, more or less oblong or square gland ... ACAMPE
9. Cells of anther parallel, distinct :
22. Pollinia connected by viscous or a granular appendage :
23. Inflorescence lateral :
24. Scape from side of pseudobulb ... PHAIUS
24. Raceme terminating leafy stem ... THUNIA
23. Inflorescence terminal :
25. Pseudobulbs with two or more leaves ... COELOGYNE
25. Pseudobulbs with single leaf ... PHOLIDOTA
22. Pollinia free, rarely with an obscure appendage :
26. Terrestrials :
27. Column winged in upper part ... LIPARIS
27. . Column wingless ... MALAXIS

## 26. Epiphytes :

28. Plants without pseudobulbs; leaves thick, equitant, distichous ... OBERONIA
28. Plants with distinct pseudobulbs; leaves not as above :
29. Pseudobulbs flattened, discoid, rounded :
30. Sepals united to form a tube at least at base ... PORPAX
30. Sepals completely free ... ERIA
29. Pseudobulbs elongated, ovoid or conical :
31. Inflorescence distinct from pseudobulbs :
32. Lateral sepals alongside or under lip; flowers in racemes or spikes; pollinia free ... BULBOPHYLLUM
32. Lateral sepals spreading; flowers solitary; pollinia subcoherent in pairs in each cell ... TRIAS
31. Inflorescence lateral on a leafy or leafless stem, or terminal, or from top of 1-2-leaved pseudobulbs :
33. Leaves usually solitary; flowers solitary or in pairs ... FLICKINGERIA
33. Leaves more than one; flowers in fascicles or racemes ... DENDROBIUM

## ACAMPE Lindl.

1. Lip spurred; panicles leaf-opposed; mid-lobe of lip with a fleshy tooth on each side of base ... *A. ochracea*
1. Lip saccate; panicles axillary; mid-lobe of lip not as above :
2. Leaves oblong, entire, unequally deeply cleft at apex ... *A. praemorsa*
2. Leaves lorate, shortly 3-lobed ... *A. rigida*

***Acampe ochracea* (Lindl.) Hochr.** in Bull. New York Bot. Gard. 6:270. 1910; Sant. & Kap. Orch. Bombay 234. 1966; Jayaweera in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 2: 227, f. 100. 1981. *Saccolabium ochraceum* Lindl. in Edw. Bot. Reg. Misc. 2. 1842; Hook. f. Fl. Brit. India 6: 62. 1890.

Epiphytes, erect or pendulous. Leaves 8.5-20.0 x 0.6-2.0 cm, coriaceous, sheathing at base, narrowly oblong, entire, shallowly and unequally 2-lobulate at apex. Inflorescence 8-20 cm long, panicles lax, branching, longer or shorter than leaves. Flowers pedicelled, bracteate, yellow with pale-red, transverse markings. Capsules with stalk, c 3.5 x 0.7 cm, linear-oblong, faintly ribbed.

*Fls.* : December; *Frts.* : May.

*Illus.* : Jayaweera in Dassan. & Fosb. *op.cit.*

*Distrib.* : Rare. Raigad.

*A. praemorsa* (Roxb.) Blatt. & McC. in J. Bombay nat. Hist. Soc. 35: 495. 1932; Sant. & Kap. Orch. Bombay 233, t. 54. 1966. *Epidendrum praemorsum* Roxb. Pl. Cor. 1: 34, t. 43. 1795. *Acampe wightiana* Lindl. Fol. Orchid. 2. 1853; Cooke, Fl. Pres. Bombay 3: 209. 1958 (Repr. ed.). *Saccolabium praemorsum* (Roxb.) Hook. f. Fl. Brit. India 6: 62. 1890. *S. wightianum* (Lindl.) Hook. f. *op.cit.*

Stem, c 1.5 cm thick, sheathed. Leaves thick, coriaceous, channelled, 8–30 x 1.5–3.0 cm. Flowers yellow in compact, corymbose racemes. Capsules 6–7 x 0.6–0.8 cm, subcylindric, longitudinally ribbed.

*Fls. & Frts.* : February–August.

*Illus.* : Wight, Ic. t. 1670. 1851 (*Vanda wightiana* Lindl.); Sant. & Kap. *op.cit.*; Matthew, Ilus. Fl. Tamilnadu Carnatic 2: t. 718. 1982.

*Distrib.* : Bombay; Pune; Raigad; Ratnagiri; Sindhudurg; Thane.

*A. rigida* (Buch.–Ham. ex J. E. Sm.) P.F. Hunt in Kew Bull. 24: 98. 1970; Jayaweera in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 2: 229, f. 101. 1981; N.P. Singh & Dawre in J. Econ. Tax. Bot. 4:1021. 1983. *Aerides rigida* Buch.–Ham. ex J.E. Sm. in Rees, Cyclop. 39. *Aerides* n. 12. 1819; Hook. f. Fl. Brit. India 6: 48. 1890. *Saccolabium longifolium* (Lindl.) Hook. f. *op.cit.* 62, p.p.

Stems stout, 60–90 cm long. Leaves 15–30 x 3.7 cm, thickly coriaceous. Flowers yellow, tinged with red, in many flowered stoutly peduncled panicles; peduncles with racemes, 15–30 cm long, distantly branched. Capsules longitudinally ribbed.

*Fls. & Frts.* : April–September.

*Illus.* : Jayaweera in Dassan. & Fosb. *op.cit.*

*Distrib.* : Rare. Ratnagiri; Sindhudurg.

#### AERIDES Lour.

- |  |     |                       |
|--|-----|-----------------------|
| 1. Spur at base of lip   | ... | <i>A. dalze'liana</i> |
| 1. Spur distant from base of lip :                                 |     |                       |
| 2. Midlobe of lip small incurved between the much larger sidelobes | ... | <i>A. odoratum</i>    |

2. Midlobe of lip large, sidelobes small :
3. Lip deflexed ... *A. ringens*
3. Lip horizontal or inflexed :
4. Spur long ... *A. maculosum*
4. Spur short:
5. Midlobe of lip hastately ovate, tip rounded ... *A. multiflorum*
5. Midlobe of lip broadly ovate-oblong,  
obscurely 3-lobed, crenate or toothed ... *A. crispum*

***Aerides crispum*** Lindl. Gen. Sp. Orchid. 239. 1833; Hook. f. Fl. Brit. India 6: 45. 1890; Cooke, Fl. Pres. Bombay 3: 203. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 122. 1966. '*Pan-Shing*', '*Ruk-Shing*'

Stems 10–25 cm long, thick, sheathed. Leaves 4–24 x 0.5–3.0 cm, thickly coriaceous, oblong, with 2 unequal rounded lobes at apex. Inflorescence 10–30 cm long, erect or drooping. Flowers c 3 cm across, pinkish–white, bracteate, pedicellate. Capsules 2.0–3.5 x 0.6 cm, oblong–ellipsoid, strongly ridged.

*Fls. & Frts.* : May–October.

*Illus.* : Wight, Ic. t. 1677. 1851 (*A. lindleyana*); Fyson, Fl. Nilgiri Pulney Hill tops 2: t. 248. 1915 (Repr. ed. 1974).

*Distrib.* : Ahmednagar; Kolhapur; Nasik; Pune; Raigad; Satara; Sindhudurg; Thane.

***A. dalzelliana*** (Sant.) Garay in Bot. Mus. Leaflet. Harv. Univ. 23(4): 158. 1972. *Sarcochilus dalzelliana* Sant. in Kew Bull. 1949: 498. 1949. *Saccolabium viridiflorum* (Dalz.) Lindl. in J. Linn. Soc. 3: 36. 1858; Hook. f. Fl. Brit. India 6: 63. 1890. *Sarcochilus viridiflorus* T. Cooke, Fl. Pres. Bombay 2: 697. 1907 [3:201. 1958 (Repr. ed.)] *non* Hook. f. 1890. *Smithsonia viridiflora* (Dalz.) Sald. in J. Bombay nat. Hist. Soc. 71:75. 1974.

Stems short, sheathed. Leaves usually 2 with a small one in between, 2–9 x 1–2 cm, elliptic–lanceolate, tapering at base, entire, unequally bilobed at apex, lobes entire. Racemes corymbose, umbellate at apex of peduncle. Flowers greenish–white, pedicellate, bracteate. Capsules 3–5 cm long, narrowly fusiform, ribbed, purplish–brown.

*Fls. & Frts.* : May–March.

*Illus.* : Sant. & Kap. *op.cit.*

*Distrib.* : Dhule; Kolhapur; Pune; Satara; Sindhudurg; Thane.



**A. maculosum** Lindl. in Edw. Bot. Reg. t. 58. 1845; Hook. f. Fl. Brit. India 6: 45. 1890; Cooke, Fl. Pres. Bombay 3: 203. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 120, t. 30. 1966.

Stems 1.0–1.5 cm thick, sheathed. Leaves channelled, coriaceous, 3–23 x 0.8–3.0 cm, linear-oblong, broadest at middle, with 2 unequal, rounded lobes at apex. Inflorescence up to 24 cm long, simple or branched. Flowers c 2.5 cm in diam., pink, pedicelled, bracteate. Capsules 2–5 x 0.6–1.0 cm, obovoid, strongly ribbed, shortly stalked.

*Fls. & Frts.* : May–October.

*Illus.* : Wight, Ic. tt. 1675–76. 1851 (*Saccolabium speciosum*); Sant. & Kap. *op.cit.*; Sald. in Sald. & Nicols. Fl. Hassan Dt. 813, f. 122. 1976.

*Distrib.* : Ahmednagar; Amaravati; Kolhapur; Nasik; Pune; Raigad; Ratnagiri; Satara; Sindhudurg; Thane.

**A. multiflorum** Roxb. Pl. Cor. 3: 68, t. 271. 1820; Hook. f. Fl. Brit. India 6: 44. 1890; Mukerjee in Bull. Bot. Surv. India 14: 94. 1972.

Stems 10–25 cm long, stout. Leaves imbricate, narrowly oblong, 15–25 cm long, deeply channelled, keeled, apex 2-lobed. Flowers 2–3 cm in diam., pink or rose-purple, in axillary racemes longer than leaves, decurved. Capsules 1.75–2.0 cm long, subclavate, stoutly pedicelled.

*Fls. & Frts.* : April–June.

*Illus.* : Bose & Bhatt. Orchid. India 58. 1980.

*Distrib.* : Pune; Satara.

**A. odoratum** Lour. Fl. Cochinch. 525. 1790; Hook. f. Fl. Brit. India 6: 47. 1890; Cooke, Fl. Pres. Bombay 3: 204. 1958 (Repr.ed.); Holtt. Rev. Fl. Malaya 1: 698, f. 215. 1957.

Stems 10–30 cm long, stout. Leaves 15–30 x 2.5–4.5 cm, flat, keeled, oblong, blunt, obtusely 2-lobed at apex. Flowers fragrant, white with pink spots, in supra-axillary, deflexed, many-flowered racemes, as long as or longer than leaves; spur hollow, decurved. Capsules 2.5–3.7 cm long, oblong-clavate, angles obtuse.

*Fls. & Frts.* : May–July.

*Illus.* : Holtt. *op.cit.*; Bose & Bhatt. Orchid. India 59. 1980.

*Distrib.* : Konkan (Hook. f. *op.cit.*); Pune.

**A. ringens** (Lindl.) C.E.C. Fischer in Kew Bull. Misc. Inf. Kew 1928: 284. 1928; Sant. & Kap. Orch. Bombay 119, t. 29. 1966.

*Saccolabium ringens* Lindl. Gen. Sp. Orchid. 221. 1833. *Aerides radicosum* A. Rich. in Ann. Sci. Nat. 2,15: 65, t.i.c. 1841; Hook. f. Fl. Brit. India 6: 46. 1890; Cooke, Fl. Pres. Bombay 3: 204. 1958 (Repr. ed.). *A. linearis* Hook. f. *op.cit.* 47.

Stems 1.0–1.5 cm thick, sheathed. Leaves 5–21 x 0.3–0.7 cm, coriaceous, channelled, linear or linear-oblong, bilobed at apex. Racemes 6–26 cm long, erect, rigid, often branched. Flowers pink or mauve, pedicellate, bracteate, c 1.5 cm long. Capsules c 1.5 x 0.6 cm, obovoid-oblong, strongly ribbed.

*Fls. & Frts.* : March–July.

*Illus.* : Wight, Ic. t. 1678. 1851 (*Saccolabium paniculatum*); Sant. & Kap. *op.cit.*; Jayaweera in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 2: 206, f. 91. 1981; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 713. 1982.

*Distrib.* : Rare. Bombay; Satara.

#### BULBOPHYLLUM Du Petit–Thou. (*nom. cons.*)

- |  |     |                         |
|--|-----|-------------------------|
| 1. Pseudobulbs with 2 or more thin, membranous leaves;<br>leaves deciduous during flowering; flowers umbellate | ... | <i>B. fimbriatum</i>    |
| 1. Pseudobulbs with a single thick coriaceous leaf on top;<br>leaves persistent; flowers in racemes            | ... | <i>B. neilgherrense</i> |

***Bulbophyllum fimbriatum*** (Lindl. ) Reichb. f. in Walp. Ann. 6: 260. 1861; Sald. in Sald. & Nicols. Fl. Hassan Dt. 814. 1976. *Cirrhopetalum fimbriatum* Lindl. in Edw. Bot. Reg. Misc. 24: 72. 1839; Hook. f. Fl. Brit. India 5: 774. 1890; Cooke, Fl. Pres. Bombay 3: 188. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 198, t. 48. 1966.

Rhizomes 0.2–0.4 cm thick, brown, woody, bearing pseudobulbs, up to 2 cm apart. Pseudobulbs 1.0–2.5 x 0.8–2.0 cm, yellow, conical-ovoid, irregularly and longitudinally grooved. Leaves 4–12 x 1.1–2.0 cm, oblong-lanceolate or elliptic, acute, margins whitish, minutely papillate. Scape 8–20 x 0.1–0.2 cm. Flowers greenish or creamy-purple, c 2 cm long, bracteate, pedicellate. Capsules 1.0–1.2 x 0.6 cm, ob-pyriform, green.

*Fls. & Frts.* : June–April.

*Illus.* : Wight, Ic. t. 1665. 1851; Sant. & Kap. *op.cit.* (*Cirrhopetalum fimbriatum*).

*Distrib.* : Pune; Satara; Sindhudurg.

***B. neilgherrense*** Wight, Ic. t. 1650. 1851; Hook. f. Fl. Brit. India 5: 761. 1890; Cooke, Fl. Pres. Bombay 3: 189. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 195, t. 47. 1966.

Epiphytes or lithophytes. Rhizomes 0.2–0.3 cm thick, creeping, producing at intervals a pseudobulb and a cluster of roots. Pseudobulbs 2–8 x 2–3 cm, ovoid or conical-ovoid, yellowish-green, irregularly 3–5-angled. Leaves 4–15 x 1.5–3.5 cm, oblong or elliptic, obtuse, emarginate or entire. Inflorescence up to 12 cm long, arising from base of a pseudobulb, somewhat drooping, dense. Flowers c 1.5 cm long, dull yellow, pedicellate, bracteate.

*Fls.* : July–December.

*Illus.* : Wight, *op. cit.*; Sant. & Kap. *op.cit.*; Joseph in Rec. Bot. Surv. India 22: 93, f. 74a–74b. 1982.

*Distrib.* : Bombay; Pune; Sindhudurg.

#### CHEIROSTYLIS Bl.

- |   |     |                      |
|---|-----|----------------------|
| 1. Racemes puberulous, 8–10-flowered; petals oblong-obovate             | ... | <i>C. parvifolia</i> |
| 1. Racemes glandular-pubescent, 2–3-flowered; petals lanceolate-falcate | ... | <i>C. flabellata</i> |

*Cheirostylis flabellata* Wight, Ic. t. 1727. 1852; Hook. f. Fl. Brit. India 6: 105. 1890; Cooke, Fl. Pres. Bombay 3: 214. 1958 (Repr. ed.); Jayaweera in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 2: 300, f. 133. 1981.

Herbs, 10–20 cm high, internodes swollen. Leaves thin, petiolate, 2–4, 0.9–2.0 x 0.7–1.2 cm, ovate, apex acute, base rounded or subcordate, 3-nerved. Flowers white c 1.0 x 0.6 cm, in long-peduncled, terminal, 2 or 3-flowered racemes. Capsules 0.5–3.5 cm long, globular or pyriform.

*Fls. & Frts.* : November.

*Illus.* : Wight, *op.cit.*; Jayaweera in Dassan. & Fosb. *op.cit.*; Joseph, Orch. Nilgiris 64, t. 31. 1987.

*Distrib.* : Ratnagiri; Satara.

*C. parvifolia* Lindl. in Bot. Reg. Misc. 20. 1839; Hook. f. Fl. Brit. India 6:105. 1890; Jayaweera in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 2: 298, f. 132. 1981.

Terrestrial herbs, up to 15 cm tall; stems erect or prostrate; internodes short, green, upper ones enclosed in hyaline sheaths. Leaves petiolate, ovate or ovate-lanceolate, membranous, acuminate at apex. Flowers pinkish-white, in 8–10-flowered racemes; lip longer than sepals, column with 2 parallel appendages in front.

*Fls. & Frts.* : November – February.

*Illus.* : Jayweera in Dassan. & Fosb. *op. cit.*

*Distrib.* : Rare. Sindhudurg ( S. M. Almeida, Fl. Savantwadi 2: 5–6.1990).

#### CLEISOSTOMA Bl.

**Cleisostoma tenuifolium** (L.) Garay in Bot. Mus. Leaflet. Harv. Univ. 23(4): 175. 1972. *Epidendrum tenuifolium* L. Sp. Pl. 952. 1753. *Sarcanthus peninsularis* Dalz. in Hook. Kew J. Bot. 3: 343. 1851; Hook. f. Fl. Brit. India 6: 67.1890; Cooke, Fl. Pres. Bombay 3: 210. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 230, t. 53. 1966.

Epiphytes, pendulous; stems 20–24 cm long. Leaves 6–12 x 0.6–1.0 cm, linear-oblong, fleshy, notched and acuminate at tip. Flowers reddish-yellow, in downwards pointing, leaf opposed racemes; sepals spreading, fleshy, yellow with red margins, broadly oblong; petals fleshy, oblong, lip white, 3-lobed, midlobe triangular, larger than lateral ones, spur arched. Capsules 1.7–1.9 x 0.6–0.8 cm, narrowly oblong, almost sessile, strongly ribbed.

*Fls.* : June–July. *Frts.* : November.

*Illus.* : Wight, Ic. t. 1747. (May)1851 (*Sarcanthus pauciflorus*); Sant. & Kap. *op.cit.*

*Distrib.* : Rare in evergreen forests. Sindhudurg.

#### COELOGYNE Lindl. ("Caelogyne")

**Coelogyne nitida** ( Wall. ex D. Don) Lindl. Gen. Sp. Orchid. 40. 1830; S. Das & Jain in Fasc. Fl. India 5: 19, t. 1 (2), figs. 5a & b. 1980. *Cymbidium nitidum* Wall. ex D. Don, Prodr. Fl. Nepal. 35. 1825. *Coelogyne ochracea* Lindl. in Edw. Bot. Reg. 32: t. 69. 1846; Hook. f. Fl. Brit. India 5: 831. 1890.

Pseudobulbs 2.4–6.0 x 0.8–3.5 cm, oblong, subquadrangular. Leaves petioled, 7.0–21.5 x 1.5–3.5 cm. Inflorescence 11–24 cm long, 4–8-flowered. Flowers 2.5–5.3 cm across, white.

*Fls. & Frts.* : March–June.

*Illus.* : King & Pantl. in Ann. Roy. Bot. Gard. Calcutta 8: 132, t. 182. 1898 (*Coelogyne ochracea*).

*Distrib.* : Rare. Pune.

## COTTONIA Wight

*Cottonia peduncularis* (Lindl.) Reichb. f. in Cat. Orchid. Schiller 52. 1857; Sant. & Kap. Orch. Bombay 222. 1966. *Vanda peduncularis* Lindl. Gen. Sp. Orchid. 216. 1833. *Cottonia macrostachya* Wight, Ic. t. 1755. 1851; Hook. f. Fl. Brit. India 6: 26. 1890; Cooke, Fl. Pres. Bombay 3: 206. 1958 (Repr. ed.).

Stems 0.7–1.0 cm thick, closely sheathed. Leaves 5–17 x 1–2 cm, lorate, spreading, sessile, narrowly elliptic-oblong, entire, coriaceous, keeled on underside and abruptly ending in 2 unequal rounded lobes with a broad acute sinus in between. Flowers brownish-yellow, few, in a raceme at apex of branches of peduncle, bracteate, pedicellate. Capsules 5–6 x 0.5–0.7 cm, oblong-fusiform, strongly ribbed.

*Fls. & Frts.* : January–May.

*Illus.* : Wight, *op.cit.*; Jayaweera in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 2: 262, f. 116. 1981.

*Distrib.* : Pune; Sindhudurg; Thane.

## CYMBIDIUM Swartz

*Cymbidium aloifolium* (L) Swartz in Nov. Act. Reg. Soc. Sci. Upsal. 2, 6: 73. 1799; Hook. f. Fl. Brit. India 6: 10. 1890; Cooke, Fl. Pres. Bombay 3: 199. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 206. 1966; Seth in Kew Bull. 37: 399. 1982. *Epidendrum aloifolium* L. Sp. Pl. 953. 1753. *Cymbidium intermedium* Jones in Reinwardtia 9:71.1974.

Epiphytes. Pseudobulbs 4–6 cm long, ovoid, sheathed by leaf bases. Leaves 20–55 x 1–3 cm, coriaceous, oblong, entire, with a prominent midnerve, tapering at base into a 4–10 cm long petiole, apex notched, with 2 unequal rounded lobes. Inflorescence 25–45 cm long, racemes pendulous, sheathed at base. Flowers yellowish-red, bracteate, pedicelled. Capsules c 6.5 x 2.5 cm, ovoid or ellipsoid, longitudinally and shallowly grooved.

*Fls. & Frts.* : May–June.

*Illus.* : Wight, Ic. t. 1753. 1852 (*C. erectum*); Jayaweera in Dassan. Fosb. Rev. Handb. Fl. Ceylon 2: 184, f. 82. 1981; Matthew, Illus. Fl. Tamilnadu Carnatic 2: tt. 721 & 977b. 1982.

*Distrib.* : Bombay; Pune; Raigad; Satara; Sindhudurg.

DENDROBIUM O. Swartz (*nom.cons.*)

- |   |     |                         |
|---|-----|-------------------------|
| 1. Mentum absent  | ... | <i>D. lawianum</i>      |
| 1. Mentum present :   |     |                         |
| 2. Inflorescence terminal or both terminal and lateral :  |     |                         |
| 3. Flowers large, 7.5–12.5 cm in diam.  | ... | <i>D. formosum</i>      |
| 3. Flowers small or medium sized :  |     |                         |
| 4. Stem copiously branched  | ... | <i>D. herbaceum</i>     |
| 4. Stem simple or nearly so :   |     |                         |
| 5. Petals much broader than dorsal sepals :   |     |                         |
| 6. Flowers yellow or buff coloured;<br>bracts ovate   | ... | <i>D. ovatum</i>        |
| 6. Flowers white or with a pinkish tinge;<br>bracts lanceolate  | ... | <i>D. barbatulum</i>    |
| 5. Petals not broader than dorsal sepals :  |     |                         |
| 7. Leaves fleshy; peduncles short, somewhat thick; mid-lobe of lip acute  | ... | <i>D. peguanum</i>      |
| 7. Leaves thin, membranous; peduncles 4–5 cm long, filiform, slender; mid-lobe of lip rounded, obtuse or retuse : |     |                         |
| 8. Peduncles straight; bracts equalling pedicels; lip pink with deep purple veins                                 | ... | <i>D. microbulbon</i>   |
| 8. Peduncles zigzag; bracts shorter than pedicels; lip creamish with pink veins                                   | ... | <i>D. nanum</i>         |
| 2. Inflorescence lateral on stem or pseudobulb :  |     |                         |
| 9. Flowers white or more or less purple :   |     |                         |
| 10. Petals as narrow as the sepals or narrower; lip narrower than broad   | ... | <i>D. macrostachyum</i> |
| 10. Petals much broader than the sepals; lip as broad as long or broader :  |     |                         |
| 11. Petals oblong   | ... | <i>D. aphyllum</i>      |
| 11. Petals obovate :  |     |                         |
| 12. Lip sessile, distinctly 3-lobed   | ... | <i>D. aqueum</i>        |
| 12. Lip shortly clawed, obscurely 3-lobed   | ... | <i>D. crepidatum</i>    |
| 9. Flowers golden yellow or pale pink :   |     |                         |
| 13. Stems terete :  |     |                         |
| 14. Base of lip truncate  | ... | <i>D. fimbriatum</i>    |

14. Base of lip cuneate ... *D. hookerianum*
13. Stems clavate :
15. Mentum subglobose ... *D. densiflorum*
15. Mentum rounded ... *D. farmeri*

**Dendrobium aphyllum** (Roxb.) C. E. C. Fischer in Gamble, Fl. Pres. Madras 1416. 1928 [3: 991. 1957 (Repr. ed.)]. *Limodorum aphyllum* Roxb. Pl. Cor. t. 41.1795. *Dendrobium pierardi* Roxb. in Hook. Exot. Fl. t. 9. 1822; Hook. f. Fl. Brit. India 5: 738. 1890; Cooke, Fl. Pres. Bombay 3: 187. 1958 (Repr. ed.); Holtt. Rev. Fl. Malaya 1: 292, f. 70. 1957.

Stems slender, pendulous, 60–90 cm long. Leaves sessile, ovate-lanceolate, the lowermost 10.0–12.5 cm long, gradually smaller upwards, deciduous. Flowers 2.5–5.0 cm across, usually in pairs.

*Fls. & Frts.* : April–June.

*Illus.* : Holtt. *op.cit.*

*Distrib.* : Pune; Satara.

**D. aqueum** Lindl. in Edw. Bot. Reg. Misc. 6, t.54.1843; Hook. f. Fl. Brit. India 5: 739. 1890; Cooke, Fl. Pres. Bombay 3: 187. 1958 (Repr. ed.); Gammie in J. Bombay nat. Hist. Soc. 35: 264. 1931; Sant. & Kap. Orch. Bombay 99, t. 24. 1966.

Pendulous herbs; pseudobulbs 15–45 cm long, thin at base, gradually thickening upwards; internodes sheathed. Leaves alternate, distichous, 7–14 x 2–5 cm, sessile, oblong or oblong-elliptic or ovate-lanceolate, acute, entire, 8–10-nerved. Inflorescence of fascicles of 2–3 flowers from upper portion of each node. Flowers c 3.5 x 3.0 cm, pedicellate, bracteate. Capsules c 4.0 x 1.8 cm, obovoid-pyriform, with 6 strong ridges, greyish-green.

*Fls. & Frts.* : September–May.

*Illus.* : Wight, Ic. t. 1645. 1851 (*D. album*); Sant. & Kap. *op.cit.*

*Distrib.* : Ahmednagar; Kolhapur; Nasik; Pune; Satara; Thane.

*Note* : Cooke (*op.cit.*) included this under cultivated species.

**D. barbatulum** Lindl. Gen. Sp. Orchid. 84. 1830; Hook. f. Fl. Brit. India 5: 719. 1890; Cooke, Fl. Pres. Bombay 3: 184. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 93, t. 22. 1966.

Pseudobulbs 1.5–3.2 cm long, leafless during flowering, one-to several-noded. Leaves 4.5–13.0 x 1.5–3.5 cm, alternate, distichous, sheathing at base, lanceolate to ovate-lanceolate, acute, entire. Racemes 1–27-flowered, up to 25 cm long, erect. Flowers 2.5–4.0 x 2.5–4.5 cm. Capsules c 2.2 x 1.2 cm, ellipsoid, greenish-purple with 3 broad and 3 narrow bands, beaked.

*Fls. & Frts.* : January–July.

*Illus.* : Sant. & Kap. *op. cit.*

*Distrib.* : Kolhapur; Nasik; Pune; Raigad; Ratnagiri; Satara; Sindhudurg; Thane.

**D. crepidatum** Lindl. in Paxt. *Fl. Gard.* 1: 63, f. 45. 1850; Hook. f. *Fl. Brit. India* 5: 740. 1890; Cooke, *Fl. Pres. Bombay* 3: 185. 1958 (Repr. ed.); Sant. & Kap. *Orch. Bombay* 101. 1966. '*Bechu*', '*Nangli*'

Pendulous epiphytes. Pseudobulbs greenish-yellow, 8–20 x 0.6–2.0 cm, narrow at base, thickening upwards. Leaves 4–11 x 0.5–1.5 cm, membranous., sheathing, oblong-lanceolate, acute, entire, many-nerved. Flowers c 3.5 cm across, in pairs from nodes of apical parts of pseudobulbs, pedicellate, yellowish-white. Capsules c 1.5 cm long, fusiform.

*Fls. & Frts.* : September–May.

*Illus.* : Bose & Bhatt. *Orchid. India* 205. 1980.

*Distrib.* : Kolhapur; Pune; Raigad; Satara; Sindhudurg.

**D. densiflorum** Wall. ex Lindl. in Wall. *Pl. As. Rar.* 1: 34, t. 40. 1830; Hook. f. *Fl. Brit. India* 5: 748. 1890.

Stems 30–45 cm high, narrowly clavate. Leaves subterminal, 10–15 cm long, acute. Flowers c 5 cm across, white or yellow, crowded in decurved racemes. Capsules c 7.5 cm long.

*Illus.* : Bose & Bhatt. *Orchid. India* 208. 1980.

*Distrib.* : Pune.

**D. farmeri** Paxt. in *Bot. Mag.* 15: 241. 1849; Hook. f. *Fl. Brit. India* 5: 750. 1890; Cooke, *Fl. Pres. Bombay* 3: 188. 1958 (Repr. ed.); Holtt. *Rev. Fl. Malaya* 1: 282, f. 65. 1957.

Stems 25–45 cm long, clavate, 4-angled. Leaves 2–4, 10–20 cm long, near apex of stems, elliptic-oblong, persistent. Flowers c 5 cm across; lip suborbicular; disk deep yellow.



*Illus.* : Holtt. *op. cit.*; Bose & Bhatt. Orchid. India 211.1980.

*Distrib.* : Rare. Pune.

**D. fimbriatum** Hook. Exot. Fl. 1: t. 71. 1823; Hook. f. Fl. Brit. India 5: 745. 1890; Mukerjee in Bull. Bot. Surv. India 14: 96. 1972.

Stems c 1 m high, base swollen. Leaves 15–20 cm long, lanceolate, acuminate. Flowers 5.0–7.5 cm across, in pendulous racemes usually on leafy stems.

*Illus.* : Bose & Bhatt. Orchid. India 212. 1980.

*Distrib.* : Rare. Pune.

**D. formosum** Roxb. ex Lindl. in Wall. Pl. As. Rar. 1: 34, t. 39. 1830; Hook. f. Fl. Brit. India 5: 721. 1890; Cooke, Fl. Pres. Bombay 3: 186.1958 (Repr. ed.); Mukerjee in Bull. Bot. Surv. India 14: 96. 1972.

Stems 30–45 cm long, cylindrical, stout, sheaths pubescent. Leaves c 12.5 cm long, ovate-oblong, amplexicaul, unequally 2-lobed at apex. Flowers white, in terminal racemes; lip broadly obovate, entire.

*Fls. & Frts.* : May–June.

*Illus.* : Bose & Bhatt. Orchid. India 213. 1980.

*Distrib.* : Rare. Pune.

**D. herbaceum** Lindl. in Edw. Bot. Reg. 26: 69. 1840; Hook. f. Fl. Brit. India 5: 719. 1890; Cooke, Fl. Pres. Bombay 3: 184. 1958 (Repr. ed.); Sant & Kap. Orch. Bombay 82, t. 17. 1966.

Epiphytic herbs. Pseudobulbs 30–90 x 0.7–1.5 cm, thickening upwards. Leaves 3–11 x 0.4–1.3 cm, sessile, sheathing at base, caducous, alternate, distichous, linear-oblong or lanceolate, acute or subobtuse, entire. Inflorescence appearing after leaf-fall, 2–5-flowered terminal. Flowers c 0.7 x 1.0 cm, greenish–white, pedicellate, bracteate. Capsules c 1.8 x 0.4 cm, narrowly fusiform, broad at apex, sharply tapering towards base.

*Fls. & Frts.* : September–April.

*Illus.* : Wight, Ic. t. 1648. 1851 (*D. ramosissimum*); Sant. & Kap. *op.cit.*

*Distrib.* : Ahmednagar; Nasik; Pune; Satara; Sindhudurg; Thane.

**D. hookerianum** Lindl. in J. Linn. Soc. 3: 8. 1859; Hook. f. Fl. Brit. India 5: 745. 1890.

Pseudobulbs up to 20 cm long, terete, base swollen. Leaves 5–15 cm long, oblong–lanceolate, acuminate. Flowers 5–10 cm across, golden yellow with purple blotches, in pendulous racemes. Capsules c 7.5 cm, fusiform.

*Illus.* : Bose & Bhatt. Orchid. India 218.1980.

*Distrib.* : Rare. Pune.

**D. lawianum** Lindl. in J. Linn. Soc. 3: 10. 1859 ('*lawanum*'); Sant. & Kap. Orch. Bombay 102, t. 25.1966. *D. crepidatum sensu* Hook. f. Fl. Brit. India 5: 740. 1890, *p.p. non* Lindl. 1850.

Pendulous epiphytes. Pseudobulbs 5–25 cm long, leafless at time of flowering. Leaves 4.5–10.5 x 0.5–1.7 cm, distichous, sessile, sheathing at base, lanceolate or oblong– lanceolate, acute, entire, usually with 5 prominent nerves and several faint ones. Flowers subregular, shallowly cupshaped, from nodes in pairs or solitary, white. Capsules c 2 x 1 cm, ovoid, pale–green, ribbed, surmounted by the hardened pale brown column.

*Fls. & Frts.* : March–May.

*Illus.* : Sant. & Kap. *op.cit.*

*Distrib.* : Satara; Sindhudurg.

**D. macrostachyum** Lindl. Gen. Sp. Orchid. 78. 1830; Hook. f. Fl. Brit. India 5: 735. 1890; Cooke, Fl. Pres. Bombay 3: 185. 1958 (Repr.ed.); Sant. & Kap. Orch. Bombay 96, t. 23. 1966; Jayaweera in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 2: 90, t.41.1981.

Pendulous epiphytes. Pseudobulbs leafless during flowering, 7–50 cm long. Leaves alternate, distichous, somewhat coriaceous, completely and closely sheathing the node below, 2–9 x 0.3–2.5 cm, narrowly oblong or ovate–lanceolate, acute, entire. Inflorescence solitary or in cymes. Flowers c 2.5 x 2.0 cm, pedicellate. Capsules 3.5–4.0 x 0.6 cm, narrowly spindle–shaped, beaked.

*Fls. & Frts.* : May–December.

*Illus.* : Wight, Ic. t. 1647. 1851; Sant. & Kap. *op.cit.*; Jayaweera in Dassan. & Fosb. *op.cit.*

*Distrib.* : Pune; Satara; Sindhudurg.

**D. microbulbon** A. Rich. in Ann. Sci. Nat. 2, 15:19, t. 8. 1841; Hook. f. Fl. Brit. India 5: 716. 1890; Cooke, Fl. Pres. Bombay 3: 183. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 87, t. 19.1966.

Pseudobulbs 1–2 x 1 cm, crowded, mauve–brown, leafless during flowering, conical, 1–3–jointed. Leaves caducous, 2–14 x 0.3–1.3 cm, sessile, sheathing at base, linear to oblong–lanceolate, acute, entire, 1–nerved. Inflorescence in racemes, 1.5–10.0 cm long, erect, 1–3 at apex of pseudobulb. Flowers 1.0–1.2 x 0.7–0.8 cm. Capsules c 1.0 x 0.6 cm, ovoid or obovoid.

*Fls. & Frts.* : December–May.

*Illus.* : Wight, Ic. t. 1643. 1853 (*D. humile*); Sant. & Kap. *op.cit.*

*Distrib.* : Kolhapur; Nasik; Pune; Raigad; Ratnagiri; Satara; Sindhudurg; Thane.

*D. nanum* Hook. f. in Hook. Ic. Pl. 19: t. 1853. 1889 & Fl. Brit. India 5: 717. 1890. *D. mabelae* Gammie in J. Bombay nat. Hist. Soc. 16: 567. 1905 & 35: 262. 1931; Cooke, Fl. Pres. Bombay 3: 183. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 89, t. 20. 1966.

Epiphytes. Pseudobulbs 1–4 x 0.7–2.0 cm, yellowish–green, ovoid–conical, 1–4–noded. Leaves 2–4, alternate, distichous, subcoriaceous, sessile, sheathing at base, 3–8 x 0.4–0.8 cm, oblong or oblong–lanceolate, obtuse, entire. Inflorescence 1–3 per plant, 5–12 cm long. Flowers c 1.5 x 1.0 cm, brown or brownish–green. Capsules c 2.5 x 0.7 cm, stalked, ovoid, ribbed.

*Fls. & Frts.* : July–April.

*Illus.* : Sant. & Kap. *op.cit.*; Joseph in Rec. Bot. Surv. India 22: 100, f. 83a–83c. 1982; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 710. 1982.

*Distrib.* : Nasik; Satara.

*D. ovatum* (Willd.) Kranzl. In Engl. Pflanzenr. 45: 71. 1910; Sant. & Kap. Orch. Bombay 91, t. 21. 1966. *Cymbidium ovatum* Willd. Sp. Pl. 4: 101. 1805. *Dendrobium chlorops* Lindl. in Edw. Bot. Reg. 44. 1844; Hook. f. Fl. Brit. India 5: 719. 1890; Cooke, Fl. Pres. Bombay 3: 184. 1958 (Repr. ed.).

Pseudobulbs up to 50 cm long, mauve–brown, leafless during flowering. Leaves alternate, membranous, sheathing at base, 5–11 x 1.2–3.0 cm, elliptic–oblong or oblong–lanceolate, acute, entire. Inflorescence in racemes from apex of pseudobulb; racemes 3–15 cm long, several–flowered. Flowers c 1.5 cm across. Capsules c 1.8 x 0.8 cm, oblong–ovoid, purple, ribbed.

*Fls. & Frts.* : September–March.

*Illus.* : Wight, Ic. t. 910. 1844–45 non Lindl. 1830 (*D. barbatulum*); Sant. & Kap. *op.cit.*

*Distrib.* : Kolhapur; Nasik; Pune; Raigad; Ratnagiri; Satara; Sindhudurg; Thane.

**D. peguanum** Lindl. In J. Proc. Linn. Soc. 3: 19. 1859; Sant. & Kap. Orch. Bombay 84, t. 18. 1966. *D. pygmaeum* Lindl. Gen. Sp. Orchid. 85. 1830 non J.E. Sm. ex Rees 1808; Hook. f. Fl. Brit. India 5: 717. 1890. *D. microbulbon* Blatt. & McC. in J. Bombay nat. Hist. Soc. 35: 262, f. 7. 1931 non A. Rich. 1845.

Pseudobulbs 1–6 cm long, ovoid–conical to oblong–ovoid, up to 2 cm in diam., usually 2–4–noded. Leaves 2–4, 2.5–5.0 x 0.6–2.0 cm, sessile, broadly elliptic or elliptic–oblong, subacute or obtuse. Racemes 1–5, arising from apex of pseudobulb, with a few scarious, sheathing bracts at base, 1–flowered, up to 7 cm long. Flowers c 1.2 cm long, shortly pedicellate, bracteate. Capsules c 0.7 x 0.5 cm, dark brown, ribbed.

*Fls. & Frts.* : October–March.

*Illus.* : Blatt. & McC. *op. cit.*; Sant. *et al.* in J. Bombay nat. Hist. Soc. 55: 484, t. 5. 1958; Sant. & Kap. *op. cit.*

*Distrib.* : Bombay; Nasik; Pune; Thane.

#### DIPLOCENTRUM Lindl.

**Diplocentrum recurvum** Lindl. in Edw. Bot. Reg. 18: sub t. 1522. 1832; Hook. f. Fl. Brit. India 6: 78. 1890; Jayaweera in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 2: 225. 1981.

Epiphytes with 5–15 cm long, stout, non–pseudobulbous, leafy stems; internodes short. Leaves 10–15 x 0.6–0.8 cm, linear, recurved, keeled, unequally and obtusely bifid at apex. Flowers pink, 0.4–0.6 cm broad, crowded towards ends of branches, in shortly peduncled, branched, long–spreading, decurved, many–flowered panicles. Fruits capsular, clavate, c 1.2 cm long.

*Fls. & Frts.* : May–July.

*Illus.* : Wight, Ic. : 1681. 1851 (*D. longifolium*); Joseph in Rec. Bot. Surv. India 22: 124, f. 105a–105b. 1982; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t. 719. 1982.

*Distrib.* : Scarce on trees. Pune; Sindhudurg.

ERIA Lindl. (*nom. cons.*)

- |   |     |                       |
|---|-----|-----------------------|
| 1. Flowers solitary                                 | ... | <i>E. reticosa</i>    |
| 1. Flowers in racemes or spikes :                   |     |                       |
| 2. Inflorescence white or yellowish tomentose       | ... | <i>E. pubescens</i>   |
| 2. Inflorescence not as above :                     |     |                       |
| 3. Pseudobulbs ovoid; scapes shorter than leaves    | ... | <i>E. mysorensis</i>  |
| 3. Pseudobulbs discoid; scapes longer than leaves : |     |                       |
| 4. Plants leafless at flowering; scapes zigzag      | ... | <i>E. exilis</i>      |
| 4. Plants leafy at flowering; scapes straight :     |     |                       |
| 5. Sepals and petals with capitate glands           | ... | <i>E. dalzellii</i>   |
| 5. Sepals and petals without glands                 | ... | <i>E. microchilos</i> |

*Eria dalzellii* (Hook. ex Dalz.) Lindl. in J. Linn. Soc. 3: 47. 1859; Hook. f. Fl. Brit. India 5: 789. 1890; Cooke, Fl. Pres. Bombay 3: 193. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 151, t. 35. 1966. *Dendrobium dalzellii* Hook. ex Dalz. in Hook. Kew J. Bot. 4: 292. 1852.

Pseudobulbs 0.8–1.5 cm in diam., discoid, principal veins white and flabellate. Leaves 3–5, sessile, sheathing at base, 1–7 x 0.7–1.0 cm, elliptic to oblanceolate, obtuse, minutely papillose at margins. Racemes 3–9 cm long, erect, generally secund or subsecund. Flowers greenish–yellow, bracteate. Capsules c 0.5 x 0.15 cm, ellipsoid to obovoid.

*Fls. & Frts.* : July–October.

*Illus.* : Wight, Ic. t. 1642. 1851 (*Dendrobium filiforme*); Sant. & Kap. *op.cit.*

*Distrib.* : Kolhapur; Nasik; Pune; Raigad; Ratnagiri; Satara; Sindhudurg; Thane.

*E. exilis* Hook. f. Fl. Brit. India 5: 788. 1890 & in Hook. Ic. Pl. t. 2074 A. 1891; Sant. & Kap. Orch. Bombay 150. 1966. *E. minima* Blatt. & McC. In J. Bombay nat. Hist. Soc. 35: 274, f. 2. 1931.

Pseudobulbs 0.3–1.2 cm across, flat, irregularly orbicular. Leaves sessile, 2–3, arising from a pseudostem, 0.2–0.3 cm high, lamina 0.2–2.5 x 0.2–1.1 cm, obovate–elliptic or oblong to obovate, tapering to a sheathing base, rounded apiculate at apex, margins entire, minutely papillose. Scape 1–4 cm long, flexuose, capillary. Flowers up to 12 in a raceme, each c 0.32 cm long, subsessile, greenish–white. Capsules c 0.5 x 0.15 cm, broadly ovoid, green, faintly ribbed.

*Fls. & Frts.* : October–May.

*Illus.* : Blatt. & McC. *op.cit.*

*Distrib.* : Rare. Satara.

*E. microchilos* (Dalz.) Lindl. in J. Linn. Soc. 3: 47. 1858; Cooke, Fl. Pres. Bombay 3: 194. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 154, t. 36. 1966. *Dendrobium microchilos* Dalz. in Hook. J. Bot. Kew Gard. Misc. 3: 345. 1851. *Eria dalzellii sensu* Hook. f. Fl. Brit. India 5: 789. 1890 *p.p. non* Lindl. 1858.

Pseudobulbs 0.4–1.0 cm across, pale green, discoid. Leaves 2–5, sessile, 1.5–8.0 x 0.2–6.0 cm, oblong–lanceolate or narrowly linear–oblong, distinctly tapering towards base, apex rounded, mucronulate. Scapes 0.25–0.8 cm long. Flowers pale yellowish–white. Capsules 0.3–0.35 x 0.2 cm, ribbed, stalked.

*Fls. & Frts.* : July–October.

*Illus.* : Sant. & Kap. *op.cit.*

*Distrib.* : Kolhapur; Nasik; Pune; Raigad; Satara; Thane.

*E. mysorensis* Lindl. in J. Linn. Soc. 3: 54. 1858; Hook. f. Fl. Brit. India 5: 793. 1890; Cooke, Fl. Pres. Bombay 3: 194. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 149. 1966. *E. pubescens* Wight, Ic. t. 1634. 1851 *non* Lindl. 1825; Hook. f. *op.cit.*

Pseudobulbs 2–3 x 1.2 cm, sheathed. Leaves 3–5, arising from apical portion of pseudobulbs, 5–15 x 1.2–2.0 cm, oblong– lanceolate or elliptic–lanceolate, acute, distinctly tapering at base. Scapes 1–2 per plant. Flowers 1.2–1.6 cm long, white.

*Fls.* : July–October.

*Illus.* : Wight, *op.cit.*; Joseph in Rec. Bot. Surv. India 22: 112, f. 94a–94b. 1982.

*Distrib.* : Konkan (Cooke, *op.cit.*); Satara.

*E. pubescens* (Hook.) Lindl. in Edw. Bot. Reg. 11: t. 904. 1825. *Dendrobium pubescens* Hook. Exot. Fl. 2: t. 124. 1824. *Eria flava* Lindl. Gen. Sp. Orchid. 65. 1830; Hook. f. Fl. Brit. India 5: 801. 1890; S.K. Mukerjee in Bull. Bot. Surv. India 14: 97. 1972.

Rhizome stout; pseudobulbs much compressed, 7–10 cm long, ridged. Leaves up to 5, c 22 cm long, narrowly oblong. Racemes erect, stout, from base of pseudobulbs, as long as leaves, sheathed at base, flowers yellow.

*Fls. & Frts.* : April–May.

*Distrib.* : Rare. Pune.

*E. reticosa* Wight, Ic. t. 1637. 1851; Hook. f. Fl. Brit. India 5: 787. 1890; Cooke, Fl. Pres. Bombay 3: 193. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 146, t. 34. 1966. *E. rupestris* Blatt. & McC. in J. Bombay nat. Hist. Soc. 35: 270, f. 6. 1931.

Pseudobulbs 0.7–1.5 cm across, discoid, sheath reticulate. Leaves appearing together with flowers, 2–7 x 0.8–2.0 cm, ovate, broadly oblong or oblong–lanceolate, tapering towards base, apex acute, mucronulate, entire. Scapes arising from sides of upper sheath. Flowers white. Capsules c 1.2 x 0.8 cm, oblong to obconical, truncate at apex, erect, ridges 6.

*Fls. & Frts.* : June–March.

*Illus.* : Wight, *op.cit.*; Blatt. & McC. *op. cit.*; Sant. & Kap. *op. cit.*; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 705. 1982.

*Distrib.* : Kolhapur; Pune; Satara; Sindhudurg.

*Notes* : Blatt. & McC. (*op.cit.*) distinguished *E. rupestris* from *E. reticosa* Wight on the basis of bilobed mentum and mid-lobe of lip oblong, obtuse, in the former against the entire mentum and ovate, acute mid-lobe of the lip in latter. However, in Wight (*op.cit.*) mentum of *E. reticosa* is emarginate. Therefore, after critical study, Sant. & Kap. (*op. cit.*) have merged it under *reticosa*.

EULOPHIA R. Br. ex Lindl. (*nom. cons.*)

- |    |   |     |                       |
|----|---|-----|-----------------------|
| 1. | Column with a distinct foot   | ... | <i>E. nuda</i>        |
| 1. | Column not as above :   |     |                       |
| 2. | Flowers appearing long before leaves  | ... | <i>E. dabia</i>       |
| 2. | Leaves and flowers appearing simultaneously or nearly so :                    |     |                       |
| 3. | Pseudobulbs very large, epigeal, green; leaves narrow; scape often branched : |     |                       |
| 4. | Sepals linear-oblong, yellowish-green   | ... | <i>E. epidendreae</i> |
| 4. | Sepals lanceolate, green  | ... | <i>E. graminea</i>    |
| 3. | Roots tuberous, hypogaeal; leaves elliptic–lanceolate; scape unbranched :     |     |                       |
| 5. | Lip broader than long; side lobes large                                       | ... | <i>E. ramentacea</i>  |

5. Lip longer than broad; side lobes short or absent :
6. Flowers c 1.2 cm long, deep yellow with a few brown spots; lip broadly ovate, entire ... *E. ochreatea*
6. Flowers 1.8–2.2 cm long, greenish–white, often flushed with pale mauve; lip 3-lobed ... *E. herbacea*

*Eulophia dabia* (D. Don) Hochr. in Bull. New York Bot. Gard. 6: 270. 1910; Sant. & Kap. Orch. Bombay 112. 1966. *Bletia dabia* D. Don, Prodr. Fl. Nepal. 30. 1825. *Eulophia campestris* Wall. ex Lindl. Gen. Sp. Orchid. 185. 1833; Hook. f. Fl. Brit. India 6: 4. 1890.

Pseudobulbs tuberous, oblong–orbicular, roots fleshy at junction of stem. Scapes 14–18 cm tall, erect; sheaths oblong, acute, closely appressed, 0.8–1.6 cm long. Racemes 5–11 cm long, lax, subsecund. Flowers c 1 cm long, erect. Capsules c 1.8 x 0.4 cm, oblong–obovoid, drooping.

*Fls. & Frts.* : January–April.

*Illus.* : Bose & Bhatt. Orchid. India 275. 1980 (*Eulophia campestris*).

*Distrib.* : Bombay; Nagpur.

*E. epidendreaea* ( Retz. ) C.E.C. Fischer in Gamble, Fl. Pres. Madras 1434. 1928 [3: 1003. 1957 (Repr. ed.)]; Sant. & Kap. Orch. Bombay 107, t. 26. 1966. *Serapias epidendreaea* Retz. Obs. Bot. 6: 65. 1791. *Eulophia virens* R. Br. in Edw. Bot. Reg. subt. 573. 1822; Hook. f. Fl. Brit. India 6: 1. 1890.

Pseudobulbs 3–11 x 2–5 cm, ovate–conical or obpyriform. Leaves alternate, distichous, sheathing at base, lamina 15–35 x 0.7–2.0 cm, linear or linear–lanceolate, apex acute or subacuminate, entire, subcarinate at base. Inflorescence up to 60 cm long, laxly many-flowered. Flowers pale greenish, tinged with maroon c 2.2 x 2.8 cm. Capsules c 4.5 x 1.1 cm, oblong, drooping, pale mauve with 3 pale green, broad bands.

*Fls. & Frts.* : November–March.

*Illus.* : Wight, Ic. t. 913. 1841–1845 (*Eulophia virens*); Sant. & Kap. *op.cit.*; Jayaweera in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 2: 169, f. 76. 1981; Matthew, *Illus. Fl. Tamilnadu Carnatic* 2: t. 722. 1982.

*Distrib.* : Rare. Sindhudurg.

*E. graminea* Lindl. Gen. Sp. Orchid. 182. 1833; Hook. f. Fl. Brit. India 6: 2. 1890; Bachulkar & Yadav in J. Econ. Tax. Bot. 17: 329. 1993.



Pseudobulbs 5–10 x 5–9 cm, conical, pyriform to almost spherical, green, marked with transverse lines of leaf bases. Leaves linear with sheathing leaf bases, lower reduced to sheaths, upper 7–27 x 1.5–2.5 cm. Scapes lateral, 1–2 per pseudobulb, 50–90 x 0.5–0.7 cm. Flowers in racemes. Capsules 2.0–2.5 x 0.7–0.8 cm, ellipsoid-oblong, drooping, yellowish-green.

*Fls. & Frts.* : July–September

*Illus.* : Jayaweera in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 2: 172, f. 77. 1981.

*Distrib.* : It grows in sugarcane fields among clumps of sugarcane around Sangli (Bachulkar & Yadav, *op. cit.* ).

**E. herbacea** Lindl. Gen. Sp. Orchid. 182. 1833; Hook. f. Fl. Brit. India 6: 2. 1890; Cooke, Fl. Pres. Bombay 3: 196. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 111. 1966.

Pseudobulbs tuberous, 2–3 cm in diam., ovoid to broadly conical, markings transverse, circular. Leaves 10–30 x 3–9 cm, usually 2–5 per plant, elliptic-lanceolate to broadly elliptic, acute or subacuminate, entire, many-nerved. Inflorescence 30–60 cm long, erect, arising in axil of a basal sheath from pseudostem. Flowers in lax racemes.

*Fls.* : July.

*Distrib.* : Bombay; Thane.

**E. nuda** Lindl. Gen. Sp. Orchid. 180. 1833; Hook. f. Fl. Brit. India 6: 5. 1890; Cooke, Fl. Pres. Bombay 3: 197. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 115. 1966. 'Ambarkand'.

Tubers spherical, brownish-green, 6 cm or more in diam., ridges transverse. Leaves from side of tuber forming a short pseudostem, c 60 x 6 cm, oblong-lanceolate, acute, entire, plicate. Inflorescence c 50 cm tall. Flowers greenish-purple, c 4.5 cm across in lax racemes. Capsules 5.0–5.5 x 1.5–1.8 cm, fusiform, ribbed.

*Fls. & Frts.* : April–July.

*Illus.* : Wight, Ic. t. 1690. 1851 (*Cyrtopera fusca*); Jayaweera in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 2: 176, f. 79. 1981.

*Distrib.*: Kolhapur; Satara; Sindhudurg.

**E. ochreatea** Lindl. in J. Linn. Soc. 3: 24. 1858; Hook. f. Fl. Brit. India 6: 2. 1890; Cooke, Fl. Pres. Bombay 3: 196. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 109, t. 27. 1966.



*Eulophia herbsacea* Lindl.

Pseudobulbs c 4.0 x 2.5 cm, ovoid-conical, markings irregular, transverse and longitudinal. Leaves 2-5, arising from base of pseudobulb, 13-28 x 4-10 cm, sheathing at base, oblong-lanceolate, lanceolate to ovate or ovate-elliptic, acute, entire. Scapes appearing with leaves from pseudostem, 25-45 cm long. Flowers in dense racemes, clustered at top of scape, c 1.5 cm across. Capsules c 2.8 x 1.2 cm, broadly ovoid, deflexed, strongly ridged, green.

*Fls. & Frts.* : June-October.

*Illus.* : Sant. & Kap. *op.cit.*

*Distrib.* : Amaravati; Bombay; Chandrapur; Kolhapur; Pune; Thane.

*E. ramentacea* Lindl. ex Wight,  *Ic. t.* 1666. 1852; Sant. & Kap. *Orch. Bombay* 113, t. 28.1966. *E. pratensis* Lindl. in *J. Linn. Soc.* 3: 25. 1858; Hook. f. *Fl. Brit. India* 6: 5. 1890; Cooke, *Fl. Pres. Bombay* 3: 197. 1958 (Repr.ed.). '*Satavri*'.

Pseudobulbs shortly pyramidal or irregularly 3-cornered. Leaves 2-4, appearing before flowers, 11-30 x 1-2 cm, narrowly oblong-lanceolate, acute. Scape 17-48 cm long, erect, from top or side of pseudobulb, 1-2-noded. Flowers pale maroon suffused with yellow, c 2.5 x 3.0 cm, in lax racemes. Capsules c 3.0 x 1.7 cm, drooping, obovoid-oblong, greenish-purple, bands 3, strong and longitudinal.

*Fls. & Frts.* : December-March.

*Illus.* : Sant & Kap. *op. cit.*

*Distrib.* : Kolhapur; Osmanabad; Pune; Raigad; Satara.

#### FLICKINGERIA Hawkes

*Flickingeria macraei* (Lindl.) Seid. in *Dansk. Bot. Ark.* 34: 39. 1980. *Dendrobium macraei* Lindl. *Gen. Sp. Orchid.* 75. 1830; Hook. f. *Fl. Brit. India* 5: 714.1890 p.p.; Cooke, *Fl. Pres. Bombay* 3: 182. 1958 (Repr.ed.); Sant. & Kap. *Orch. Bombay* 79, t. 16. 1966. '*Joivansi*'.

Stems long, creeping, annulate, profusely branched. Pseudobulbs 2-8 x 0.5-2.0 cm, linear-oblong, fusiform, green or yellow. Leaves 4-10 x 1.0-2.5 cm, sessile, ovate-lanceolate or oblong-elliptic, acute, obtuse or rarely subretuse. Flowers white with a pinkish tinge, obtuse or rarely subretuse. Flowers white with a pinkish tinge, axillary. Capsules 3.5-5.0 cm long, oblong, yellow, ridged.

*Fls. & Frts.* : July–October.

*Illus.* : Sant. & Kap. *op.cit.*; Joseph in Rec. Bot. Surv. India 22: 89, f. 73a–73c. 1982 [*Ephemerantha macraei* (Lindl.) P.F. Hunt & Summerh. in Taxon 10: 105. 1961].

*Distrib.* : Pune; Satara; Sindhudurg.

#### GASTROCHILUS D. Don

*Gastrochilus calceolaris* (Buch.–Ham. ex J. E. Sm.) D. Don, Prodr. Fl. Nepal. 32. 1825; Joseph, Orch. Nilgiris 123, t. 103 a – d. 1982; S. M. Almeida, Fl. Savantwadi 2: 11. 1990. *Aerides calceolare* Buch.–Ham. ex J. E. Sm. in Hook. f. Fl. Brit. India 6: 60. 1890. (*Gastrochilus dasypogon* (auct. non Rees) O. Ktze. 1891; Sant. & Kap. Orch. Bombay 26. 1966

Epiphytes. Leaves unequally lobed at apex. Inflorescence of axillary racemes. Sepals and petals greenish-white; mid lobe of lip raised yellow.

*Fls.* : April–June.

*Illus.* : Wight, Ic. t. 1671. 1851 (*Vanda pulchella*); Joseph, *op. cit.*

*Distrib.* : Rare. Sindhudurg (S. M. Almeida, *op. cit.*).

#### GEODORUM G. Jackson

*Geodorum densiflorum* (Lam.) Schltr. in Feddes Repert. 4: 259. 1929; Sant & Kap. Orch. Bombay 203, t. 50. 1966. *Limodorum densiflorum* Lam. Encycl. 3. 516. 1791–92. *Geodorum dilatatum sensu* Hook. f. Fl. Brit. India 6: 17. 1890 non R. Br. 1813; Cooke, Fl. Pres. Bombay 3: 198. 1958 (Repr. ed.). *G. purpureum* R. Br. in Ait. Hort. Kew. ed. 2, 5: 207. 1813; Hook. f. *op.cit.* 16. 'Haryakand'

Pseudobulbs c 5 x 3 cm, tuberous, ovoid–conical, greenish–brown, bands transverse, circular. Leaves 1 or 2, forming a pseudostem, 11–40 x 5–10 cm, sheathing at base, subplicate, obovate–oblong, elliptic or elliptic–lanceolate, acute, entire, the upper ones tapering into a long narrow petiole. Scape 28–32 cm tall. Inflorescence c 4 cm long, a compact subcorymbose raceme, facing downwards. Flowers c 1.5 cm long, pinkish–white or white, bracteate, shortly pedicellate. Capsules 3.5–4.0 x 1.0–1.5 cm. ellipsoid, conspicuously 6–ribbed.

*Fls. & Frts.* : June–November.

*Illus.* : Sant & Kap. *op.cit.*; Jayaweera in Dassan. & Fosb. Rev.

Handb. Fl. Ceylon 2: 181, f. 81. 1981; Matthew, Illus. Fl. Tamilnadu Carnatic 2: t.723. 1983.

*Distrib.* : Amaravati; Nasik; Sindhudurg.

HABENARIA Willd.

1. Petals truncate 2 – fid or 2 partite :
  2. Sepals with filiform tips ... *H. stenopetala*
  2. Sepals not as above :
    3. Leaves clustered at the middle of stem ... *H. multicaudata*
    3. Stem leafy upwards or at or near base :
      4. Stem leafy upwards :
        5. Segments of petals subequal or lower slightly shorter; spur distinctly clavate at apex ... *H. foliosa*
        5. Lower segment of petals less than (or rarely up to) half as long as upper ones; spur scarcely clavate ... *H. digitata*
      4. Stem leafy at or near base only :
        6. Leaves thin; anthers rounded at tip ... *H. rariflora*
        6. Leaves fleshy, coriaceous; anthers distinctly tricuspidate at tip ... *H. grandifloriformis*
1. Petals entire :
  7. Sidelobes of petals broad :
    8. Lip not or hardly longer than lateral sepals ... *H. suaveolens*
    8. Lip much longer than lateral sepals :
      9. Petals narrowly linear; lateral lobes of lip with long filiform tails, midlobe 2 –lobulate with a minute mucro between filiform tailed lobules ... *H. crinifera*
      9. Petals linear-oblong, spatulate or broadly ovate or ovate-oblong; lobes of lip not tailed :
        10. Spur shorter than or equalling ovary ... *H. panchganiensis*
        10. Spur  $1\frac{1}{2}$  – 3 times longer than ovary :
          11. Leaves radical, spreading on ground; ovary sessile or subsessile; lip 0.7–1.2 cm long; stigmatic processes somewhat oblong, white ... *H. plantaginea*
          11. Leaves grouped at base of stem; ovary on long pedicel; lip 1.4–2.9 cm long; stigmatic processes clavate, green ... *H. longicorniculata*

7. Sidelobes of petals very narrow
12. Tubes of anther cells long :
13. Leaves flat on ground ... *H. roxburghii*
13. Leaves not as above ... *H. commelinifolia*
12. Tubes of anther cells short :
14. Leaves flat on ground :
15. Petals narrow, linear-oblong; segments of lip filiform; the lateral ones much longer than the midlobe ... *H. diphylla*
15. Petals ovate or ovate-oblong; segments of lip linear-oblong, subequal ... *H. crassifolia*
14. Leaves not as above :
16. Stem leafy upwards ... *H. heyneana*
16. Leaves clustered towards middle or base of stem :
17. Leaves clustered at base of stem :
18. Floral bracts equal to or longer than ovary ... *H. marginata*
18. Floral bracts up to half as long as ovary ... *H. viridiflora*
17. Leaves clustered at middle of stem :
19. Spur straight ... *H. ovalifolia*
19. Spur incurved :
20. Floral bracts and spur longer than ovary ... *H. furcifera*
20. Floral bracts and spur shorter than ovary ... *H. hollandiana*

**Habenaria commelinifolia** (Roxb.) Wall. ex Lindl. Gen. Sp. Orchid. 325. 1835; Hook. f. Fl. Brit. India 6: 143. 1890; Cooke, Fl. Pres. Bombay 3: 224. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 25, t. 4, f. 11-12. 1966. *Orchis commelinifolia* Roxb. Fl. Ind. 3: 415. 1832.

Herbs, 42-78 cm tall. Tubers 1-2, 4-7 x 1-2 cm, ellipsoid. Leaves alternately distichous, 6-20 x 1.5-3.5 cm, oblong or oblong-lanceolate, acute or rarely subspinescent, entire, minutely papillate. Peduncle 15-35 cm long, bracteate. Spikes 7-20 cm long, somewhat dense. Flowers greenish-white, sessile, bracteate. Capsules fusiform.

*Fls. & Frts.* : August-November.

*Illus.* : Sant. & Kap. *op.cit.*

*Distrib.* : Amaravati; Bhandara; Bombay; Chandrapur; Kolhapur; Pune; Raigad; Sindhudurg; Thane.

**H. crassifolia** A. Rich. in Ann. Sci. Nat. 2, 15: 72, t. 36. 1841; Hook. f. Fl. Brit. India 6: 151. 1890; Cooke, Fl. Pres. Bombay 3: 227. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 22, t. 32. 1966.

Herbs, 18–16 cm tall. Tubers 1–2, 2.5–4.0 x 1.5–2.5 cm, ovate-elliptic or broadly rounded. Leaves variable: lower 2 leaves similar, the uppermost different, often all 3 quite similar; lower leaves 2.5–13.0 x 2–10 cm, broadly ovate, oblong-ovate, oblong-elliptic or suborbicular, acute or acuminate. Racemes 15–55 cm long, lax, many-flowered. Flowers c 0.7 x 0.9 cm, white, bracteate, shortly pedicellate. Capsules c 1.5 x 0.4 cm, ellipsoid, ribbed, beaked.

*Fls. & Frts.* : August–October.

*Illus.* : Wight, Ic. t. 1894. 1851 (*Platanthera brachyphylla* Lindl. Gen. Sp. Orch. 293. 1835); Fyson, Fl. Nilgiri Pulney Hill tops 2: t. 256. 1915 (Repr. ed. 1974); Sant. & Kap. *op.cit.*

*Distrib.* : Ahmednagar; Kolhapur; Nasik; Pune; Ratnagiri; Satara.

**H. crinifera** Lindl. Gen. Sp. Orchid. 323. 1835; Hook. f. Fl. Brit. India 6:142. 1890; Cooke, Fl. Pres. Bombay 3: 223. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 26, t. 4, f. 13–14. 1966; Jayaweera in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 2: 357, f. 158. 1981.

Tuber 1, oblong or ovoid, c 2 x 1 cm, lateral roots above tuber developing into secondary tubers. Leaves 5–13 x 0.8–2.0 cm, oblong-elliptic or oblanceolate, somewhat tapering at base, acute. Scape 7–12 cm long. Racemes 2–4-flowered. Flowers shortly pedicellate, bracteate, white; spur 3.0–3.5 cm long, clavate. Capsules fusiform, 1.5–2.5 cm long.

*Fls. & Frts.* : August.

*Illus.* : Wight, Ic. t. 926. 1845; Sant. & Kap. *op. cit.*; Jayaweera in Dassan. & Fosb. *op. cit.*

*Distrib.* : Ratnagiri; Satara; Sindhudurg.

**H. digitata** Lindl. Gen. Sp. Orchid. 307. 1835; Hook. f. Fl. Brit. India 6: 134. 1890; Cooke, Fl. Pres. Bombay 3: 220. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 10, t. 3, f. 7–8. 1966.

Herbs, 18–65 cm tall. Tubers 1–2, ovoid. Leaves alternate, pentastichous, 2–13 x 1.5–5.0 cm, ovate to ovate-oblong or elliptic to elliptic-lanceolate, acute, entire, strongly 3-nerved. Inflorescence 4–13 cm long, of few to many-flowered, dense or lax spikes. Flowers 2.4–2.7

cm long, green or occasionally with a yellowish or whitish tinge, bracteate, shortly pedicellate. Capsules ellipsoid or oblong.

*Fls. & Frts.* : July–December.

*Illus.* : Wight, Ic. t. 1701. 1851 (*H. trinervia*); Duthie in Ann. Roy. Bot. Gard. Calcutta 9: 178, t. 128. 1906 (*H. graveolens*); Sant. & Kap. *op.cit.*; Joseph in Rec. Bot. Surv. India 22: 58, f. 41 a & b. 1982.

*Distrib.* : Bombay; Nasik; Pune; Raigad; Ratnagiri; Satara; Yavatmal.

*H. diphylla* Dalz. in Hook. Kew J. Bot. 2: 262. 1850; Hook. f. Fl. Brit. India 6:151. 1890; Cooke, Fl. Pres. Bombay 3: 227. 1958 (Repr. ed); Sant. & Kap. Orch. Bombay 21, t. 6, f. 22. 1966.

Herbs, 10–20 cm tall. Tuber usually one, ellipsoid. Leaves 1.5–4.0 x 0.5–4.0 cm, ovate–oblong to suborbicular, acute or obtuse, margin yellowish or pale coloured. Scapes 7–15 cm long. Racemes 2 to many-flowered, lax, up to 10 cm long. Flowers shortly stalked, bracteate, greenish–white. Capsules 1.8–2.0 x 0.03 cm, fusiform, shortly pedicellate, beak 0.2–0.3 cm long.

*Fls. & Frts.* : July–October.

*Illus.* : Wight, Ic. t. 1715. 1851 (*H. jerdoniana*); Sant. & Kap. *op.cit.*

*Distrib.* : Frequent in moist, open situations in plains. Sindhudurg.

*H. foliosa* A. Rich. in Ann. Sci. Nat. 2, 15:71, t. 3A. 1841; Karthik. *et. al.* Fl. Ind. Enum. Monocot. 143. 1989. *H. digitata* var. *foliosa* (A. Rich.) Hook. f. Fl. Brit. India 6:135. 1890; Cooke, Fl. Pres. Bombay 3:220. 1958 (Repr. ed.). *H. gibsonii* var. *foliosa* (A. Rich.) Sant. & Kap. in J. Bombay nat. Hist. Soc. 56: 194, t. 2, f. 6. 1959 & Orch. Bombay 14, t. 2, f. 6. 1966. *H. spencei* Blatt. & McC. in J. Bombay nat. Hist. Soc. 36: 17. 1932.

- |   |     |                      |
|---|-----|----------------------|
| 1. Segments of petals equal or lower slightly longer                            | ... | <i>var. foliosa</i>  |
| 1. Upper segment of petals longer than lower :                                  |     |                      |
| 2. Dorsal sepal 1.0–1.2 x 0.9 cm; lateral sepal 1.8–2.0 x 0.7–0.8 cm            | ... | <i>var. gibsonii</i> |
| 2. Dorsal sepal broader than long, c 0.7 x 0.8 cm; lateral sepal c 0.9 x 0.6 cm | ... | <i>var. foetida</i>  |

**var. foliosa.**

Leaves 3.5–5.0 x 1.5–2.5 cm, elliptic–lanceolate. Flowers in dense racemes; petals linear. Capsules ellipsoid, shortly beaked.



*Fls. & Frts.* : July–September.

*Illus.* : Sant. & Kap. *op.cit.*

*Distrib.* : Pune; Satara.

var. *foetida* (Blatt. & McC.) Bennet in J. Econ. Tax. Bot. 5:452. 1984. *H. gibsonii* var. *foetida* Blatt. & McC. in J. Bombay nat. Hist. Soc. 36: 16. 1932; Sant. & Kap. in J. Bombay nat. Hist. Soc. 56: 194, t. 2, f. 5. 1959 & Orch. Bombay 13, t. 2, f.5. 1966.

Herbs. Leaves ovate–lanceolate, apex acute or acuminate, narrowed at base. Racemes 6–8–flowered; dorsal sepal broader than long, c 0.7 x 0.8 cm; lateral sepal c 0.9 x 0.6 cm; lower segment of petals 0.5–0.7 x 0.05 cm.

*Illus.* : Sant. & Kap. *op.cit.*

*Distrib.* : Amaravati; Bombay; Pune; Ratnagiri.

var. *gibsonii* (Hook.f.) Bennet in J. Econ. Tax. Bot. 5: 452. 1984. *H. gibsonii* Hook. f. Fl. Brit. India 6: 135. 1890; Sant & Kap. Orch. Bombay 12, t. 2, f. 3–4. 1966.

Herbs, 15–45 cm high. Tuber usually one, somewhat cylindrical, c 2.5 cm in diam. Leaves 3.5–15.0 x 1.5–3.5 cm, alternate, pentastichous, ovate to oblong–lanceolate, apex acute or rarely subacuminate, margins wavy. Inflorescence 5–15 cm long, lax, secund or subsecund. Flowers white, bracteate, stalked. Capsules ellipsoid, shortly beaked.

*Fls. & Frts.* : July–September.

*Illus.* : Sant. & Kap. *op.cit.*

*Distrib.* : Ahmednagar; Akola; Kolhapur; Pune; Raigad; Ratnagiri; Satara; Thane.

*H. furcifera* Lindl. Gen. Sp. Orchid. 319. 1835; Hook. f. Fl. Brit. India 6:149. 1890; Balakr. in Bull. Bot. Surv. India 6:91. (1964) 1965; Sant. & Kap. Orch. Bombay 39, t. 5, f. 20. 1966.

Herbs, 40–60 cm high. Tubers 1–2, c 3.0 x 1.5 cm, ovate–ellipsoid. Leaves 13–17 x 3–6 cm, oblanceolate or obovate or elliptic, apex acute or subacuminate. Inflorescence 25–40 cm long, stout, erect, lax, many-flowered; scape bracteate. Flowers small, green, shortly pedicelled, bracteate. Capsules c 1.5 x 0.55 cm, fusiform, turgid, decurved, ribs strong, beak of capsule one–fourth as long.

*Fls. & Frts.* : August–November.

*Illus.* : Sant. *et al.* in J. Bombay nat. Hist. Soc. 55: 483, t. 4. 1958; Sant. & Kap. *op. cit.*; Joseph in Rec. Bot. Surv. India 22:60, f. 43a–43c. 1982.

*Distrib.* : Rare. Ahmednagar; Nasik; Sindhudurg.

*Note* : Kamble (J. Econ. Tax. Bot. 16: 558. 1992) reported this as addition to Orchids of Maharashtra from Ahmednagar, although this was reported from Nasik earlier (Lakshminarasimhan & Sharma, Fl. Nasik Dt. 451. 1991).

*H. grandifloriformis* Blatt. & McC. in J. Bombay nat. Hist. Soc. 36:17. 1932 *emend.* Sant. & Kap. *Ibid.* 56: 195. 1959 & Orch. Bombay 17, t. 1, f. 2–2' 1966. *H. grandiflora* Lindl. ex Dalz. & Gibs. Bombay Fl. 267. 1861 *non* Torr. ex Beck. 1823; Hook. f. Fl. Brit. India 6: 136. 1890; Cooke, Fl. Pres. Bombay 3: 221. 1958 (Repr. ed.). *H. grandifloriformis* var. *aequiloba* Blatt. & McC. *op. cit.* 18. 'Chickurkanda'

Herbs, 10–16 cm high; tubers 1–2, 1.8–3.0 x 0.8–2.0 cm, globose or ellipsoid. Leaves 1–2, opposite, 2–9 x 1.5–8.5 cm, broadly ovate to suborbicular, rarely oblong–lanceolate, acute or obtuse, entire. Scapes 5–20 cm long, erect. Flowers white, pedicellate, bracteate, in one–to several–flowered racemes. Capsules 2.0–2.8 x 5.0 cm, strongly ribbed.

*Fls. & Frts.* : June–November.

*Illus.* : Sant. & Kap. *op. cit.*

*Distrib.* : Akola; Amaravati; Bombay; Kolhapur; Nasik; Pune; Raigad; Ratnagiri; Satara; Sindhudurg; Thane.

*H. heyneana* Lindl. Gen. Sp. Orchid. 320. 1835; Hook. f. Fl. Brit. India 6: 148. 1890; Cooke, Fl. Pres. Bombay 3: 225. 1958 (Repr. ed.); Sant. & Kap. Orch. Bombay 32, t. 5, f. 15–16. 1966. *H. subpubens* A. Rich. in Ann. Sci. Nat. 2, 15:75, t. 4C. 1841; Hook. f. *op.cit.*; Cooke, *op.cit.* *H. cerea* Blatt. & McC. in J. Bombay nat. Hist. Soc. 36: 21, t. 6. 1932. *H. cerea* var. *polyantha* Blatt. & McC. *op.cit.* 22.

Herbs, 8–45 cm tall; tubers 1 or 2, ovoid or oblong–ovoid. Leaves 1–7 x 0.5–2.0 cm, narrowly oblong–lanceolate to lanceolate, rarely ovate, acute, often mucronulate. Inflorescence 2–14 cm long, lax, secund or subsecund. Flowers bracteate, shortly pedicellate, greenish–white. Capsules ellipsoid or oblong.

*Fls. & Frts.* : August–November.