

FLORA OF  
GOA, DIU, DAMAN,  
DADRA & NAGARHAVELI  
VOLUME II

ROLLA SESHAGIRI RAO



BOTANICAL SURVEY  
OF INDIA

**FLORA OF  
GOA DIU DAMAN DADRA &  
NAGARHAVELI**

# FLORA OF INDIA

Series 2

## FLORA OF GOA DIU DAMAN DADRA & NAGARHAVELI

Volume 2

Rolla Seshagiri Rao



भारतीय वनस्पति सर्वेक्षण  
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RUBIACEAE

1. Erect, prostrate or climbing herb
  2. Flowers solitary, axillary sessile or shortly pedicelled
    3. Herbs succulent *Hydrophylax*
    3. Herbs not succulent
      4. Flowers terminal ; fruits smooth *Geophila*
      4. Flower axillary ; fruits densely and coarsely hairy *Dentella*
  2. Flowers in axillary and terminal corymbs, umbels, cymes or panicles
    5. Scabrid, climbing herbs *Rubia*
    5. Erect herbs
      6. Flowers purple or pink coloured
        7. Prostrate or ascending herbs with flaccid hairs *Neanotis*
        7. Erect herbs, softly hairy *Knoxia*
      6. Flowers white
        8. Seed one in each cell *Borreria*
        8. Seeds numerous in each cell
          9. Flowers in umbels or cymes *Argostemma*
          9. Flowers in dichotomous, axillary or terminal panicles, rarely solitary
            10. Calyx teeth 5 *Ophiorrhiza*
            10. Calyx teeth 4 *Hedyotis*
  1. Shrubs or trees
    11. Flowers collected in dense, globose or ovoid heads
      12. Calyx lobes fused into a fleshy mass *Nauclea*
      12. Calyx tube not fused into a fleshy mass
        13. Corolla lobes imbricate *Neonauclea*
        13. Corolla lobes valvate
          14. Flowers white ; stipules connate ; fruit a syncarpium, globose *Morinda*
          14. Flowers yellow ; stipules free ; fruit capsular :
            15. Sepals distinct *Adina*
            15. Sepals absent *Mitragyna*
      11. Flowers not collected in dense heads
        16. One calyx lobe expanded into a white or coloured leaf *Mussaenda*

16. Calyx lobe neither coloured nor expanded
17. Flowers in large, terminal or axillary corymbs
18. Leaves thin, lower sheathing ; bracts membranous ; style entire, long exerted *Pavetta*
18. Leaves thick, not sheathing ; bracts coriaceous ; style 2-branched, slightly exerted *Ixora*
17. Flowers in axillary or leaf-opposed cymes or fascicles
19. Branches armed
20. Ovary 3 to 5-celled *Meyna*
20. Ovary 2-celled
21. Fruit a capsule *Xeromphis*
21. Fruit a drupe, didymous *Canthium*
19. Branches unarmed
22. Corolla tube short, straight *Psychotria*
22. Corolla tube long, curved *Chassalia*
17. Flowers in terminal or axillary thyrsoïd spikes or paniced cymes
23. Fruit a capsule
24. Leaves opposite ; flowers in thyrsoïd panicles with 2 foliaceous bracts *Hymenodictyon*
24. Leaves in whorls of 3, flowers in small panicles *Wendlandia*
23. Fruit a fleshy berry
25. Inflorescence terminal
26. Ovary 2-celled *Tarenna*
26. Ovary 1-celled *Gardenia*
25. Inflorescence axillary *Tricalysia*

## ADINA Salisb.

*Adina cordifolia* (Roxb.) Hook. f. ex Brandis, For. Fl. 263, f. 33, 1874 & in FBI 3 : 24, 1880 ; DG. 93 ; C. 2 : 7 ; T. 2 : 85 ; G. 2 : 412 ; S. 101 ; Dangs. 12 ; Saur. 258. *Nauclea cordifolia* Roxb. Pl. Cor. 1 : 40, t. 63, 1795.

*Fl.* : June July. *Fr.* : November - May. *Ill.* : T. f. 334.

*Vern.* : Heddi (Mar.) ; Yettagal (Kan.) ; Hed (Konk.) ; Aldavana Hedde (Port.).

*Loc.* : GOA : *Bicholim* : Usgao. *Salcete* : Chinchinum lake, Vernem. *Canacona* : Butpal, Kanpal hill top ; Ordofond-Gotkawal ; Ordofond,

near nursery ; Butpal. NAGARHAVELI : Saily forest ; Dolara forest ; Nana Randha ; Carchond forest ; Markhal ; Umberkoi Dongar pada forest.

Common in open forest areas.

ARGOSTEMMA Wall.

*Argostemma courtallense* Arn. in Ann. Nat. Hist. 3 : 22, 1839 ; FBI 3 : 42 ; C. 2 : 12 ; G. 2 : 417.

*Fl. & Fr.* : September. *Ill.* : Wt. Ic. t. 1160.

*Loc.* : GOA : *Satari* : Dinarai forests.

Rare, on moist rock crevices along stream.

BORRERIA G. F. W. Meyer *nom. cons.*

1. Stem erect ; flowers white ; seeds polished
2. Stem scabrid
  3. Leaves linear or lanceolate *pusilla*
  3. Leaves ovate or obovate *ocymoides*
2. Stem glabrous leaves oblong or oblanceolate *verticellata*
1. Stem procumbent, hispid ; leaves elliptic oblong ; flowers pale blue or violet ; seeds finely granular *articularis*

The genus *Borreria* G. F. W. Mey. (1818) is now considered by a few recent workers, as synonymous to the earlier genus *Spermacoce* Linn. Sp. Pl. 102, 1753 as the characters for both the genera are identical in the broader aspect with a wide range of material.

*Borreria articularis* (Linn. f.) F. N. Will. in Bull. Herb. Boiss. II, 5 : 956, 1905 ; Saur. 261 ; Pav. 117. *Spermacoce articularis* Linn. f. Suppl. 119, 1781 (excl. syn. Rumph.). *S. hispida* Linn. Sp. Pl. 102, 1753 ; FBI 3 : 200 ; DG. 99 ; C. 2 : 53 ; *Borreria hispida* K. Sch. in Pfam. 4(4) : 144, 1894 ; G. 2 : 461 ; S. 108, *non* Spruce ex K. Schum. (1889).

*Fl.* : August - October. *Fr.* : October - December.

*Vern.* : Gedo (Konk.) ; Madhuri Jadi (Guj.).

*Loc.* : GOA : *Pernem* : Terekhol. *Satari* : Onda. *Illhas* : Panaji, coastal area ; Mercedes village Curva. *Salcete* : Goodier ; Raiyi village. *Marmugao* : Gongsua. *Ponda* : Curti village. *Sanguem* : Ugem village ; Bali ; Nandrona near Molem ; Bati ; Barazon. *Canacona* : Angidiv. NAGARHAVELI : Khanvel ; Saily. DAMAN : Marvor ; Cataria ; Dundorta ; Jampore. DIU : Nagoa ; Airport area ; Gagale.



Common in open situations along waste lands, fields etc., sometimes along margins of roadside ditches.

**Borreria ocymoides** (Burm. f.) DC. Prodr. 4 : 544, 1830 ; G. 2 : 461. *Spermacoce ocymoides* Burm. f. Fl. Ind. 34, t. 13, f. 1, 1768 ; FBI 3 : 200.

*Fl. & Fr.* : November.

*Loc.* : GOA : *Bardez* : Porvorim roadside. *Satari* : Nana Che Dongar. *Sanguem* : Ghalto (Netravali) ; Barazon.

Rare, along roadside shady areas.

**B. pusilla** (Wall.) DC. Prodr. 4 : 543, 1830. *Spermacoce pusilla* Wall. in Roxb. Fl. Ind. 1 : 379, 1820. *Borreria stricta* (Linn. f.) Schum. in Pfam. 4(4) : 143, 1891 ; G. 2 : 461 ; S. 108. Dangs, 13 ; Saur. 262 ; Pav. 118. *Spermacoce stricta* Linn. f. Suppl. 120, 1781 ; FBI 3 : 200 ; C. 2 : 52.

*Fl. & Fr.* : August November.

*Loc.* : GOA : *Pernem* : Chopora, Kaisura fort ; Corgoa. *Bicholim* : Narora. *Satari* : Onda ; Caranzol ; Sanverdem Volpoi road. *Bardez* : Porvorim rocky plateau. *Ilhas* : Santacruz village. *Marmugao* : Nuvem hills. *Ponda* : Curti village. *Sanguem* : Bali ; Sanguem rest house area ; Alduna (Netravali). *Canacona* : Ordofond. NAGARHAVELI : Saily ; Dolara ; Morkhal. DAMAN : Fort area.

Common on open, rocky plateau and hill slopes and often along open situations in wastelands.

**B. verticellata** (Linn.) G.F.W. Mey. Prim. Fl. Esseq. 83, 1818. *Spermacoce verticellata* Linn. Sp. Pl. 102, 1753.

*Fl. & Fr.* : August. November.

*Loc.* : GOA : *Sanguem* : Barazon.

Rare.

#### CANTHIUM Lamk.

Branches armed with spines ; leaves ovate-cordate to lanceolate ; flowers in axillary fascicles or cymes

*angustifolium*

Branches unarmed leaves oblong-lanceolate ; flowers in axillary, peduncled umbels

*dicoccum*

**Canthium angustifolium** Roxb. Fl. Ind. 2 : 169, 1824 ; FBI 3 : 135. *Canthium rheedei* DC. Prodr. 4 : 474, 1830 ; FBI 3 : 134 ; DG. 97 ; T 2 : 108. *Plectronia rheedei* var. *angustifolia* Gamble, Fl. Pres. Madras 625, 1921 ; FBI 3 : 135.

*Fl. & Fr.* : April. May. *Ill.* : Wt. Ic. t. 826.

*Vern.* : Chapyel (Mar.) ; Ambgani (Kan.) ; Bidani gheli (Konk.) ; Espinho salado (Port.).

*Loc.* : GOA : *Satari* : Caranzol, Vangiri forest. *Canacona* : Nadquem ; Yed forest towards Nadquem.

Occasional, inside the forest.

*Canthium dicoccum* (Gaertn.) Teysm, & Binn. var. *umbellatum* (Gamble) Sant. & Merch. in Bull. Bot. Surv. India. 3 : 107. 1961. *Plectronia didyma* var. *umbellata* Gamble in Fl. Pres. Madras, 624, 1921. *Canthium umbellatum* Wt. Ic. t. 1034. 1845 ; FBI 3 : 132. *Plectronia wightii* Cooke, Fl. Pres. Bombay 1 : 606, 1903.

*Fl. & Fr.* : November - May. *Ill.* : Wt. Ic. t. 1034.

*Vern.* : Tupa, Arsul (Mar.) ; Yellal (Kan.) ; Ursul (Konk.).

*Loc.* : GOA : *Satari* : Caranzol old railway station. *Canacona* : Mehdan forest, near Nadquem.

Occasional, inside the forest

#### CHASSALIA Commers. ex Poir.

*Chassalia ophioxyloides* (Wall.) Craib. in Gard. Bull. Straits Settl. 6 ; 474, 1930. *Psychotria ophioxyloides* Wall. in Roxb. Fl. Ind. 2 : 168, 1824. *Chassalia curviflora* (Wall.) Thw. Enum. 150. 1849 p.p. ; FBI 3 : 176 ; C. 2 : 47 ; T. 2 : 130 ; G. 2 : 453.

*Fl.* : August. *Fr.* : September. *Ill.* : T. 2 : f. 362.

*Vern.* : Kanmullige gidda (Kan.).

*Loc.* : GOA : *Satari* : Dinarai forest. *Canacona* : Poinguinim.

Rare along forest edges.

Though the characters separating *Chassalia* and *Psychotria* are not quite distinct, there is considerable diversity of opinion regarding merging of *Chassalia* with *Psychotria* Linn. However, in this work *Chassalia* is treated as distinct. The correct spelling is *Chassalia* and not *Chasalia* as given in Floras.

#### DENTELLA J. R. & G. Forst.

*Dentella repens* (Linn.) Forst. Charact. 26, t. 13, 1776 ; FBI 3 : 42 : DG. 94 ; C. 2 : 12 ; G. 2 : 416 ; S. 103 Dangs. 13 ; Saur. 260. *Oldenlandia repens* Linn. Mant. 1 : 40, 1767, non Burm.

*Fl. & Fr.* : Almost throughout the year. *Ill.* : Subramanyam & Sharma in Bull. Bot. Surv. India 10 (3 & 4) : 387, f. 1-6, 1968.

*Vern.* : Jata (Konk.).

*Loc.* : GOA : *Satari* : Masarde village. NAGARHAVELI : Silvassa ; Atal forest ; Chispana area. DAMAN : Regunvara ; Dabel.

Occasional, in moist situations often forming dense mats on the ground.

GARDENIA Ellis *nom. cons.*

Leaves petiolate ; calyx lobes 5, long-subulate, erect *resinifera*  
 Leaves sessile ; calyx lobes 5-9, lanceolate, recurved *latifolia*

**Gardenia latifolia** Ait. Hort. Kew 1 : 294, 1789 ; FBI 3 : 116 ; DG. 96 ; C. 1 : 30 ; T. 2 : 103 ; G. 2 : 436.

*Fl.* : March *May. Ill.* : Wt. Ic. t. 759 ; T. f. 343 & 344.

*Vern.* : Pandru (Mar.) ; Gogavli (Konk.).

Rare, along ghat slopes (Dalgado).

**G. resinifera** Roth. Nov. Sp. 150, 1821. *G. lucida* Roxb. [Hort. Beng. 15, 1814 (*nom. nud.*) &] Fl. Ind. 1 : 707, 1820 ; FBI 3 : 115 ; DG. 96 ; C. 2 : 30 ; T. 2 : 101 ; G. 2 : 436.

*Fl.* : March *June. Ill.* : Wt. Ic. t. 575.

*Vern.* : Dikemali (Mar.) ; Dikmali (Konk.).

Occasional in forest areas and sometimes cultivated for 'Dikamali' resin used as a veterinary ointment.

*Cult. species* :

**G. jasminoides** Ellis in Phil. Trans. 51 : 935, 1761 ; C. 2 : 31 ; G. 2 : 437. *G. florida* Linn. Sp. Pl. ed. 2 : 305, 1762 ; DG. 96.

*Fl.* : July *September.*

*Vern.* : Gandroya (Mar.) ; Nanamt (Konk.) ; Jasmin do cabo de Boa Esperanca (Port.).

A native of China, cultivated in gardens for beautiful white, fragrant flowers.

GEOPHILA D. Don *nom. cons.*

**Geophila repens** (Linn.) I.M. Johnston in Sargentia 8 : 281, 1949. *Rondeletia repens* Linn. Syst. ed. 10, 928, 1758-59. *Geophila reniformis* D. Don Prodr. Fl. Nepal, 136, 1825 ; FBI 3 : 178 ; DG. 99 ; C. 2 : 49 ; G. 2 : 454.

*Ill.* : Wt. Ic. t. 54.

*Vern.* : Karli (Konk.).

Though recorded from Vengurla only (Cooke & Dalgado), it is quite possible to locate from Goa also.

## HEDYOTIS Linn.

Critical morphological studies of the various taxa treated under the genera *Hedyotis* Linn., *Oldenlandia* Linn., *Houstonia* Linn. ex Benth. et Hook. f., *Kohautia* Cham. & Schlecht. and *Exallage* Bremek. by the recent workers covering a wide range of pantropical material, clearly prove that the major characteristic of several species exhibit continuous ranges and the various generic realignments made by Bremekamp (*Verh. Akad. Wet. Amst.* 48 : 1-297, 1952) and a few others would not stand at all. As such *Oldenlandia* Linn., based on numerous minute angled seeds with fleshy endosperm in wholly inferior capsules and monomorphic flowers with very short corolla, *Kohautia* Cham. & Schlecht., based on elongate corolla tube and *Exallage* Bremek., created on the basis of indehiscent fruit, do not stand as distinct genera. The author in his study of the genus *Hedyotis* Linn. in Maharashtra State (1973) followed the present understanding of the genus and the same approach is presented here. [For details *vide* : Rolla S. Rao and K. Hemadri in *Ind. For.* 99(6) : 372-1973].

## HEDYOTIS Linn.

- |  |                    |
|--|--------------------|
| 1. Capsules indehiscent  | <i>auricularia</i> |
| 1. Capsules dehiscent at least at the top  |                    |
| 2. Capsules protruded at apex  |                    |
| 3. Plants unbranched or 2.3-branched ; persistent calyx lobes for exceeding the protruded apex, of ten leaf-like                       | <i>maheshwarii</i> |
| 3. Plants more or less profusely branched ; calyx lobes shorter or equalling the protruded apex  | <i>herbacea</i>    |
| 2. Capsules not protruded at apex  |                    |
| 4. Capsules broader than long, very truncate and flat on the top   | <i>diffusa</i>     |
| 4. Capsules more or less as long as broad, globose   |                    |
| 5. Leaves opposite, very linear ; flowers with long, capillary peduncles and pedicels ; capsules 1.5-2 mm in diam                      | <i>affinis</i>     |
| 5. Leaves whorled and opposite, never less than 1 mm broad ; flowers with short peduncles and pedicels ; capsules about 2.5 mm in diam | <i>corymbosa</i>   |

*Hedyotis affinis* R. & S. Syst. Veg. 3 : 194, 1818. *Oldenlandia affinis* (R. & S.) DC. Prod. 4 : 428, 1830. *Oldenlandia dichotoma* (Koen. ex Roth.) Hook. f. FBI 3 : 67, 1880, *non* Spreng. 1850 ; G. 2 : 424.

*Fl. & Fr.* : August. November.

*Loc.* : GOA : *Satari* : Nanacha dongar (Codal).

Common in open areas.

*Hedyotis auricularia* Linn. Sp. Pl. 101, 1753 ; FBI 3 : 58 ; DG. 94 ; C. 2 : 13. *Oldenlandia auricularia* K. Schum. in Pflanzenf. 4 (4) : 25, 1891 ; G. 2 : 421. *Exallage auricularia* (Linn.) Bremek. in Verh. Kan. Ned. Acad. Wet. II, 48 (2) : 142, 1952.

*Fl.* : September - November. *Ill.* : Wt. Ic. t. 1028.

*Vern* : Ghaymari (Konk.).

*Loc.* : GOA : *Satari* : Masarde ; Caranzol ; Onda Mole ; Tanam ; Nanacha Dongar. *Ilhas* : Chimbel water reservoir. *Salcete* : Goodier. *Ponda* : Near Curti village. *Quepem* : Budsari Goundugarha. *Sanguem* : Wolancha Dongar ; Chansuia ghat ; Bati ; Babanbanda (Molem Belgaum road) ; Nandrena near Molem. *Canacona* : Butpal ; Codal village ; rdofond forest, on way to Tudal ; Ordofond.

Common in the fields and open forest areas.

*H. corymbosa* (Linn.) Lamk. Tab. Encl. 1 : 272, 1791. *Oldenlandia corymbosa* Linn. Sp. pl. 119, 1753 ; FBI 3 : 64 ; DG. 94 ; C. 2 : 15 ; G. 2 : 423 ; S. 103.

*Fl. & Fr.* : August November.

*Vern* : Papti (Mar.) ; Poripat (Konk.) ; Papalo (Port.).

*Loc.* : GOA : *Bicholim* : Sanquilim. *Satari* : Nandore, bank of Mahadevi river ; Nanachedongar, Codal. *Bardez* : Porvorim road side. *Ilhas* : Rice fields, near Santacruz village. *Marmugao* : Marmugoa fort. *Sanguem* : Balli ; Sanguem. *Canacona* : Butpal ; Angidiv.

Common in open situations, on moist sandy soil and along roadsides.

*H. diffusa* Willd. Sp. Pl. 1 : 566, 1797-98. *Oldenlandia diffusa* Roxb. [Hort. Beng. 11, 1814 (*nom. nud.*) &] Fl. Ind. 1 : 423, 1832 ; FBI 3 : 65 ; C. 2 : 16 ; G. 2 : 423.

*Fl. & Fr.* : May.

*Loc.* : GOA : *Satari* : Masarde, near Valpoi, Nandore bank of Mahadevi river ; Codal - Nanora road, 10 km point.

Occasional, in open situations on moist sandy soil.

*H. herbacea* Linn. Sp. Pl. 102, 1753 : Backer & Bakhuizen, Fl. Java 2: 286. 1965. *Oldenlandia herbacea* (Linn.) Roxb. [Hort Beng. 11, 1814 (*nom. nud.*) &] Fl. Ind. 1 : 424, 1831 ; C. 2 : 16 ; G. 2 : 424. *Oldenlandia heynii* R. Br. : FBI 3 : 65.

*Fl.* : March - April. *Fr.* : October - November.

*Loc* : GOA : *Bardez*. *Betim* ; *Porvorim* rocky plateau ; *Bastora*. *Ilhas* : *Miramar*, *Panaji*. *Salcete* ; *Goodier* ; *Gonsua*. *Sanguem* : *Sidh* forest area ; *Surla*. *Quepem* : *Budsari* *Goundugarha*. *Canacona* : *Ordofond*.

Common.

*Hedyotis maheshwarii* (Sant. et Merch.) Rolla Rao et Hemadri in *Ind. For.* 99 (6) : 376, 1973. *Oldenlandia maheshwarii* Sant. et Merch. *Journ. Ind. Bot. Soc.* 42A : 213 215, ff. 1 6, 1964.

*Fl. & Fr.* : August April.

*Loc* : GOA : *Sanguem* : *Surla*

#### HYDROPHYLAX Linn. f.

*Hydrophylax maritima* Linn. f. *Suppl.* 126, 1781 ; *FBI* 3 : 199, C. 2 : 51 ; *Saur.* 260.

*Fl. & Fr.* : September.

*Loc.* *DIU* : *Diu*, *Sandy sea shore near Jalandhar*.

Rare, on sandy saline soil. The roots are usually deep penetrating.

#### HYMENODICTYON Wall.

- |   |                 |
|---|-----------------|
| 1. Flowers pedicelled, in fascicles or umbellules on a thyrsoid panicle ; capsules on recurved pedicels | <i>orixense</i> |
| 1. Flowers sessile, in elongate spikes ; capsules erect   | <i>obovatum</i> |

*Hymenodictyon obovatum* Wall. in *Roxb. Fl. Ind.* 2 : 153, 1824 ; *FBI* 3 : 36 ; *DG.* 93 ; *C.* 2 : 10 ; *T.* 1 : 91 ; *G.* 2 : 416 ; *S.* 101.

*Fl.* : July September. *Fr.* : September. *Ill.* : *Wt. Ic. t.* 1159.

*Vern.* : *Kadva* *Sirid* (*Mar.*) ; *Bogi* (*Kan.*) ; *Sirid* (*Konk.*).

Though recorded from *Ramghat* of *Ratnagiri* district (*Cooke and Dalgado*), it would be possible to collect it in *Goa* also.

*H. orixense* (*Roxb.*) *Mabberly* in *Taxon* 31 66, 1982. *Cinchona orixensis* *Roxb.*, *Bot. Descr. Swietenia* 21, 1793 & in *Mad. Facts. Obs.* 6 : 152, 1795. *Hymenodictyon excelsum* (*Roxb.*) *Wall.* in *Roxb. Fl. Ind.* 2 : 149, 1824 ; *FBI* 3 : 35 ; *DG.* 93 ; *C.* 2 : 9 ; *T.* 2 : 91 ; *G.* 2 : 416 ; *S.* 101 ; *Saur.* 267. *Cinchona excelsa* *Roxb. Pl. Cor.* 2, t. 106, 1798.

*Fl.* : June July. *Fr.* : October. *Ill.* : *Wt. Ic. t.* 80.

*Vern.* : *Bhorsal* (*Mar.*) ; *Damdali* (*Konk.*).

*Loc.* : *NAGARHAVELI* : *Barpam* forest ; *Dolara* forest.

Rare, along ghats (*Dalgado*) and in deciduous forests.

## IXORA Linn.

- |   |                    |
|---|--------------------|
| 1. Flowers scarlet  | <i>coccinia</i>    |
| 1. Flowers white or pink  |                    |
| 2. Calyx lobes longer than the tube ; lobes linear - lanceolate   | <i>lanceolaria</i> |
| 2. Calyx lobes shorter than the tube or absent  |                    |
| 3. Shrubs ; leaves and inflorescence turning black on drying ; leaves elliptic - lanceolate, acute or shortly acuminate at apex | <i>nigricans</i>   |
| 3. Small trees ; leaves oblong or elliptic - oblong, obtuse at apex ; leaves and inflorescence not turning black on drying      |                    |
| 4. Flower buds globose, corolla tube less than 0.8 cm long ; leaves thinly coriaceous, elliptic oblong, narrowed at base        | <i>brachiata</i>   |
| 4. Flower buds ellipsoid, corolla tube more than 0.8 cm long ; leaves thickly coriaceous, obovate, rounded or cordate at base   | <i>arborea</i>     |

***Ixora arborea*** Roxb. in Rees Cycl. 19 : 5, 1811 ; S. 106. *I. parviflora* Vahl, Symb. 3 : 11, t, 52, 1794 (*non* Lamk.) ; FBI 3 : 142 ; DG. 97 ; T. 1 : 114 ; C. 2 : 39 ; G. 2 : 445.

*Fl.* : January April. *Fr.* : May June. *Ill.* : T. f. 350 ; Bedd. Fl. Sylv. t. 222.

*Vern.* : Kurat (Mar.) ; Henu (Kan.) ; Kurati (Konk.).

Fairly common along ghats (Dalgado).

***I. brachiata*** Roxb. [Hort. Beng. 10, 1814 (*nom. nud.*) &] Fl. Ind. 1 : 391, 1820 ; FBI 3 : 142 ; C. 2 : 39 ; T. 2 : 112 ; G. 2 : 445 ; S. 106 ; Dangs. 13 ; Saur. 269.

*Fl. & Fr.* : February May. *Ill.* : Wt. Ic. t. 710 ; T. f. 349.

*Vern.* : Gorbale (Kan.).

*Loc.* : GOA : *Satari* : Nandore forests ; Caranzol old railway station area ; Matachi Rai, near Palem ; Satre river bank, Codal Ambechagol ; south of Codal, 3 km. *Sanguem* : Patiem forest ; Kargal Jungle. *Canacona* : Ordofond - Tudal ; Hathipawal, Butpal Ordofond ; Nadquem, Quer hills ; Badsare forests. DAMAN : Coileque area.

Common inside the forest along rivers and streams.

***I. coccinia*** Linn. Sp. Pl. 110, 1753 ; FBI 3 : 145 ; DG. 98 ; C. 2 : 40 ; T. 2 : 115 ; G. 2 : 445 ; Saur. 268.

*Fl.* : October November. *Ill.* : T. f. 351 ; Wt. Ic. tt. 149 & 153.

*Vern.* : Pendgul (Mar.) ; Gudde dasal (Kan.) ; Podkali (Konk.) ;  
*Ixora* (Port.).

*Loc.* : GOA : *Pernem* : Tamboxim Pernem. *Satari* : Nagram, near  
Valpoi ; Mavacha gunda, Valpoi Caranzol ; Valpoi ; Tanem ;  
Golauhi ; Caranzol. *Ilhas* : Santacruz area ; Goodier ; Chimbel reservoir  
Brahmapuri temple. *Marmugao* : Nuvem Dongri. *Sanguem* :  
Molem Belgaum Road, 62 km ; Periche Tem (Cumbari) ; Bavanbanda  
(Molem Belgaum Road) ; Orgoni (Netravali) ; near Anvelven (Molem) ;  
Bati. *Canacona* : Canacona Balli ; Ordofond ; Polem ; Angidiv. DAMAN :  
Dabel.

Common along river banks and also on the ghats and near sea  
coast. Also grown in gardens for using flowers in prayers.

*Ixora lanceolaria* Colebr. in Roxb. Fl. Ind. 1 : 397, 1820 ; FBI 3 :  
138 ; C. 2 : 37 ; T. 2 : 111 ; G. 2 : 444.

*Fl.* : November. *Ill.* : Wt. Ic. t. 827.

*Loc.* : GOA : *Canacona* : Ordofond Butpal.

The species which is recorded for North Kanara only is now collected  
in Goa also.

*I. nigricans* R. Br. ex Wt. & Arn. Prodr. 428, 1834 ; FBI 3 :  
148 ; C. 2 : 38 ; T. 2 : 117 ; 117 ; G. 2 : 445 ; S. 107.

*Fl.* : March May. *Fr.* : August November. *Ill.* : T. f. 352 ; Wt. Ic.  
t. 318.

*Vern.* : Lokhandi (Mar.) ; Adalaya (Kan.).

*Loc.* : GOA : *Satari* : Sakad forest, Maloli ; Poshiyen forest, near  
Pengeral ; Dinarai forest, near Pali, Matachi Rai, near Palem ; Vadachi  
Dhat, near Vangiri forest from Nandore ; Codal Nanora road, 5 km,  
Ambeachagol (alt. 700m) ; Satrem. *Sanguem* : Moduka bungla jungle ;  
Darbandora nala, near forest Chowk. *Canacona* : Nadquem hills ; Yed  
forest, Nadquem area ; Mehdan forest, near Nadquem ; Butpal.

Common, inside the forest along hill slopes.

#### KNOXIA Linn.

*Knoxia sumatrensis* (Retz.) DC. Prodr. 4 : 560, 1830. *Spermacoce*  
*sumatrensis* Retz. Obs. 4 : 23, 1786, *Knoxia corymbosa* auct. non Willd. ;  
FBI 3 : 128 ; C. 2 : 33 ; G. 2 : 439.

*Fl.* : October. *Ill.* : Wt. Ill. t. 128.

*Loc.* : GOA : *Salcete* : Margao ghat.

Rare, on exposed rocky areas.



## MEYNA Roxb. ex Link

*Meyna laxiflora* Robyns in Bull. Jard. Bot. Bruxelles 11 : 228, 1928 ; S. 105 ; Dangs. 13 ; Saur. 265. *Vangueria spinosa* Hook. f. in FBI 3 : 136, 1882 ; DG. 97 ; C. 2 : 36 ; T. 2 : 109 ; G. 2 : 442, *omnes partim*.

*Fl.* : January - April. *Fr.* : April May. *Ill.* : T. f. 348.

*Vern.* : Alu (Mar.) ; Gund kare (Kan.) ; Helu (Konk.).

*Loc.* : GOA : *Satari* : Jamad forest Nandore hill ; Codal Nauora road, 10 km. *Canacona* : Ordofond Mukadamol ; Butpal forest ; Nadquem, Angidiv. NAGARHAVELI : Saily forest ; Berpam forest ; Chispana area ; Dudeni ; Sindhoni forest.

Fairly common in ghat areas in semi evergreen forests near jungle clearings and towards margins of forests. The fruits when ripe are eaten by villagers but not palatable. Dalgado records that *Vangueria madagascariensis* J. F. Gmel. Syst. 367, 1791 (= *Vangueria edulis* Vahl) a native of Madagaskar, was cultivated in Goa for its fruits.

MITRAGYNA Korth. *nom. cons.*

*Mitragyna parvifolia* (Roxb.) Korth. Obs. Naocl. Ind. 19, 1839 ; C. 2 : 8 ; G. 2 : 413 ; S. 101 ; Dangs. 14 ; Saur. 259 ; Pav. 118. *Nauclea parvifolia* Roxb. Pl. Cor. 1 : 40, t. 52, 1795. *Stephegyne parvifolia* Korth. Verh. Nat. Ges. Bot. 161, 1840 ; FBI 3 : 25 ; DG. 93, T. 2 : 86.

*Fl.* : April July. *Fr.* : August November. *Ill.* : T. f. 335.

*Vern.* : Kadam (Mar.) ; Kanu (Kan.) ; Kalam (Konk.) ; Kalame, Kadamb (Guj.).

*Loc.* : GOA : *Satari* : Caranzol old railway station. *Canacona* : Ordofond area ; Canacona area ; Butpal ; Nadquem. NAGARHAVELI : Saily forest ; Umberkoi Dongarpada forests ; Morkhal ; Jamunpada forest.

Common in cleared forest area and along roadside.

## MORINDA Linn.

- |   |                   |
|---|-------------------|
| 1. Climbing shrubs  | <i>umbellata</i>  |
| 1. Trees or shrubs  |                   |
| 2. Leaves glabrous, shining ; seeds winged                | <i>citrifolia</i> |
| 2. Leaves pubescent or tomentoes, dull ; seeds not winged | <i>tomentosa</i>  |

**Morinda citrifolia** Linn. Sp. Pl. 176, 1753 ; FBI 3 ; 155 ; DG. 99 ; C. 2 : 42 ; T. 2 : 121 ; G. 2 : 459.

*Fl.* : May June. *Ill.* : Bedd. Fl. Sylv. t. 220.

*Vern.* : Bartondi (Mar.) ; Ainshi (Kan.) ; Bartondi (Konk.).

The species though mostly cultivated, is also found as an escape in Concan (Vengurla) and Goa (Marmagoa) (Cooke and Dalgado). The species being subjected to considerable cultivation, the two varieties *bracteata* Hook. f. and *elliptica* Hook. f. though recognised by Hooker f. in FBI and followed by Cooke, are not quite clear and a more detailed work between the wild and cultivated forms, based on collections from different parts of India, is essential.

**M. tomentosa** Heyne ex Roth, Nov. Pl. Sp. 147, 1821 ; Saur. 253 ; Pav. 119. *M. tinctoria* Roxb. var. *tomentosa* Hook. f. in FBI 3 : 156, 1880 ; DG. 99 ; C. 2 : 43 ; T. 2 : 123 ; G. 2 : 459 ; Dangs 50.

*Fl.* : May July. *Fr.* : September.

*Vern.* : Aseti (Mar.) ; Mulgal (Kan.) ; Aseti (Konk.) ; Al. (Guj.).

*Loc.* : GOA : *Bardez* : Chopora, Kaisura fort. NAGARHAVELI : Dongarpada Umberkoi ; Carchand forests (Velgaon).

Common in deciduous forest.

**M. umbellata** Linn. Sp. Pl. 176, 1753 ; FBI 3 : 157 ; DG. 99 ; G. 2 : 460.

*Fl. & Fr.* : May - September.

*Vern.* : Ran-makad-phal (Konk.). Fructo dos macacos (Port.).

Mostly cultivated (Dalgado).

#### MUSSAENDA Linn.

Branchlets glabrous except the nodes ; leaves glabrous above, minutely pubescent below ; fruit glabrous

*glabrata*

Branchlets and leaves softly hairy ; fruit sparsely hirsute

*laxa*

**Mussaenda glabrata** (Hook. f.) Hutchin. ex Gamble, Fl. Pres. Madras 610, 1921 ; S. 104. *Mussaenda frondosa* var. *glabrata* Hook. f. in FBI. 3 : 90. *M. frondosa* Linn. Sp. Pl. 177, p.p. ; DG. 95 ; C. 2 : 24 ; T. 2 : 94.

*Fl.* : March. *Fr.* : August November. *Ill.* : T. f. 339.

*Vern.* : Bhutkes, Sherwod (Mar.) ; Pathri (Kan.) ; Sarvadi (Konk.).

*Loc.* : GOA : *Pernem* : Pernem Bicholim. *Satari* : Tanem ; Caranzol. *Bardez* : Porvorim forests. *Ilhas* : Chimbél reservoir - Brahmapuri temple.

*Sanguem* : Avelde jungle, Molem ; Potiem forests ; Suryagarh ; Patola ; Molem Belgaum Road, 71 km. *Canacona* : Ordofond - Butpal ; Ordofond forest, on way to Tudal ; Tudal, near nala ; Tudal ; Angidiv.

Common in the open forest edges.

*Mussaenda laxa* Hutchin. Herb. Kew ex Gamble, Fl. Pres. Madras, 610, 1921 ; *M. frondosa* var. *laxa* Hook. f. in FBI 3 : 89.

*Fl. & Fr.* : April November.

*Loc.* : GOA : *Satari* : Masarde hill, near Valpoi. *Bardez* : Betim. *Sanguem* : Sanguem Barazan mine area ; Colem area. *Quepem* : Budsari-Goundugarha. *Canacona* : Mukadomal Ordofond.

Common along roads and at the edges of forests.

#### NAUCLEA Linn.

*Nauclea missionis* Wall. ex Wt. & Arn. Prodr 392, 1834 ; FBI 3 : 27 ; DG. 93 ; G. 2 : 411. *Nauclea elliptica* Dalz. & Gibs. Bombay Fl. 118, 1861 (non Bedd.). *Sarcocephalus missionis* Haviland, in Jour. Linn. Soc. 33 : 32, 1897 ; C. 2 : 5 ; T. 2 : 84.

*Fl.* : April May.

*Vern.* : Phuga (Kon.).

The species which is common in evergreen forests of North Kanara, is also recorded for Goa ghats by Dalgado.

NEANOTIS W.H. Lewis (= *Anotis* auct. non DC.)

Walter H. Lewis [Annals of Missouri Botanical Garden 53 (1) : 32, 1966], while revising the American and Asian species of *Anotis* and other allied genera like *Hedyotis*, *Oldenlandia* indicates that all the 14 species included originally by DeCandolle in the genus *Anotis* DC. are referable to the already known earlier valid genera like *Arcytophyllum* and *Hedyotis* and they are native to the American origin only. With this understanding, the Asian species described under the genus *Anotis* DC. by the various authors on Asian Floras (including India) are quite distinct from the American group and hence a new name *Neanotis* has been proposed by Lewis with *Neonotis indica* (DC.) Lewis (= *Putoria indica* DC.) as the type species. As such all the species described under *Anotis* sensu Hook. f. in Benth. and Hook. f. Gen. Pl. 2 : 52, 1873, excl. sect. *serpicula* Hook. f. and sect. *Pterospora* Hook. f. non DC. (Prodr. 4 : 31, 1830) are now transferred to *Neanotis* by Lewis, under new combinations. The distinct nature of the genus *Neanotis* is further supported by Palyhological characters. Lewis, however, admits that a more detailed monographic work on the genus is needed to present a comprehensive data on the genus is needed to present a comprehensive data on the Asian species of the genus and its allies.

Many combinations under *Anotis* ascribed to Hook. f. in Benth. & Hook. f. Gen. Pl. 2 : 59-60, 1873 in the Index Kewensis, were only listed under *Anotis* in *Genera Plantarum* and accordingly to Art. 33 of the International Code of Botanical Nomenclature such a combination is not considered to be validly published. Fortunately, however, many such invalid combinations were validated by Hooker f. himself in the *Flora of British India*, seven years later.

1. Flowers in lax cymes
  2. Capsule broader than long ; calyx teeth a little below the top of the capsule in fruit *lancifolia*
  2. Capsule globose ; calyx teeth about middle of the capsule in fruit *rheedei*
1. Flowers in 2 to 3-flowered, capitate cymes
  3. Capsule 4-lobed and 4-celled ; calyx-teeth minute *quadrilocularis*
  3. Capsule 2-lobed and 2-celled *foetida*

*Neanotis foetida* (Hook. f.) W.H. Lewis in Ann. Missouri Bot. Gard. 53 : 38, 1966. *Anotis foetida* Hook. f. FBI 3 : 74, 1880 ; C. 2 : 22 ; G. 2 : 426 ; S. 104. *Hedyotis foetida* Dalz. in Hook. Journ. Bot. 2 : 134, 1850 *non* (Forst.) J.E. Smith (Rees Cyclop. 17, 1811).

*Fl. & Fr.* : August.

*Loc.* : GOA : *Bicholim* : Usgao Onda ; Narora. *Satari* : Castle rock on way to Anmode ; Dudhsagar along rail line ; Wagheri (Tanem). *Bardez* : Chopora. *Salcete* : Raiyi village hills. *Marmugao* : Vasco, Naval office plateau. *Sanguem* : Bati forest. *Canacona* : Angidiv.

Common on open rocky, gravelly soil of plateau areas but nowhere abundant.

*N. lancifolia* (Hook. f.) W. H. Lewis, *l.c.* 39, 1966. *Anotis lancifolia* Hook. f. FBI 3 : 73, 1880 ; C. 2 : 20 ; G. 2 : 426 ; S. 104. *Hedyotis lancifolia* Dalz. in Hook. Journ. Bot. 2 : 135, 1850, *non* Schum. in Schum. & Thonn. Beskr. Guin. Pl. 1 : 92, 1827.

*Fl. & Fr.* : September November.

*Loc.* : GOA : *Bicholim* : Usgao Onda. *Satari* : Nagargao. *Bardez* : Paliem, Bastara. *Salcete* : Margao hill top, around the fort. *Marmugao* : Vasco, Cortallum. *Sanguem* : Viliyan forest ; Sangum. *Canacona* : Ordofond-Tudal ; Butpal Nadquem ; Angidiv.

Common along rocky crevices and gravelly soil, especially during the first half of monsoon.

*N. quadrilocularis* (Thw.) W.H. Lewis, *l.c.* 39, 1966. *Hedyotis quadrilocularis* Thw. Enum. 144, 1858. *Anotis quadrilocularis* Hook. f. in FBI 3 : 74 ; C. 2 : 22 ; G. 2 : 427.

*Fl. & Fr.* : September - December. *Ill.* : Bedd. Ic. t. 28.

*Loc.* : GOA : *Satari* : Ivorem Burzuruco.

Though considerably rare as indicated by Cooke (*l.c.*), the species can be located in Goa in the rocky crevices along the hilly slopes.

*Neanotis rheedei* (Wall. ex Wt. & Arn.) W. H. Lewis *l.c.* 40, 1966. *Hedyotis rheedei* Wall. (Cat. no. 1294, 1829, *nom. nud.*) ex Wt. & Arn. Prodr. 409, 1834. *Hedyotis latifolia* Dalz. Hook. Jour. Bot. 2 : 133, 1850 *Anotis rheedei* (Wall. ex Wt. & Arn.) Hook. f. FBI 3 : 73, 1880 ; C. 1 : 21.

*Fl. & Fr.* : September - November.

*Loc.* : GOA : *Pernem* : Corgao. *Salcete* : Margoa hill top, around the fort ; *Vernem*. *Sanguem* : Castle rock on way to Anmoda ; Molem-Belgaum Road 67 km ; *Nanecha Dongar* (Codal) ; *Bati Sidh*.

Common as undergrowth in open forest.

#### NEONAUCLEA Merr.

*Neonauclea purpurea* Merr. in Interp. Rumph. Herb. Amb. 483, 1917; G. 2 : 412. *Nauclea purpurea* Roxb. Cor. Pl. 1 : 41, t. 54, 1795 ; FBI 3 : 26 ; DG. 93 ; C. 2 : 7 ; T. 2 : 89. *Nauclea elliptica* Bedd. Ic. Pl. Ind. Or. t. 19 (*non* Dalz. & Gibs.).

*Fl.* : February - March. *Fr.* : May - June. *Ill.* Bedd. Ic. t. 19.

*Vern.* : Dev-Phanas (Mar.) ; Ahnan (Kan.) ; Dhavo panas (Konk.) ; *Jaca falsa* (Port.).

The species which is treated under *Neonauclea* by Merrill, is common in the North Kanara ghats and is also recorded for Goa (Dalgado).

#### OPHIORRHIZA Linn.

*Ophiorrhiza prostrata* D. Don, Prodr. Fl. Nepal. 136, 1825. *O. harrisi* Heyne ex Hook. f. in FBI 3 : 78, 1880 ; C. 2 : 23 ; G. 2 : 428.

*Fl.* : September.

*Loc.* : GOA : *Satari* : Dinarai forest, Satrem. *Panda* : Usgaon.

Rare, inside the forest.

#### PAVETTA Linn.

Leaves obovate

Leaves elliptic

*crassicaulis*

*tomentosa*

**Pavetta crassicaulis** Bremek. in Fedde Repert. 37 : 112, 1934 & 47 : 25, 1939.

*Fl.* : April. May. *Fr.* : October November.

*Loc.* : GOA : *Satari* : Hariali forest, near Nandore ; Nagargao ; Koparde. *Bardez* : Succoor forests, near Porvorim. *Sanguem* : Colamba. *Canacona* : Nadquem ; Tudal, Angidiv.

Common in ghat areas at the edges of forests and in open situations.

**P. tomentosa** Roxb. ex Sm. in Rees, Cycl. 26 : no. 2, 1819.  
*Pavetta indica* Linn. var. *tomentosa* Hook. f. in FBI 3 : 150, 1880 ; C. 2 : 41.

*Fl.* : March May. *Fr.* : August November. *Ill.* : Wt. Ic. t. 1065.

*Loc.* : GOA : *Satari* : Tanem ; Ambeachagol ; Wadicha Dongar (Caranzol) ; Pale. *Sanguem* : Viliyan forest ; Durgan forests ; Ramde (Netravali). *Quepem* : Budsari Goundugarha. *Canacona* : Ordofond forest, on way to Tudal.

Common at the edge of the forests.

#### PSYCHOTRIA Linn. *nom. cons.*

**Psychotria dalzellii** Hook. f. in FBI 3 : 163, 1880 ; C. 2 : 45 ; T. 2 : 125 ; G. 2 : 451.

*Fl.* : May July. *Fr.* : August November. *Ill.* : T. f. 358.

*Vern.* : Shivan yallaki (Kan.).

*Loc.* : GOA : *Satari* : Dinarai forest, near Palli ; Codal ; Codal - Satrem road, 5 km ; Nanecha Dongar ; Satrem ; Castle rock on way to Anmode ; Ambeachgol. *Ponda* : Vernem. *Sanguem* : Sanguem Barazan mine area ; Pashia forest, near Pongeral ; Potiem forest ; Talauli ; Madka Banglow (Molem Belgaum Road). *Canacona* : Butpal ; Nadquem, Quer hills ; Butpal Nadquem ; Butpal.

Common inside the forest and occasionally along the forest edges.

#### RUBIA Linn.

**Rubia cordifolia** Linn. Mant. 197, 1767 ; FBI 3 : 202 ; DG. 100 ; C. 2 : 54 ; G. 2 : 462.

*Fl.* : October - January. *Ill.* : Wt. Ic. t. 187.

*Vern.* : Manjishth (Mar.) ; Itari (Konk.) ; Ruiva dos tirtureiros da India (Port.).

*Loc.* : GOA : *Sanguem* : Surla.

Fairly common along ghats (Dalgado).

## TARENNA Gaertn.

**Tarenna asiatica** (Linn.) Alston in Trimen Handb. Fl. Ceyl. 6, Suppl. : 150, 1931. *Rondeletia asiatica* Linn. Sp. Pl. 172, 1753. *Tarenna zeylanica* Gaertn. Fruct. 1 : 139, t. 28, 1788 ; C. 2 : 25. *Webera corymbosa* Willd. Sp. Pl. 1 : 1224, 1797 ; FBI 3 : 102 ; DG. 95 ; T. 2 : 96. *Stylocoryne webera* A Rich. Mem. Fam. Rubiac. 168, 1829 & in Mem. Soc. Hist. Nat. Par. 5 : 248, 1834.

*Fl.* : April June. *Ill.* : Gaertn. Fruct. t. 28.

*Vern.* : Kare (Mar.) ; Kupa (Konk.).

## TRICALYSIA A. Rich. ex DC.

Stamens with long filaments, exerted ; fruit sessile, ellipsoid, with a conical beak

*apiocarpa*

Stamens sessile ; fruits pedicelled, globose, without a conical beak

*sphaerocarpa*

**Tricalysia apiocarpa** Gamble, Fl. Pres. Madras, 620, 1921. *Diplospora apiocarpa* Hook. f. in FBI 3 : 123, 1880 ; DG. 97 ; C. 2 : 32 ; T. 2 : 105.

*Fl.* : July September. *Ill.* : Bedd. Ic. t. 40.

*Vern.* : Panigar (Konk.).

Rare along ghats (Dalgado).

**T. sphaerocarpa** Gamble, Fl. Pres. Madras, 320, 1921. *Diplospora sphaerocarpa* Hook. f. in FBI 3 : 123, 1880 ; DG. 97 ; C. 2 : 32 ; T. 2 : 106.

*Fl.* : October. *Fr.* : May. *Ill.* : T. f. 346.

*Vern.* : Wild coffee (Eng.).

Rare along ghats (Dalgado).

WENDLANDIA Bart. ex DC. *nom. cons.*

**Wendlandia thyrsoidea** (R. & S.) Steud. Nom. (ed. 2) 2 : 786, 1841 ; S. 102. *Canthium thyrsoideum* R. & S. Syst. 6 : 207, 1820. *Wendlandia notoniana* Wall. ex Wt. & Arn. Prodr. 403, 1834 ; FBI 3 : 40 ; DG. 94 ; C. 2 : 11 ; T. 2 : 93 ; G. 2 : 415.

*Fl.* : March May. *Ill.* : Wt. Ic. t. 1033 ; T. f. 338.

*Vern.* : Showla (Mar.) ; Taligi (Kan.).

*Loc.* : GOA : *Satari* : Near Nandore hills ; Kawaliyan forest. *Sanguem* : Bhati Sanguem. *Canacona* : Nadquem hills ; Nadquem - Quer hills.

Occasional in open situations on the hills, along streams.

### XEROMPHIS Rafin

Spines short, in 1 to 2 pairs at the ends of arrested branches ;  
leaves obovate, obtuse

*uliginosa*

Spines axillary, opposite or alternate ; leaves obovate - elliptic  
hispidly hairy on the nerves beneath

*spinosa*

*Xeromphis spinosa* (Thunb.) Keay, Bull. Jard. Bot. Etat. Brux. 28 : 37, 1958. *Gardenia spinosa* Thunb. Diss Gard. No. 7, 1780. *Randia dumetorum* (Thunb.) Poir. in Lamk. Encycl. Suppl. 2 : 829, 1812 ; FBI 3 : 110 ; DG. 95 ; C. 2 : 27 ; T. 2 : 98 ; G. 2 : 434. *Randia brandisii* Gamble, Fl. Pres. Madras, 616, 1921 : S. 104.

*Fl.* : March May. *Fr.* : August November. *Ill.* : Wt. Ic. t. 580 ; T. 2 : f. 341.

*Vern.* : Ghela (Mar.) ; Kari gidda (Kan.) ; Mindhal (Guj.).

*Loc.* : GOA : *Bicholim* : Pelernum village ; Nanore forest. *Satari* : Nandore forest ; Caranzol hills ; Caranzol old railway station area ; Nagram ; Golauli, Wolancha Dongar (Caranzol) ; Tanem ; Wadicha Dongar. *Ilhas* : Lake near Chinchinum ; Kanpal hill top ; Plateau on way to Military Camp, Chimbhel reservoir. *Sanguem* : Bati ; foot hill, near Patim ; Molem Ponda ; Moduka bungla jungle, near Molem ; Sidh forests, near Bati ; Periche Tem (Cumbari) ; Cumbari ; Vidugune (Netraveli) ; Chausunaghat (Netraveli) ; Nondrena near Molem ; Molem-Belgaum Road, 71 km. *Salcete* : Verna lake outskirts. *Canacona* : Ordofond ; Butpal Ordofond, road side ; Ordofond Butpal forest ; Mehdan forest, near Nadquem ; Angidiv. NAGARHAVELI : Chispana forest area ; Carchond forest ; Morkhal ; Velugaon.

Very common in deciduous forest, usually in open situations on hill tops.

*X. uliginosa* (Retz.) Maheshwari in Bull. Bot. Surv. India 3 (1) : 92, 1961. *Gardenia uliginosa* Retz. Obs. 2 : 13, 1781. *Randia uliginosa* DC. Prodr. 4 : 386, 1830 ; FBI 3 : 110 ; DG. 95 ; C. 2 : 27 ; T. 2 : 97 ; G. 2 : 434 ; S. 266.

*Fl.* : May June. *Fr.* : August September. *Ill.* : Wt. Ic. t. 397 ; T. f. 340.

*Vern.* : Pandri (Mar.) : Banbugi (Kan.) ; Pemdari (Konk.) Gangeda (Guj.).



*Loc.* : GOA. : *Satari* : Codal forest area. *Sanguem* : near Anvaldem.  
NAGARHAVELI : Atal forest, near Silvassa.

Rare on ghat forests.

*Cult species* :

*Anthocephalus chinensis* (Lamk.) Rich. ex Walp. in Rep. 2 : 491, 1843. *Anthocephalus indicus* A. Rich. in Mem. Soc. His. Nat. Par. 5 : 238, 1834 ; C. 2 : 6 ; G. 2 : 411. *A. cadamba* Miq. Fl. Ind. Bat. 2 : 135, 1856 ; FBI 3 : 23 ; DG. 92 ; T. 2 : 88.

*Fl.* : November February. *Ill.* : Bedd. Fl. Sylv. t. 35.

*Vern* : Kadam (Mar.) ; Kadwal (Kan.) ; Niv. (Konk.) ; Wild cinchona (Eng.).

This species is mostly found in cultivation near villages and temples (Dalgado).

*Coffea arabica* Linn. Sp. Pl. 172, 1753 ; FBI 3 : 153 ; DG. 98 ; C. 2 : 55 ; T. 2 : 120 ; G. 2 : 449.

*Fl.* : January April. *Ill.* : Wt. Ic. t. 53.

*Vern.* : Kaphe (Mar.) ; Cafezeiro (Port.).

The species, a native of Abyssinia was introduced and cultivated in Goa (Satari, Tamboli etc.) (Dalgado), possibly on experimental basis.

*C. liberica* Bull ex Hiern, in Trans. Linn. soc. ser. II, 1, 171, t. 24, 1876 ; DG. 98.

*Vern.* : Cafeeiro libenico (Port.). *Ill.* : Fl. W.T.A. 2 : 155, f. 231.

The Liberian coffee was introduced from Liberia and Angola into Goa by Col. G. R. C. Westropp (Dalgado) possibly for experimental purposes.

*Ixora barbata* Roxb. Fl. Ind. 1 : 384, 1820 ; DG. 98.

*Vern.* : Dhavi padkali.

Mostly cultivated in gardens.

## ASTERACEAE

(= COMPOSITAE)

### 1. All florets ligulate

2. Achenes columnar, truncate at both ends

*Launaea*

2. Achenes compressed, beaked or not

3. Achenes beaked

*Lactuaca*

3. Achenes not beaked

*Sonchus*

1. Florets all tubular or the outer only ligulate, at any rate not all florets ligulate
  4. All florets tubular
    5. Flowers orange or yellow
      6. Flowers orange *Gynura*
      6. Flowers yellow
      7. Pappus present
        8. Pappus uniseriate, slender
          9. Aromatic herbs ; heads solitary or fascicled or paniced ; achenes angled or terete
            10. Anthers tailed *Blumea*
            10. Anthers not tailed *Laggera*
            9. Herbs not aromatic ; heads corymbose or paniced ; achenes compressed *Conyza*
            8. Pappus tubular with fimbriate mouth *Grangea*
          7. Pappus absent
            11. Anther bases obtuse, entire ; achenes ellipsoid, oblong or subovoid *Artemisia*
            11. Anther bases truncate ; achenes compressed *Dichrocephala*
5. Flowers blue, purple, pink or white
  12. Leaf margins and (or) involucre bracts spinose or spinescent
    13. Heads one flowered ; achenes smooth *Tricholepis*
    13. Heads many flowered ; achenes villous *Echinops*
  12. Leaf margins or involucre bracts not spinescent
    14. Heads 1 or few- flowered, crowded into dense clusters resembling simple heads
      15. Leaves alternate mostly radical ; involucre bracts ; scarious corolla violet *Elephantopus*
      15. Leaves opposite or the upper only alternate ; involucre bracts silky hairy ; corolla white *Lagascea*
    14. Heads many-flowered, terminal or leaf-opposed, sub-corymbosely paniculate
      16. Leaves with dense, white, woolly tomentum beneath
        17. Achenes 8 to 10-ribbed *Centratherum*
        17. Achenes not ribbed *Lamprachaenium*

16. Leaves without white tomentum beneath
18. Pappus absent
19. Leaves toothed, decurrent on the stem ; heads numerous, sessile crowded on a large receptacle into a globose terminal head *Sphaeranthus*
19. Leaves pinnatisect, not decurrent on the stem; heads in small panicles *Cyathocline*
18. Pappus present
20. Pappus usually of 3-5 paleaceous scales or glandular setae
21. Involucral bracts very acute, ribbed on the back, ciliolate and with scarious margins *Ageratum*
21. Involucral bracts obtuse or subacute, glabrous, glandular or scabrid, margins not scarious *Adenostemma*
20. Pappus long, copious
22. Leaves entire or toothed *Vernonia*
22. Lower leaves lyrate or obovate, upper amplexicaule and auricled *Emilia*
4. Inner florets tubular and outer rayed
23. Receptacle naked, pitted or fimbriate
24. Leaves glabrous, decurrent on the stem ; florets purple *Epaltes*
24. Leaves glabrous or white or grey cottony tomentose beneath, not decurrent on the stem ; florets yellow *Senecio*
23. Receptacle palaeaceous
25. Palae of the receptacle flat, not folded around the achenea

26. Involucral bracts free, the outer herbaceous, the inner merging into the palae of the receptacle ; leaves simple
27. Achenes of ray florets compressed, pectinate winged, of disc florets triquetrous *Synedrella*
27. Achenes almost all alike, angled
28. Erect, tall glabrous herb ; pappus absent *Guizotia*
28. Procumbent, hispid herb ; pappus of spreading, plumose bristles *Tridax*
26. Inner involucral bracts connate at base, outer few usually smaller ; leaves divided *Bidens*
25. Palae of the receptacle concave or folded around the achenes
29. Heads in the forks of dichotomous branches ; inner involucral bracts embracing the fertile ray achenes ; achenes spinous *Acanthospermum*
29. Heads axillary or terminal ; inner involucral bracts not embracing the ray achenes
30. Ligulate florets absent *Spilanthes*
30. Ligulate florets present
31. Pappus forming a cup or annulus with or without bristles
32. Leaves with short petiole ; ligules conspicuous, yellow ; capitula long peduncled ; achenes tuberculate with caducous aristae *Wedelia*
32. Leaves with slender petiole ; ligules small, white ; capitula sessile or shortly pedunculate ; achenes minutely rugose with persistent, barbellate aristae *Blainvillea*
31. Pappus not united into a cup or annulus
33. Leaves petiolate ; flower heads fairly large, yellow ; scales of the receptacle numerous *Melanthera*
33. Leaves sessile ; flower heads small, white ; scales of the receptacle few *Eclipta*

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\**Caesulia*, *Vicoa*, *Pulicaria* and *Xanthium* are later additions and hence not included in the Key.

## ACANTHOSPERMUM Schrank

**Acanthospermum hispidum** DC. Prodr. 5 : 522, 1836 ; G. 2 : 495 ; S. 123 ; Pav. 132.

*Fl. & Fr.* : September November. *Ill.* : Tadulingam & Venkatanarayana, Handb. Some South Indian weeds, t. 91, f. 1-7, 1955.

*Loc.* : GOA : *Ilhas* : Panaji along coastal area. *Sanguem* : Netraveli. NAGARHAVELI : Nala between Kowcha and Jamunpada. DAMAN : Cataria. DIU : Diu town near Rest House ; Gogale.

Common, along roadsides, river beds, wastelands, fallow fields etc. especially during monsoon.

## ADENOSTEMMA Forst.

**Adenostemma lavenia** (Linn.) O. Kuntze, Rev. Gen. Pl. 1 : 304, 1891 ; G. 2 : 476. *Verbesina lavenia* Linn. Sp. Pl. 902, 1753. *Adenostemma viscosum* Forst. Charact. Gen. 90, 1776 ; FBI 3 : 242 ; DG. 101 ; C. 2 : 69.

*Fl. & Fr.* : September February. *Ill.* : Wt. Ic. t. 1087 & 1088.

*Vern.* : Ghanerem (Konk.).

*Loc.* : GOA : *Sanguem* : Netraveli.

The species is found to be common in moist situations (Dalgado). The leaves vary very much depending on the soil and the habitat.

## AGERATUM Linn.

**Ageratum conyzoides** Linn. Sp. Pl. 839, 1753 ; FBI 3 : 243 ; DG. 101 ; C. 2 : 70 ; G. 2 : 476 ; S. 110 ; Dang. 15 ; Pav. 123.

*Fl. & Fr.* : Throughout the year. *Ill.* : Wt. Ic. t. 1098.

*Vern.* : Sahadevi, Osadi (Mar.) ; Nayitulasi (Kan.) ; Vosadi (Konk.) ; Herva de S. Joao ou Mentrasto (Port.) ; Ajgantha (Guj.).

*Loc.* : GOA : *Pernem* : Cargo. *Satari* : Onda village ; Valpoi. Nanacha Dongar (Codal) ; Satrem ; Kulacheamal (Savorem) ; Wadicha Dongar (Caranzol) ; Dudhsagar. *Bardez* : Porvorim ; Nuvem ; Cargao. *Salcete* : Goodier. *Marmugao* : Marmugao harbour area. *Ponda* : Borim, near bride. *Sanguem* : Along Goa road, Anomode Molem ; Nandrona near Molem ; Molem Belgaum Road, 73 km ; Barazon ; Bati. *Canacona* : Barsare nala, near Tudal ; Angidiv. NAGARHAVELI : Sindhoni forest ; Nana Randha ; Bank of Damanganga river on way to Kawcha ; Dudeni ; Kuntly forest. DADRA. DAMAN : Fort area.

Common in moist, shady places.

## ARTEMISIA Linn.

*Artemisia nilagirica* (Clarke) Pamp. in Nuov. Giorn. Bot. Ital. 33 : 452, 1926 ; S. 119. *A. vulgaris* Linn. var. *nilagirica* Clarke, Comp. Ind. 162. *A. vulgaris* auct. non Linn. FBI 3 : 325 ; DG. 105 ; C. 2 : 105 ; G. 2 : 502.

*Fl. & Fr.* : September - January. *Ill.* : Wt. Ic. t. 1112.

*Vern.* : Dhordavana (Mar.) ; Surpin (Konk.) ; *Artemisia verdadeira* (Port.).

The plant which is common in the ghat area is sometimes cultivated in gardens also (Dalgado).

Following the work of Pampanini (*l.c.*) it is now evident that the Indian species *Artemisia* common along the Western ghats is a distinct species, quite unconnected with the European *A. vulgaris* Linn., commonly recorded as such in the Indian Floras.

## BIDENS Linn.

- |  |                  |
|--|------------------|
| 1. Leaves 3-fid or 3-sect, segments broadly or narrowly ovate or lanceolate serrate            | <i>bitemata</i>  |
| 1. Leaves bipinnatifidly compound, segments ovate lanceolate or linear entire lobed or toothed | <i>bipinnata</i> |

*Bidens bipinnata* Linn. Sp. Pl. 832 ; 1753 ; Roxb. Fl. Ind. 3 : 411. *B. pillosa* Linn. var. *bipinnata* Hook. f. FBI 3 : 309, 1882 ; C. 2 : 101 ; G. 2 : 499. *B. Wallichii* DG. Prod. 5 : 598, 1836 ; Dalz. & Gibs. Bomb. Fl. 129.

*Loc.* : GOA : *Sanguem* : Verlem.

*B. bitemata* (Lour.) Merr. & Sherff in Bot. Gaz. 88 : 293, 1829 ; S. 118 ; Dangs. 15. Pav. 125. *Coreopsis bitemata* Lour. Fl. Cochinch. 508, 1790. *Bidens pillosa* auct. non Linn. (1753) : FBI 3 : 309 ; C. 2 : 101 ; G. 2 : 499.

*Fl. & Fr.* : September - December.

*Loc.* : GOA : *Ilhas* : Santacruz area. DAMAN : Coileque area. DIU : Sandstone ditch, castle area.

Frequent in wasteland and near sea shore, usually in moist situations.

## BLAINVILLEA Cass.

*Blainvillea acmella* (Linn. f.) Philipson in Blumea 6 : 350, 1950. Pav. 125. *Verbesina acmella* Linn. f. Suppl. 378, 1781. *Blainvillea latifolia*

(Linn. f.) DC. ex Wight, Contrib. 17, 1834 ; FBI 3 : 305. *B. rhomboidea*  
Cass. in Dict. Sc. Nat. 29 : 494, 1823 ; C. 2 : 97 ; G. 2 : 496.

*Fl. & Fr.* : August September.

*Loc.* : GOA : *Bardez* : Bastara : *Salcete* : Raiyi village. NAGARHAVELI :  
Phlipson Velugaon ; Dolara. DAMAN : Fort area. DIU : Nagoa ; Jhoola.

Common in open situations in wastelands, fallow fields etc.

BLUMEA DC. *nom. cons.*

- |   |                    |
|---|--------------------|
| 1. Heads few in axillary and terminal corymbs or solitary,<br>peduncled at the ends of the branches |                    |
| 2. Heads few in axillary and terminal corymbs   |                    |
| 3. Erect herbs  |                    |
| 4. Leaves membranous ; achenes angled   | <i>eriantha</i>    |
| 4. Leaves leathery ; achenes flattened, hairy   | <i>malcolmii</i>   |
| 3. Prostrate herbs  | <i>oxyodonta</i>   |
| 2. Heads solitary, peduncled at the ends of the branches  | <i>obliqua</i>     |
| 1. Heads many   |                    |
| 5. Heads sessile in interruptedly spicate glomerules  | <i>fistulosa</i>   |
| 5. Heads in peduncled clusters or in spreading corymbs and<br>panicles                              |                    |
| 6. Heads in peduncled clusters  | <i>lacera</i>      |
| 6. Heads in spreading corymbs and panicles  |                    |
| 7. Stem and branches glabrous ; leaves lyrate, runcinate  | <i>virens</i>      |
| 7. Stem and branches pubescent ; leaves obovate or<br>oblanceolate                                  | <i>membranacea</i> |

*Blumea eriantha* DC. in Wight, Contrib. 15, 1834 ; FBI 3 : 266 ; DG.  
102 ; C. 2 : 78 ; G. 2 : 482 ; S. 114 ; Pav. 129.

*Fl.* : September.

*Vern.* : Nimurdi (Mar.) ; Nimdi (Konk.).

*Loc.* : NAGARHAVELI : Chispana area ; Silvassa along Daman ganga  
river bank ; Nana Randha ; Jamunpada forest.

Common and indigenous to Concan (Dalgado). A variable and  
polymorphous herb.

It would be of considerable interest to record that a very sweet  
scented essential oil has been extracted from this species at the National  
Chemical Laboratory, Poona at the initiation of the present author and  
further work is still in progress.

**Blumea fistulosa** (Roxb.) Kurz, Journ. As. Soc. Beng. 46 (2) : 187, 1877. *Conyza fistulosa* Roxb. Fl. Ind. 3 : 429, 1832. *Blumea glomerata* DC. in Wt. Contrib. Bot. Ind. 15, 1834 ; FBI 3 : 262 ; DG. 102 ; C. 2 : 76 ; G. 2 : 483.

*Fl. & Fr.* : September - October.

*Vern.* : Bhambhurda (Mar.) ; Bambrudo (Konk.).

The species considered to be rather rare along Concan by Cooke, has been indicated, however, as common in Goa by Dalgado. Such general indication needs further scrutiny.

**B. lacera** (Burm. f.) DC. in Wight Contrib. 14, 1834 ; FBI 3 : 263 ; DG. 102 ; C. 2 : 76 ; G. 2 : 483 ; S. 113. *Conyza lacera* Burm. f. Fl. Ind. 180, 1768.

*Fl. & Fr.* : October.

*Vern.* : Burando (Mar.) ; Bamburdi (Konk.).

*Loc.* : GOA : *Canacona* : Nagargao.

Rare, usually in open situations.

**B. malcolmii** (Cl.) Hk. f. FBI 3 : 266, 1881 ; C. 2 : 78 ; G. 2 : 482. *Pluchea malcolmii* C. B. Clarke, Comp. Ind. 95, 1876.

*Fl.* : November - February.

*Loc.* : NAGARHAVELI : Dongarpad Umberkoi.

**B. membranacea** DC. Prodr. 5 : 440, 1836 ; FBI 3 : 265 ; C. 2 : 77 ; G. 2 : 483 ; S. 114 ; Pav. 130.

*Fl. & Fr.* : March November.

*Loc.* : GOA : *Ilhas* : Santacruz area. *Sanguem* : Talem forest, towards Patiem. *Canacona* : Ordofond forest ; Ordofond, near the river. DAMAN : Fort area.

Common in the shady undergrowth of the forests. Closely allied to *Blumea virens* DC. and often regarded as a glandular - pubescent form of *B. virens*.

**B. obliqua** (Linn.) Druce in Rep. Exch. Club. Brit. Isles 4 : 609, 1917. *Erigeron obliquus* Linn. Mant. 573, *Blumea amplectens* DC. in Wt. Contrib. 13, 1834 ; FBI 3 : 260 ; C. 2 : 75.

*Fl. & Fr.* : August.

*Loc.* : DIU : Nagoa.

Rare, on rocky areas.

**B. oxyodonta** DC. in Wight Contrib. 15, 1834 ; FBI 3 : 266 ; C. 2 : 77 ; G. 2 : 482 ; S. 114.

*Fl. & Fr.* : March May.



*Loc.* : *Satari* : Near Nandore. *Salcete* : Raiyi village. *Canacona* : Butpal village. DADRA.

Common in open areas and waste places, usually among grasses.

*Blumea virens* DC. in Wight, Contrib. 14, 1834 ; FBI 3 : 264 ; C. 2 : 77 ; G. 2 : 483 ; S. 113.

*Fl. & Fr.* : April May.

*Loc.* : GOA : *Sanguem* : Colem, along railway line. *Canacona* : Barsare village, near Tudal.

Occasional along forest covered hill slopes. A distinct species of the genus by its entire glabrous nature.

#### \*CAESULIA Roxb.

*Caesulia axillaris* Roxb. Pl. Cor. 1 : 64, t. 93, 1775 ; FBI 3 : 291 ; C. 2 : 62 ; S. 117 ; Dangs. 15 ; Pav. 123.

*Fl. & Fr.* : September - November. *Ill. Wt. Ic.* t. 1102.

*Loc.* : NAGARHAVELI : Dudeni, Dolara ; Khanvel. DADRA.

Fairly common in moist situations throughout the area, often gregarious covering large areas. Very common especially in cultivated fields and marshy region during the monsoon season.

#### CENTRATHERUM Cass.

- |  |                      |
|--|----------------------|
| 1. Pappus yellowish ; outer involucre of bracts with coarse moniliform hairs, usually obtuse   | <i>courtallensis</i> |
| 1. Pappus reddish  |                      |
| 2. Variably branched herb (not dichotomously) ; outer involucre bracts 1- $\alpha$ ; linear or lanceolate ; achenes deeply 10-ribbed | <i>phyllolaenum</i>  |
| 2. Dichotomously branched herb ; outer involucre bracts 1 or 2 linear oblong ; achenes faintly 10-ribbed                             | <i>tenuis</i>        |

*Centratherum courtallense* (Wt.) Benth. in Gen. Pl. 2 : 225, 1862, non. C.B. Cl. ; FBI 3 : 227 ; G. 2 : 469. *Decaneuron courtallense* Wt. Ic. t. 1081, 1846.

*Loc.* : GOA : *Sanguem* : Bati Sidh.

*C. phyllolaenum* (DC.) Benth. ex C. B. Clarke, Comp. Ind. 4, 1876; FBI 3 : 228 ; C. 2 : 62 ; G. 2 : 469 ; S. 108. *Decaneurum phyllolaenum* DC. Prodr. 7 : 264, 1838.

*Fl. & Fr.* : September November.

\*Later addition and hence not included in the generic Key.

*Loc.* : GOA : *Bicholim* : Bicholim - Ponda. *Bardez* : Bastara. *Satari* : Codal ; Onda. *Ilhas* : Brahmapuri temple, near old Goa. *Sanguem* : Molem, Avelde jungle ; Dudal ; Bali ; Molem ; Netravali ; Barazon. *Canacona* : Butpal Kanpal hill top ; Ordofond Butpal ; Ordofond. NAGARHAVELI: Sindhoni forest ; Khuntly forest ; Dolara. DAMAN : Dundorta.

Common in open areas along forest edges, not gregarious ; usually very variable in size.

*Centratherum tenue* (Wight) C. B. Clarke, *Comp. Ind.* 4, 1876 ; FBI 3 : 228 ; C. 2 : 63 ; S. 108. *C. molle* Benth. var. *tenue* Wight ex C. B. Clarke, *Comp. Ind.* 4, 1876.

*Fl. & Fr.* : October.

*Loc.* : GOA : *Satari* : Onda.

Rare, in open situations. The plant is elegant and attractive especially when in flowers.

#### CONYZA Less *nom. cons.*

*Conyza leucantha* (D. Don) Ludlow & Raven in *Kew Bull.* 17 : 71-72, 1963. *Erigeron leucanthum* D. Don *Prodr. Fl. Nep.* 171, 1825. *Conyza viscidula* Wall. (Cat. 3006, 1831 *nom. nud.*) ex DC. *Prodr.* 5 : 388, 1836 ; FBI 3 : 258 ; G. 2 : 480.

*Fl. & Fr.* : March.

*Loc.* : GOA : *Canacona* : Choram hill top, Nadquem.

Rare, in ghat areas in open situations.

#### CYATHOCLINE Cass.

*Cyathocline purpurea* (Don) Kuntze, *Rev. Gen. Pl.* 338, 1891 ; S. 110. *Tanacetum purpureum* Don *Prodr.* 181, 1825. *Cyathocline lyrata* Cass. in *Ann. Soc. Sci. Nat. (ser. 1)* 17 ; 420, 1829 ; FBI 3 : 246 ; C. 2 : 71 ; G. 2 : 478.

*Fl. & Fr.* : November -April. *Ill.* : Wt. Ic. t. 1098.

*Loc.* GOA : *Satari* : Masarde village, near Valpoi ; Codal area. *Sanguem* : Talem, on way to Patiem. *Quepem* : Budsari Coundugarha. *Canacona* : Ordofond, near the river. NAGARHAVELI : Silvassa, along Damanganga river bank ; Morkhal ; Bank of Damanganga river on way to Kawcha ; on way to Sindhoni from Khanvel.

Common throughout the area in moist situations ; also as a roadside weed. The plant flowers profusely in cold season.

## DICHROCEPHALA DC.

**Dichrocephala latifolia** DC. in Wight, Contrib. 11, 1834 ; FBI 3 : 245 ; C. 2 : 70 ; G. 2 : 477.

*Fl.* : August October.

*Loc.* : GOA : *Sanguem* : Surla.

## ECHINOPS Linn.

**Echinops echinatus** Roxb. [Hort. Beng. 62, 1814 (*nom. nud.*) &] Fl. Ind. 3 : 447, 1832 ; FBI 3 : 358 ; C. 2 : 112 ; Dangs. 15 ; Pav. 123.

*Fl. & Fr.* : September. *Ill.* : Wealth of India 3 : f. 75.

*Vern.* : Utkanto (Guj.).

*Loc.* : DAMAN : Between Bimpur & Janivancore. DIU : Jalandhar ; Castle area.

Occasional on gravelly, sandy soil near sea shore. Often the name is attributed to De Candolle (Wt. Contr. Ind. Bot. 24, 1834) but since Roxburgh's publication is two years earlier, the citation should be credited to Roxburgh only.

## ECLIPTA Linn.

**Eclipta alba** (Linn.) Hassk. Pl. Jav. Rar. 528, 1848 ; FBI 3 : 304 ; DG. 103 ; G. 2 : 496. *Verbesina alba* Linn. Sp. Pl. 902, 1753. *Eclipta prostrata* (Linn.) Linn. Mant. 2 : 286, 1771 ; S. 118 ; Pav. 124. *E. erecta* Linn. Mant. 2 : 286, 1771 ; C. 2 : 95.

*Fl. & Fr.* : August December. *Ill.* : Wealth of India, 3 : f. 76 ; Tadulingam & Venkatanarayana in Handb. Some South Indian weeds, t. 92, f. 1-11, 1955.

*Vern.* : Bhingurja (Mar.) ; Caragadasoppu (Kan.) ; Mako (Konk). Dodhak (Guj.).

*Loc.* : GOA : *Satari* : Masarde village, near Valpoi ; Onda ; Gaulauli ; Pale (Tanem). *Bardez* : Chopora, Kaisuya fort. *Salcete* : Margao fields. *Ponda* : Palerum village ; Curti village. *Sanguem* : Bali ; Patrem. *Quepem* : Rivona. NAGARHAVELI : Sindhoni forest ; Silvassa along Daman Ganga river bank ; Dhapsa ; Morkhal. DADRA. DAMAN : Coileque area ; Marvor : Fort area. DIU : Castle area ; Gogale.

Common in moist situations, often along cultivated fields, and near salt pans.

The author who first unites the taxa, is to be followed (Int. Code Bot. nomen. art. 57, 48-49, 1978).

## ELEPHANTOPUS Linn.

**Elephantopus scaber** Linn. Sp. Pl. 814, 1753 ; FBI 3 : 242 ; DC. 101 ; C. 2 : 68 ; G. 2 : 476 ; S. 110 ; Dangs. 16.

*Fl. & Fr.* : September November. *Ill.* : Wt. Ic. t. 1086.

*Vern.* : Pathari (Mar.) ; Bhopathari (Guj.) ; Hakkarike (Kan.) ; Bhopathari (Guj.).

*Loc.* : GOA : *Satari* : Codal village ; Nanecha Dongar (Codal) ; Caranzol Saverdem. *Bardez* : Sukur village. *Ilhas* : Chimbhel reservoir area, near Panaji. *Salcete* : Goodier. *Marmugao* : Marmugao hill top, around the fort. *Sanguem* : Bali ; Madka Banglow (Molem Belgaum Road) ; Molem Belgaum Road, 71km ; Chansuria ghats (Netravali). *Quepem* : Budsari Goundugarha. *Canacona* : Nagargao. NAGARHAVELI : Silvassa ; Khanvel ; Nala near Dudhari near bus stop ; Umberkoi Dongar pade forests.

Common in waste places along roadside, usually in the shady under growth of trees.

## EMILIA Cass.

**Emilia sonchifolia** (Linn.) DC. in Wight Contrib. 24, 1834 & in DC. Prodr. 6 : 302, 1837 ; FBI 3 : 336 ; DG. 105 ; C. 2 : 107 ; G. 2 : 503 ; S. 120 ; Dangs. 16 ; Pav. 128. *Cachalia sonchifolia* Linn. Sp. Pl. 835, 1753.

*Fl. & Fr.* : August - September. *Ill.* : Fl. Barbados, Gooding *et al* 437, f. 27, 1965.

*Vern.* : Undrachim Panam (Konk.) ; Harva do figado (Port.).

*Loc.* : GOA : *Satari* : Nanecha Dongar ; Wadicha Dongar. Dudh-sagar. *Bardez* : Porvorim village field ; Chopora, Kaisura fort. *Marmugao* : Cortallim. *Sanguem* : Nondrena near Molem 1000 ; Surla ; Madka Bunglow (Molem Belgaum Road). NAGARHAVELI : Sindhoni forest ; Khuntly forest area. DAMAN : Dolar.

Common on rocky hill slopes, in shady moist situations.

## EPALTES Cass.

**Epaltes divaricata** Cass. in Bull. Soc. Philom. 139, 1818 ; FBI 3 : 274 ; C. 2 : 83 ; G. 2 : 486 ; S. 116.

*Fl. & Fr.* : October November.

*Loc.* : GOA : *Pernem* : Ambrem, near Pernem. *Satari* : Nagram, Nanecha Dangar (Codal). Caranzol; Pale. *Bardez* : Betim. *Salcete* : Cortallim Madgao, plateau area. *Canacona* : Butpal; Tudal.

Frequent, in rice fields.

#### GRANGEA Adans.

*Grangea maderaspatana* (Linn.) Poir. *Encycl. Suppl.* 2 : 825, 1811 ; *FBI* 3 : 243 ; *DG.* 101 ; *C.* 2 : 72 ; *G.* 2 : 478 ; *S.* 112 ; *Dangs.* 17 ; *Pav.* 131. *Artemisia maderaspatana* Linn. *Sp. Pl.* 849, 1753.

*Ill.* : *Wt. Ic. t.* 1097.

*Vern.* : Mashipatri (Mar.) ; Devana (Kan.) ; Modagoru (Konk.) ; Khinkimundi ; Mundi (Guj.).

*Loc.* : NAGARHAVELI : Along Dapada, Chispana. DAMAN : Regunvara ; Dabel.

Common in moist areas.

#### GUIZOTIA Cass. *nom. cons.*

*Guizotia abyssinica* Cass. in *Dict. Sc. Nat.* 59 : 248, 1829 ; *FBI* 3 : 308 ; *DG.* 103 ; *C.* 2 : 125 ; *G.* 2 : 498 ; *S.* 123 ; *Dangs.* 17.

*Fl. & Fr.* : October - November. *Ill.* : *Wealth of India*, 4 : f. 136.

*Vern.* : Khurasni (Mar.) ; Ourellu (Kan.) ; Rantil (Konk.) ; *Verbesina da India* (Port.) ; Kalatel (Guj.).

*Loc.* : GOA : *Bicholim* : Usgao. *Satari* : Golauli. *Canacona* : Canacona-Balli. Angidiv. NAGARHAVELI : Jamunpada forests ; Nana Randha. DADRA : Tingra village.

Though cultivated as an oil crop, the plant is seen as an escape and attractive when in flowers.

#### GYNURA Cass.

*Gynura cusimbua* (D. Don) S. Moore in *Journ. Bot.* 50 : 212, 1912. *Cacalia cusimbua* D. Don, *Prodr. Fl. Nep.* 179, 1825. *Gynura angulosa* DC. *Prodr.* 6 : 298, 1838 ; *FBI* 3 : 334 ; *C.* 2 : 106 ; *S.* 119.

*Fl. & Fr.* : March - April.

*Loc.* : GOA : *Satari* : Nandore village fields ; Satre river bank, Codal Ambechagol ; Golauli ; Caranzol ; Castle rock on way to Anmod ;

Nanecha Dongar (Codal). *Sanguem* : Valkeri ; Molem Belgaum Road 17 km ; Nondrona near Molem-10001.

Occasional in sandy soil and river banks with orange red flowers.

### LACTUCA Linn.

Stout herbs 0.60 m-1.50 m high ; leaves sometimes 30.48 cm long

*runcinata*

Slender herbs 20-46 cm ; leaves rarely exceeding 10 cm long

*remotiflora*

*Lactuca remotiflora* DC. in Wight Contrib. 26, 1834 ; FBI 3 : 403 ; DG. 107 ; C. 2 : 118.

*Fl. & Fr.* : September.

*Vern.* : Undirachakan (Mar.) ; Taraxco (Port.).

*Loc.* : DAMAN : Airport area.

Rare on gravelly soil in Goa area (Dalgado)

*L. runcinata* DC. in Wt. Contrib. Bot. Ind. 26, 1834 : C. 2 : 118. *Lactuca heyneana* DC. Prodr. 7 : 140, 1838 ; FBI 3 : 403, 1881.

*Fl. & Fr.* : August. *Ill.* : Wt. Ic. t. 1146 ; Tadulingam & Venkatanarayana, Hanb. Some South Indian Weeds, t. 99, f. 1-7.

*Loc.* : DIU : Castle area.

Rare, near sand stone ditch.

*Cult. species* :

*L. scariola* Linn. Sp. Pl. ed. 2 : 1119, 1763 ; FBI 3 : 404 ; DG. 107 ; C. 2 : 119.

*Vern.* : Alfas (Konk.) ; Oarden lettuce (Eng.) ; Alface (Port.).

The species is cultivated for Salad.

### LAGASCEA Cav. *nom. cons.*

*Lagascea mollis* Cav. in Anal. Cienc. Nat. 6 : 322, t. 44, 1803 ; FBI 3 : 302 ; C. 2 : 93 ; G. 2 : 494 ; S. 118.

*Fl. & Fr.* : August January. *Ill.* : Tadulingam & Venkatanarayana, Handb. Some South Indian weeds, t. 90, f. 1-8, 1955.

*Loc.* : GOA : *Salcete* : Marmugao hillock.

Occasionally in open situations.

## LAGGERA Sch. Bep. ex Oliver

**Laggera alata** (D. Don) Schultz Bip. ex Oliver in Trans. Linn. Soc. 29 : 94, 1875. ; FBI 3 : 271 ; DG. 102 ; C. 2 : 80 ; G. 2 : 485. *Erigeron alatum* Don, Prodr. 171, 1825.

*Fl. & Fr.* : December February. *Ill.* : Wt. Ic. t. 1101 (as *Blumea alata* DC.).

*Vern.* : Ran muli (Konk.).

Occasional along Western ghats and Dalgado also records for Goa.

## LAMPRACHAENIUM Benth.

**Lamprachaenium microcephalum** (Dalz.) Benth. & Hook. f. Gen. Pl. 2 : 226, 1873 ; FBI 3 : 299 ; DG. 100 ; C. 2. 64. *Decaneurm microcephalum* Dalz. in Kew Journ. Bot. 3 : 231, 1851.

*Fl.* : August.

*Loc.* : GOA : *Canacona* : Ordofond, near the bridge.

Rare, on gravelly hillock.

## LAUNAEA Cass.

**Launaea fallax** (Jaub. & Spach.) Kuntze, Rev. Gen. Pl. 351, 1891. *Microhynchus fallax* Jaub. & Spach. Pl. Or. t. 276, 1849. *Launaea nudicaulis* (Linn.) Hook. f. in FBI 3 : 416, 1881 ; C. 2 : 122 ; G. 2 : 515 ; S. 122.

*Fl.* : April. *Ill.* : Wealth of India, 6 : f. 21.

*Loc.* : GOA : *Ilhas* : Panaji, along sea coast ; Panaji roadside. *Salcete* : Cavallosim. *Canacona* : Angidiv. NAGARHAVELI : Saily. DAMAN : Marvor ; Airport area ; Dundorta. DIU : Nagoa ; Castle area ; Jalandhar.

Common in open situations.

## MELANTHERA Rohr.

The genera *Melanthera* Rohr, *Blainvillea* Cass., *Wedelia* Jacq. and *Aspilia* Thouars. are closely allied and it is often difficult to assign the various species to one or the other genera. *Melanthera* is readily distinguished by the pappus of free caducous bristles or scales whereas in the other genera the pappus of bristles are united at the base or cupshaped with or without free bristles.

**Melanthera biflora** (Linn.) H. Wild. in *Kirkia* 5 (1) : 4, 1965. *Verbesina biflora* Linn. Sp. Pl. ed. 2 : 1272, 1763. *Wedelia biflora* (Linn.) DC. in Wight Contrib. 18, 1834 ; FBI 3 : 306 ; DG. 103 ; C. 2 : 99 ; G. 2 : 497.

*Fl.* : December. *Ill.* : Wt. Ic. t. 1108.

*Vern.* : Sonki (Mar.) ; Ambi (Konk.).

Climbing shrub, essentially a coastal plant, distributed also in Japan, Africa and Australia.

\***PULICARIA** Gaertn.

**Pulicaria wightiana** (DC.) Benth. ex C. B. Cl. Comp. Ind. 128, 1876 ; FBI 3 : 298 ; Pav. 132. *Callistephus wightianus* DC. Prodr. 5 : 275, 1836.

*Fl. & Fr.* : September. *Ill.* : Wt. Ic. t. 1089.

*Loc.* : DIU : Nagoa ; Castle area ; Gogale.

Occasional, on sandy rock soil along sea shore.

**SENECIO** Linn.

1. Heads ebracteolate

2. Pappus hairs slender, not paleaceous ; achenes glabrous

*gibsoni*

2. Pappus absent ; achenes hairy

*belgaumensis*

1. Heads bractcolate

3. Pappus hairs slender

4. Erect undershrub ; leaves rhomboid or ovate

*edgeworthii*

4. Herb ; leaves linear-oblong

*dalzellii*

3. Pappus paleaceous

*grahami*

**Senecio belgaumensis** C. B. Clarke, Comp. Ind. 200, 1879 ; FBI 3 348 ; C. 2 : 111.

*Fl. & Fr.* : August September. *Ill.* : Wt. Ic. t. 1152.

*Loc.* : GOA : *Bardez* : Sukur village hill. *Salcete* : Raiyi village. *Ponda* : Ponda Darbandara. *Sanguem* : Molem Belgaum Road, 63 km & 67 km ; Castle rock on way to Anmod. *Canacona* : Ordofond forest.

Occasional on gravelly hill slopes and on bunds of rice fields.

**S. dalzellii** C. B. Clarke Comp. Ind. 201, 1876 ; FBI 3 : 346 ; C. 2 : 110 ; G. 2 : 508 ; S. 120.

*Fl.* : November.

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\*Later addition and hence not included in the generic Key.



*Loc.* : GOA : *Quepem* : Budsari Goundugarha.

Rare, in open situations.

*Senecio edgeworthii* Hook. f. in FBI 3 : 346, 1881 ; C. 2 : 109 ; G. 2 : 508.

*Loc.* : GOA : *Sanguem* : Cumbari ; Verlem (Butabaicha Dongar) ; Surla ; Bati Sidh ; Chansuria ghats (Netraveli).

*S. gibsoni* Hook. f. in FBI 3 : 347, 1881 ; C. 2 : 111.

*Loc.* : GOA : Dudh sagar.

*S. grahami* Hook. f. in FBI 3 : 347, 1881 ; C. 2 : 110 ; S. 121.  
*S. reticulatus* C.B. Clarke, Comp. Ind. 199, 1876, non DC. (1838).

*Fl. & Fr.* : September. *Ill.* : Wt. Ic. t. 1151B.

*Loc.* : GOA : *Bicholim* : Bicholim Ponda. *Canacona* : Tudal.

Rare, in rice fields along margins.

#### SONCHUS Linn.

*Sonchus oleraceus* Linn. Sp. Pl. 794, 1753 ; FBI 3 : 414 ; C. 2 : 119 ; S. 122.

*Fl.* : September October. *Ill.* : Wt. Ic. t. 1141 ; Tadulingam & Venkatanarayana, Handb. Some South Indian Weeds, t. 100, f. 1-9, 1955.

*Loc.* : NAGARHAVELI : Silvassa, along Damanganga river bank.  
DAMAN : Dundorta ; Fort area.

Occasional, in open, damp situations.

#### SPHAERANTHUS Linn.

Wings of the stem entire ; flowers white ; achenes glandular *africanus*

Wings of the stem toothed ; flowers mauve ; achenes sub-  
glabrous *indicus*

*Sphaeranthus africanus* Linn. Sp. Pl. (ed. 2) 2 : 1314, 1763 ; FBI 3 : 275 ; C. 2 : 84 ; G. 2 : 486.

*Fl. & Fr.* : November.

*Loc.* : GOA : *Pernem* : Kolvelle ferry crossing area. *Bardez* : Borim Margao. *Ilhas* : Santacruz village rice fields, near Panaji.

Occasional, mostly found growing in rice fields.

*S. indicus* Linn. Sp. Pl. 927, 1753 ; FBI 3 : 275 ; C. 2 : 84 ; G. 2 : 487 ; S. 116 ; Dangs. 17 ; Pav. 126.

*Fl. & Fr.* : October - March. *Ill.* : Wt. Ic. t. 1094.

*Vern.* : Gorakhamundi (Mar.) ; Bodiokalara Gorukh (Guj.).

*Loc.* : GOA : *Satari* : Dhava village, near the river ; Nandore village.

*Quepem* : Budsari Goundugarha. *Canacona* : Tudal village fields ; Ordofond, near the river. NAGARHAVELI : Dapada ; Morkhal ; Velugaon ; Bank of Damanganga river on way to Kawcha ; Dhapsa ; Umberkoi.

Occasional, in waste places along water courses and in rice fields.

#### SPILANTHES Jacq.

*Spilanthes paniculata* Wall. ex DC. Prodr. 5 : 625, 1836. *Spilanthes acmella* auct. plur. [*non* (Linn.) Murr. 1774] ; FBI 3 : 307 ; DG. 103 ; C. 2 : 99 ; G. 2 : 490. *S. pseudo acmella* auct. [*non* (Linn.) Murray].

*Fl. & Fr.* : November December. *Ill.* : Wt. Ic. t. 1110.

*Vern.* : Akalkara (Mar., Konk.) ; Jambu (Port.).

*Loc.* : GOA : *Bardez* : Bastra.

Dalgado indicates that this plant is supposed to have been introduced into India by the Portuguese (possibly from Tropical America.)

*Spilanthes paniculata* is often referred to in the Floras as *S. acmella* (Linn.) Murray or *S. pseudo acmella* (Linn.) Murray. The specific epithets "*acmella* and *pseudo acmella*" are from *Verbesina acmella* Linn. and *V. pseudo acmella* Linn., the type specimens of which are available in Hermann's Herbarium. Koster & Philipson [Blumea 6 (2) : 349-54, 1950] remark that a critical examination of these specimens reveals that *Verbesina pseudo-acmella* is *Eclipta prostrata* (Linn.) Linn. and *V. acmella* as *Blainvillea latifolia* (Linn.) DC. As such the specific epithets "*acmella* or *pseudo-acmella*" cannot be retained under *Spilanthes*. The next available valid name is only *S. paniculata* Wall. ex DC.

#### SYNEDRELLA Gaertn.

*Synedrella nodiflora* (Linn.) Gaertn. Fruct. 2 456, t. 171 f. 7, 1791 ; FBI 3 : 308 ; G. 2 : 498. *Vernonia nodiflora* Linn. Amoen. Acad. 4 : 290, 1759.

*Fl. & Fr.* : November.

*Loc.* : GOA : *Bardez* : Porvorim, rocky plateau.

Rare.

#### TRICHOLEPIS DC.

*Tricholepis glaberrima* DC. Prodr. 6 : 564, 1837 ; FBI 3 : 381 ; DG. 106 ; C. 2 : 114 ; G. 2 : 511 ; S. 121.

*Fl.* : October November.

*Vern.* : Brahmandandi (Kan. & Mar.) ; Serralha Indiana (Port.).

*Loc.* : GOA : *Ilhas* : Raj Bhavan forest area Panaji. *Salcete* : Goodier. *Sanguem* : Foot of the hill, near patiem ; Aldana (Netravali). *Canacona* : Tudal. NAGARHAVELI : Nala between Kawcha and Somanpada ; Dongarpada Umberkoi ; Sindhoni forests.

Occasional, near streams, rice fields and on hillocks. The plant is showy and attractive when in flowers.

### TRIDAX Linn.

*Tridax procumbens* Linn. Sp. Pl. 900, 1753 ; FBI 3 : 311 ; C. 2 : 102 ; G. 2 : 500 ; S. 119 ; Dangs. 18 ; Pav. 130.

*Fl. & Fr.* : Throughout the year.

*Loc.* : GOA : *Satari* : Nanacha Dongar (Codal). *Ilhas* : Panaji. *Sanguem* : Baiunbunda (Molem Belgaum Road) ; Bati. Dudhsagar. DADRA. DAMAN : Fort area ; Dundorta. DIU : Jalandhar ; Castle area ; Gogale.

### VERNONIA Schreb. *nom. cons.*

Achenes not ribbed ; pappus white

*cinerea*

Achenes ribbed ; pappus reddish

*anthelmintica*

*Vernonia anthelmintica* Willd. Sp. Pl. 3 : 1634, 1803 ; FBI : 3 : 237 ; DG. 100 ; C. 2 : 66. *Centratherum anthelminticum* O. Kuntze Rev. Gen. 1 : 320, 1891 ; G. 2 : 469.

*Fl.* : December - February.

*Vern.* : Kadu - jire (Mar.) : Kalemjirem (Konk.).

*Loc.* : GOA : *Sanguem* : Patrem. NAGARHAVELI : On way to Bildhara from Dudhari.

The fruits are used in native medicine.

*V. cinerea* (Linn.) Less, in *Linnaea* 4 : 291, 1829 & 6 : 673, 1831 ; FBI 3 : 233 ; DG. 100 ; C. 2 : 65 ; G. 2 : 475 ; S. 109 ; Dangs. 18 ; Pav. 126. *Conyza cinerea* Linn. Sp. Pl. 862, 1753.

*Fl. & Fr.* : August November. *Ill.* : Tadulingam & Venkat anarayana in *Handb. Some South Indian weeds*, t. 80, f. 1-5, 1955.

*Vern.* : Osari, Sahadevi (Mar.).

*Loc.* : GOA : *Bardez* : Calangute sea beach. *Ilhas* : Panaji, along coastal area. *Marmugao* : Marmugao harbour area. *Sanguem* : Nondrona near Molem ; Bavanbunda ; Nanacha Dongar (Codal) ; Barazon. *Canacona* : Maxem. NAGARHAVELI : Silvassa ; Khanvel ; Sindhoni forests ; Velgaon ; Jamunpada forests ; Dhapsa Nand Randha. DAMAN : Coileque area ; Fort area ; Cale area ; DIU : Nagoa ; Jalandhar ; Castle area ; Gogale.

Common. Extremely variable in its habit, size and leaf shape.

\*VICOA Cass.

*Vicoa indica* (Willd.) DC. in Wight Contrib. 10, 1834 ; S. 117 ; Dangs. 19 ; Pav. 133. *Inula indica* Willd. Sp. Pl. 3 : 2092, 1804 ; *Vicoa auriculata* Cass. in Ann. Sc. Nat. (ser. 1), 17 : 418, 1829 ; FBI 3 : 297 ; C. 2 : 88.

*Fl.* : October November. *Fr.* : November January. *Ill.* : Wt. Ic. t. 1148 ; Tadulingam & Venkatanarayana *l.c.*, t. 88, f.1-7, 1955.

*Vern.* : Sona sali (Guj.).

*Loc.* : NAGARHAVELI : Dongarpad Umberkoi. DAMAN : Bimpur ; Dundorta. Rare, in the fields. The bright yellow flowers are showy and attractive.

WEDELIA Jacq. *nom. cons.*

*Invol.* - bracts much longer than the disk flowers ; leaves subsessile, lanceolate - oblong

*chinensis*

*Invol.* - bracts about equalling the disk-flowers ; leaves petioled, ovate

*urticaefolia*

*Wedelia chinensis* (Osbeck) Merr. in Philip. Journ. Sc. Bot. 12: 111, 1917. *Solidago chinensis* Osbeck, Dagbok Ostind. Resa 241, 1757. *Wedelia calandulacea* (Linn.) Less, Syn. Comp. 222, 1832 ; FBI 3 : 306 ; DG. 103 ; C. 2 : 98 ; G. 2 : 497 (*non Pers.*).

*Fl.* & *Fr.* : February May. *Ill.* : Wt. Ic. t. 1107.

*Vern.* : Pivala bhangra (Mar.) ; Biringarsi (Konk.).

This species, though recorded by Dalgado is not quite frequent in Concan ghats. In fact the other two species *Wedelia urticaefolia* DC. and *W. biflora* DC. are reported by Cooke (*l.c.*) from Marmugao area.

*W. urticaefolia* DC. in Wight Contrib. 18, 1834 ; C. 2 : 98.

*Loc.* : NAGARHAVELI : Dongarpad Umberkoi.

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\*Later addition and hence not included in the generic Key.

## \*XANTHIUM Linn.

**Xanthium strumarium** Linn. Sp. Pl. 987, 1753 ; FBI 3 : 303, C. 2 : 94 ; S. 118 ; Dangs. 19 ; Pav. 128.

*Fl.* : October November. *Ill.* : Wt. Ic. t. 1104.

*Vern.* : Godriyum (Guj.).

*Loc.* : NAGARHAVELI : Silvassa along Damanganga river bank ; Khanvel ; Bank of Damanganga river on way to Kawcha ; Nana Randha ; DIU : Gogale.

Occasional, on wastelands and along roadside near the sea shore, A troublesome weed, indigenous in America and introduced into our country over 100 years ago.

*Cult. species* :

**Achillea millefolium** Linn. Sp. Pl. 899, 1753 ; DG. 104, C. 2 : 126.

*Vern.* : Rajmari (Konk.). Millefelio (Port.).

Cultivated in gardens.

**Calendula officinalis** Linn. Sp. Pl. 921, 1753 ; DG. 106 ; C. 2 : 126.

*Vern.* : Jemdu (Konk.) ; Maravilhas dos jardins (Port.).

Grown in gardens for cut flowers.

**Carthamus tinctorius** Linn. Sp. Pl. 830, 1753 ; FBI 3 : 386 ; DG. 106 ; C. 2 : 126.

*Vern.* : Kusumba (Mar.) ; Kusbo (Konk.) ; Carthamo (Port.).

Mostly cultivated for the red dye obtained from flowers and oil from seeds.

**Chrysanthemum coronarium** Linn. Sp. Pl. 889, 1753 ; DG. 104.

*Vern.* : Sivamti (Konk.) ; Malme queres (Port.).

Cultivated in gardens for cut flowers.

**C. indicum** Linn. Sp. Pl. 889, 1753 ; DG. 104 ; C. 2 : 126.

*Fl.* : Cold season.

*Vern.* : Gul dandi (Mar.) ; Sivamti (Konk.) ; Sivanti (Port.).

The species, a native of China and Japan, is mostly grown in gardens for its flowers.

**Cichorium endivia** Linn. Sp. Pl. 813, 1753 ; DG. 107 ; G. 2 : 127.

*Vern.* : Chicorea (Port.) ; Garden endine (Eng.).

Cultivated, used as salad.

**Cosmos bipinnatus** Cav. Icon. 1 : 10, t. 14. ; C. 2 : 125.

A native of Mexico, cultivated in gardens.

\*Later addition and hence not included in the generic Key.

**Cynara scolymus** Linn. Sp. Pl. 827, 1753 ; DG. 106 ; C. 2 : 126.

*Vern.* : Artachok (Konk.) ; Alcachofra (Port.).

Grown in gardens as an ornamental plant.

**Eupatorium triplinerve** Vahl, Symb. 3 : 97, 1794 ; C. 2 : 123. *E. ayapana* DC. Prodr. 5 : 169, 1836. ; FBI 3 : 244.

*Vern.* : Ayapanam (Konk.) ; Ayapana ou Japana (Port.).

A native of tropical America, cultivated in the gardens as a hedge plant.

**Helianthus annuus** Linn. Sp. Pl. 904, 1753 ; DG. 104 ; C. 2 : 124.

*Vern.* : Suryaphul (Mar.) ; Surya kamal (Konk.) ; Girasal (Port.).

Grown in gardens ; a native of Western United States.

**H. tuberosus** Linn. Sp. Pl. 905, 1753 ; DG. 104 ; G. 2 : 124.

*Vern.* : Alcachofras de Jerusalem (Port.).

A native of North America, cultivated in gardens.

**Tagetes erecta** Linn. Sp. Pl. 887, 1753 ; DG. 105 ; C. 2 : 125 ; v. 65.

*Fl.* : November.

*Vern.* : African marigold.

A native of Mexico and introduced into India through Africa. Cultivated in gardens for its showy flowers and possibly as an escape growing wild and thus collected from Canacona area and Satari (Wadicha dongar).

**T. patula** Linn. Sp. Pl. 887, 1753 ; DG. 106 ; C. 2 : 125 ; v. 65.

*Vern.* : Raji (Konk.) ; Gravo de Tunis (Port.) ; French marigold (Guj.).

A native of Mexico, grown in gardens ; a smaller form than *Tagetes erecta* Linn.

## GOODENIACEAE

### SCAEVOLA Linn.

**Scaevola taccada** (Gaertn.) Roxb. [Hort. Beng. 15, 1814 (*nom. nud.*) &] ; Fl. Ind. 1 : 527, 1824. *Lobelia taccada* Gaertn. Fruct. 1 : 119, t. 25, 1788. *Scaevola koenigii* Vahl, Symb. Bot. 3 : 36, 1794 ; FBI 3 : 421 ; DG. 108 ; C. 2 : 128. *S. frutescens* auct. non Krause.

*Fl.* : June December. *Ill.* : Wt. Ill. t. 137.

*Vern.* : Bhadrak (Mar.) ; Tarkoth (Konk.) ; Amierro (Port.).

This species common along west coast of India and also cultivated in gardens, is recorded by Dalgado. It can be located in the rocky parts of Goa coast. It is also now recorded from the rocky portions of east coast near Vishakhapatnam (Andhra Pradesh).

## LOBELIACEAE

## LOBELIA Linn.

Small herbs with small flowers ; seeds trigonous *alsinoides*

Tall, erect herb with large flowers ; seeds ellipsoid, compressed *nicotianaefolia*

**Lobelia alsinoides** Lamk. Encycl. 3 : 588, 1792 ; S. 124. *Lobelia trigona* Roxb. [Hort. Beng. 85, 1814 (nom. nud.) &] ; Fl. Ind. 1 : 506, 1832 ; FBI 3 : 423 ; DG. 108 ; C. 2 : 130 ; G. 2 : 518.

*Fl. & Fr.* : October. *Ill.* : Wt. Ic. t. 1170.

*Loc.* : GOA : *Satari* : Ivorem, Buzuruco. *Sanguem* : Molem Belgaum Road 71 km. ; Netraveli. *Quepem* : Budsari Goundugarha. *Canacona* : Nadquem village ; Butpal. NAGARHAVELI : Dhopsa ; Uंबरkoi ; Velugaon

Common along grassy hill slopes.

**L. nicotianaefolia** Heyne in Roth, Nov. Pl. Sp. 143, 1821 ; FBI 3 : 327 ; DG. 108 ; C. 2 : 131 ; G. 2 : 518 ; S. 124.

*Fl. & Fr.* : October March. *Ill.* : Wt. Ill. t. 135.

*Vern.* : Dhaval (Mar.) ; Baknal (Konk.) ; Lobelia das folhas de tabaco (Port.).

This species, frequently collected along the Western ghats, is recorded as most common on Goa ghats by Dalgado.

## SPHENOCLEACEAE

## SPHENOCLEA Gaertn.

**Sphenoclea zeylanica** Gaertn. Fruct. 1 : 113, t. 24, 1788 ; FBI 3 : 438 ; C. 2 : 134 ; G. 2 : 520.

*Fl. & Fr.* : August October. *Ill.* : Wt. Ill. t. 138.

*Loc.* : GOA : *Satari* : Pilegao. *Bardez* : Mapuca.

Rare, in damp or marshy situations.

## PLUMBAGINACEAE

Styles 5, free from base or nearly so

*Statice*

Styles connate throughout their entire length

*Plumbago*

## PLUMBAGO Linn.

**Plumbago zeylanica** Linn. Sp. Pl. 151, 1753 ; FBI 3 : 480 : C. 2 : 136 ; G. 2 : 524 ; S. 124 ; Dangs. 19 ; Pav. 134.

*Fl. & Fr.* : October. *Ill.* : Wt. *Ill.* t. 179.

*Vern.* : Chitraka (Mar.) ; Chitramulika (Kanl.) ; Kalochitrak (Guj.).

*Loc.* : GOA : *Sanguem* : Verlem. NAGARHAVELI : Silvassa. DIU : sand stone ditch, Castle area.

Rare in open fields. Sometimes grown in gardens also.

## STATICE Linn.

**Statice stocksii** Boiss. in DC. Prodr. 12 : 664, 1848 ; FBI 3 : 480 ; C. 2 : 136.

*Fl. & Fr.* : August September. *Ill.* : Wt. *Ill.* t. 178 ; Hook. Ic. Pl. t. 837.

*Loc.* : DIU : Rocky creek, Nagoa ; Podamo ; Nagoa, near Air port.

Occasional along the sea shore, confined to drier tracts of Gujarat and Sind only.

*Cult. species* :

**Plumbago indica** Linn. in Stickm. Herb. Amb. 24, 1754. *P. rosea* Linn. Sp. Pl. ed. 2, 215, 1762 ; FBI 3 : 481 ; DG. 109 ; C. 2 : 137 ; G. 2 : 524.

*Ill.* : Fl. Males. ser. 1, 4 (2) : 111, f. 2, 1949.

*Vern.* : Lalchitrak (Mar.) ; Tambdi chitrak (Konk.).

A native of South East Asia, mostly cultivated in gardens both as ornamental and medicinal plant. Can be used as a substitute for *Rauvolfia serpentina* Benth. ex Kurz.

**P. auriculata** Lamk. Encycl. 2 : 270, 1876. *Plumbago capensis* Thunb. Prodr. Fl. Cap. 33, 1794 ; C. 2 : 137 ; G. 2 : 524.

*Fls.* : May December.

*Vern.* : Kala-chitrak (Mar.).

Native of Africa with pale blue flowers, cultivated as an ornamental plant.

## MYRSINACEAE

1. Scandent shrubs or climbers

*Embelia*

1. Erect shrubs or small trees

2. Calyx not thickened, free ; fruit 1-seeded



3. Leaves ovate or lanceolate, base decurrent on the petiole ; flowers pedicelled, rose coloured ; fruits globose *Ardisia*
3. Leaves ovate, obtuse, base cuneate ; flowers sessile, white ; fruits cylindrical, curved falcately *Aegiceras*
2. Calyx thickened, adnate to the ovary ; fruit many seeded *Maesa*

## AEGICERAS Gaertn.

*Aegiceras corniculatum* (Linn.) Blanco, Fl. Filip. ed. 1, 79, 1837 ; G. 2 : 532. *Rhizophora corniculata* Linn. Sp. Pl. 635, 1753. *Aegiceras majus* Gaertn. Fruct. 1 : 216, t. 46, 1788 ; FBI 3 : 533 ; DG. 110 ; C. 2 : 147 ; T. 2 : 150.

*Fl. & Fr.* : February - March. *Ill.* : T. f. 369 ; *Wt.* *Ill.* t. 146.

*Vern.* : Kanjala (Mar.) ; Kamdlam (Konk.) ; Salgueira (Port.).

*Loc.* : GOA : *Bicholim* : Tirla. *Ponda* : Borim, Zueri river. *Marmugao* : Near Sancoale. DAMAN : Coileque area ; Cale area.

Common in marshy, saline areas along with *Acanthus ilicifolius* Linn. Dalgado also records this species as common along the banks of Agua and Salgada.

ARDISIA Swartz *nom. cons.*

*Ardisia solanacea* (Poir.) Roxb. Pl. Cor. 1 : 27, 1795 ; C. 2 : 146 ; G. 2 : 531. *Anguillaria solanacea* Poir. Encycl. 7 : 688, 1806. *Ardisia humilis* A. DC. in Trans. Linn. Soc. 17 : 118, 1837 ; FBI 3 : 529 ; DG. 109 ; T. 2 : 149 *non* Vahl (1794).

*Fl. & Fr.* : September - October. *Ill.* : *Wt.* *Ic.* t. 1212.

*Vern.* : Dinka (Mar.) ; Havalad (Kan.) ; Nilbedsi (Konk.) ; Fruct gibique preta (Port.).

*Loc.* : GOA : *Satari* : Dinarai forest, Satrem-Kutachemal (Ivorem). Codal-Nanora road, 5 km. *Canacona* : Butpal Nadquem ; Polem ; Tudal village ; Valchem.

Rare, inside the forest along hill slopes and near water streams.

EMBELIA Burm. f. *nom. cons.*

Scandent shrubs, leaves oblong-lanceolate ; inflorescence terminal or in the upper axils

*ribes*

Erect shrubs, leaves broadly elliptic ; inflorescence axillary

*tsjariam-cottam*

*Embelia ribes* Burm. f. Fl. Ind. 62, t. 23, 1768 ; FBI 3 : 513 ; DG. 109 ; C. 2 : 144 ; T. 2 : 146 ; G. 2 : 529.

*Fl.* : February. *Ill.* : Wt. Ic. t. 1207.

*Vern.* : Vaivarang (Mar.) ; Vayvaramg (Konk.).

The species which is fairly common along Western India is recorded for Goa ghats by Dalgado.

*E. tsjariam-cottam* (Roem. & Schultz.) A. DC. in Trans. Linn. Soc. 17 : 131, 1834 & in DC. Prodr. 8 : 87, 1844 ; G. 2 : 529 ; S. 125. *Ardisia tsjariam-cottam* Roem. & Schultz. Syst. 4 : 518, 1819. *Embelia robusta* C. B. Clarke in FBI 3 : 515, 1882 ; DG. 109 ; C. 2 : 144 ; T. 2 : 147 (*non.* Roxb., 1832).

*Fl. & Fr.* : August November. *Ill.* : Wt. Ic. t. 1209.

*Vern.* : Ambati (Mar.) ; Amti (Kan.) ; Ambti (Konk.) ; Ramisoli (Port.).

*Loc.* : GOA : *Bicholim* : Nanora. *Sanguem* : Barazan mine area ; Potiem forest ; Dudal ; Barazon. *Canacona* : Ordofond-Tudal ; Ordofond-Butpal.

#### MAESA Forsk.

*Maesa indica* Wall. in Roxb. Fl. Ind. 2 : 230, 1824 (*in nota*) ; FBI 3 : 509 ; DG. 109 ; C. 2 : 141 ; S. 125.

*Fl.* : November January.

*Vern.* : Atki (Mar.).

This common species of the Western ghats is also reported for Goa ghats by Dalgado.

#### SAPOTACEAE

1. Calyx lobes 1-seriate

2. Leaf nerves close and parallel ; staminodes nil

*Chrysophyllum*

2. Leaf nerves distant ; staminodes present

*Xantolis*

1. Calyx lobes 2 - seriate

3. Calyx lobes 4 to 5

*Madhuca*

3. Calyx lobes 6 to 8

4. Staminodes present