

MATERIAL FOR THE FLORA OF MAHABALESHWAR—4

P. V. BOLE AND M. R. ALMEIDA

[continued from Vol. 79(2):323]

ASTERACEAE

- | | | | |
|---|--------------------------|--|----------------------------|
| 1. All florets on the same head bearing same colour | 2 | 4. All florets yellow | 16 |
| 2. All florets orange, yellow or white | 3 | 16. Achenes curved, muricate | <i>Calendula</i> |
| 3. All florets orange | <i>Gynura</i> | 16. Achenes not curved, not muricate | 17 |
| 3. All florets yellow or white | 4 | 17. Leaves lobed | 18 |
| 4. All florets white | 5 | 18. Plants with radical leaves | 19 |
| 5. Florets in same head either all ligulate or all tubular | 6 | 19. Pappus absent | <i>Cyathocline</i> |
| 6. Florets all ligulate | <i>Lactuca</i> | 19. Pappus present | <i>Sonchus</i> (p. p.) |
| 6. Florets all tubular | 7 | 18. Plants without radical leaves | 20 |
| 7. Stems with white cottony pubescens | <i>Echinops</i> | 20. Leaves alternate | 21 |
| 7. Stems without white cottony pubescens | 8 | 21. Florets either all ligulate or all tubular | 22 |
| 8. Stems glabrous, prostrate or spreading | <i>Caesulia</i> | 22. Florets all ligulate | <i>Sonchus</i> (p. p.) |
| 8. Stems pubescent; plants erect | 9 | 22. Florets all tubular | <i>Artemisia</i> (p. p.) |
| 9. Leaves alternate | 10 | 21. Outer florets ligulate, inner tubular | <i>Senecio</i> (p. p.) |
| 10. Heads collected in globose or ovoid clusters | <i>Anaphalis</i> | 20. Leaves opposite | 23 |
| 10. Heads not collected in globose or ovoid clusters | 11 | 23. Pappus of 2-4 retrorsely hispid hairs | <i>Bidens</i> (p. p.) |
| 11. Pappus absent | <i>Artemisia</i> (p. p.) | 23. Pappus of many aristate, feathery bristles | <i>Tridax</i> |
| 11. Pappus present | <i>Parthenium</i> | 17. Leaves entire or serrate, not lobed | 24 |
| 9. Leaves opposite | 12 | 24. Radical leaves present | 25 |
| 12. Involucral bracts very acute, ribbed on the back, ciliolate and scarious on the margins | <i>Ageratum</i> | 25. Florets outer ligulate, inner tubular | <i>Senecio</i> (p. p.) |
| 12. Involucral bracts obtuse or sub-acute, glabrous, glandular or scabrid; margins not scabrous | <i>Adenostemma</i> | 25. Florets all ligulate | <i>Sonchus</i> (p. p.) |
| 5. Inner and outer florets in the same head different | 13 | 24. Radical leaves absent | 26 |
| 13. Leaves sessile | <i>Eclipta</i> | 26. Leaves opposite | 27 |
| 13. Leaves petiolate | 14 | 27. Achenes ciliate | <i>Spilanthes</i> (p. p.) |
| 14. Palea narrow; pappus of 2-4 spreading awns | <i>Bidens</i> (p. p.) | 27. Achenes not ciliate | 28 |
| 14. Palea concave; pappus 0 or of few unequal acute scales | 15 | 28. Achenes of ray florets cuneiform | <i>Blainvillea</i> (p. p.) |
| 15. Achenes ciliate; pappus 0 | <i>Spilanthes</i> | 28. Achenes of ray florets not cuneiform | 29 |
| 15. Achenes not ciliate; pappus of few scales | <i>Blainvillea</i> | 29. Achenes of two types | <i>Synedrela</i> |
| | | 29. Achenes of one type | 30 |
| | | 30. Achenes longitudinally ribbed; pappus absent | <i>Guizotia</i> |
| | | 30. Achenes not ribbed; pappus a ciliolate ring | <i>Wedelia</i> |
| | | 26. Leaves alternate | 31 |
| | | 31. Outer florets ligulate, inner tubular | 32 |
| | | 32. Leaves sessile or subsessile | 33 |
| | | 33. Anther bases obtuse entire | <i>Conyza</i> |

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33. Anther bases variously tailed or sagittate.... 34
34. Involucral bracts 1-2 seriate,
equal *Senecio* (p. p.)
34. Involucral bracts many-seriate,
unequal *Vicoa*
32. Leaves petiolate 35
35. Achenes of the disc florets truncate,
triquetrous 36
36. Pappus of 2-5 unequal
bristles *Blainvillea* (p. p.)
36. Pappus of 15-20 fimbriate scales..... *Galinsoga*
35. Achenes of the disc florets not
triquetrous 37
37. Achenes 5-10 ribbed *Senecio* (p. p.)
37. Achenes not ribbed 38
38. Heads less than 2 cm across *Vicoa*
38. Heads more than 10 cm across..... *Helianthus*
31. Florets all tubular, or tubular and
ligulate in the same head, but ligulate ones
are small and inconspicuous 39
39. Leaves petiolate 40
40. Pappus absent *Artemisia* (p. p.)
40. Pappus present 41
41. Pappus copious *Notonia* (p. p.)
41. Pappus uniseriate, slender *Blumea* (p. p.)
39. Leaves sessile or subsessile 42
42. Pappus absent *Artemisia* (p. p.)
42. Pappus present 43
43. Pappus many seriate *Notonia* (p. p.)
43. Pappus 1-2 seriate 44
44. Anther bases obtuse, entire *Conyza*
44. Anther bases sagittate 45
45. Heads solitary *Blumea* (p. p.)
45. Heads in clusters *Gnaphalium*
2. Florets in the head red, pink, purple,
violet or blue 46
46. All leaves sessile 47
47. Anthers tailed *Eupatorium*
47. Anthers not tailed 48
48. Receptacle densely bristly *Carthamus*
48. Receptacle not densely bristly 49
49. Leaves all radical *Elephantopus*
49. Leaves all not radical 50
50. Leaves white tomentose beneath *Vernonia*
50. Leaves not white tomentose beneath 51
51. Pappus absent or of few short hairs 52
52. Involucral bracts scarious *Tricholepis*
52. Involucral bracts not scarious *Adenoon*
51. Pappus present *Vernonia* (p. p.)
46. All leaves petiolate 53

53. Leaves dense white tomentum beneath 54
54. Achenes 8-10 ribbed *Centratherum*
54. Achenes not ribbed *Lamprachenium*
53. Leaves without white tomentum 55
55. Fruits covered with hard spines *Xanthium*
55. Fruits not covered with hard spines 56
56. Leaves opposite *Ageratum* (p. p.)
56. Leaves alternate 57
57. Pappus uniseriate *Blumea* (p. p.)
57. Pappus 2-many seriate *Vernonia* (p. p.)
1. Florets in same head with two or more
colours 58
58. Leaves compound *Bidens* (p. p.)
58. Leaves simple 59
59. Florets all tubular *Artemisia* (p. p.)
59. Outer florets ligulate, inner tubular 60
60. All leaves petiolate *Dichrocephala*
60. Leaves cauline and sessile *Erigeron*

Adenoon Dalzell

1. ***Adenoon indicum*** Dalz. in Kew Journ. Bot. 2:344, 1850; Dalz. & Gibs. 121; FBI 3:299; Birdwood, 16; Cooke, T. 650 & 2:9 (2:64); Puri & Mahajan, 125.

Frequent herb on exposed hill-slopes near Lingmala. Rarely seen at Bhilar Estate, Arthur seat and behind Madhu Kosh.

FLOWERS & FRUITS: October-November.

LOCAL NAMES: Kusamb, Mothi Sonki.

Adenostemma Forst.

1. ***Adenostemma lavenia*** (Linn.) O. Kuntze, Rev. Gen. Pl. 304, 1891; Santapau, 124.

Verbesina lavenia Linn., Sp. Pl. 902, 1753.

A. viscosum Forst., Char. Gen. 90, 1776; Graham, 98; FBI 3: 242; Birdwood, 16; Cooke, 650 & 2: 13 (2: 69); Puri & Mahajan, 125.

A. latifolium Don. Prodr. Fl. Nepal. 181, 1825. Wight, Icon. t. 1087; Dalz. & Gibs. 122.

A. rivale Dalz. in Kew J. Bot. 3: 231, 1851.

Common herb along the edges of the forests and along the water courses. Quite common at Kate's point, Wilson point, Lodwick point,

Madhu Kosh, Fitzgerald ghat and Folkland point, but nowhere it is abundant.

FLOWERS & FRUITS: October-December.

LOCAL NAME: Jungli jira.

Ageratum Linn.

1. Leaves cordate at base; margins deeply crenate, not ciliate *A. houstonianum*
1. Leaves blunt or rounded at base, narrowing into the petiole; margins crenately dentate, ciliate *A. conyzoides*
1. ***Ageratum conyzoides*** Linn., Sp. Pl. 839, 1753; Graham, 243; FBI 3: 243; Cooke, T. 650 & 2:14 (2:70): Lisboa, 215; Birdwood, 16; Puri & Mahajan, 124.

Common weed of wastelands in white flowers. Whole plant has some unpleasant smell and locally applied for healing cuts and wounds by local people.

FLOWERING: Throughout the year.

LOCAL NAMES: Osadi, Ghanera

LOCALITIES: Chinaman's Falls, Petit Road.

2. ***Ageratum houstonianum*** Mill., Gard. Dict. ed. 8, no. 2, 1768.

An erect herb common in wet places near Chinaman's falls. Flowers blue in colour.

FLOWER: August-December.

LOCALITIES: Madhu Kosh, Chinaman's Falls, Dhobi's Falls.

Anaphalis DC.

Dr H. M. Birdwood (1897) has reported *Anaphalis oblonga* DC., in his catalogue. We have not seen this species at Mahabaleshwar

* Clements R. Markham, 'Peruvian Bark', A popular Account of the introduction of Cinchona cultivation into British India. Chapter VIII. The Mahabaleshwar Hills, pp. 384-386, 1880.

and there is no reliable specimen in any of the herbaria consulted.

Artemisia Linn.

1. Disc flowers sterile *A. parviflora*
1. Disc florets fertile *A. nilagirica*
1. ***Artemisia nilagirica*** (Clarke) Pampanini. in Nov. Giorn. Bot. Ital. 33: 452, 1926.
- A. vulgaris* var. *nilagirica* Clarke, Comp. Ind. 162, 1876.
- A. vulgaris* auct. (non Linn., 1753) Hook f. in Flora Brit. India, 3: 325, 1881; Cooke, T. 2: 47 (2: 105); Puri & Mahajan, 125.
- A. indica* Graham, Cat. Bombay Pl. 102, 1839 (non Willd. 1801); Dalz. & Gibs., 112; Markham * 386.

A common undershrub in grasslands and along roadsides. Abundant at Bhilar Estate.

There is a certain amount of confusion regarding the nomenclature of this species. J. D. Hooker in Flora of British India (vol. 3: 325, 1881), gives a long synonymy under *Artemisia vulgaris* Linn. Rev. Fr. Santapau, in Fl. Khandala (ed. 3, p. 134, 1967) states "Pampanini (loc. cit.) has demonstrated that none of the Indian species of *Artemisia* corresponds to the European *A. vulgaris* of the Linnaean herbarium, and in this case the oldest name for the plant is that of Clarke, which is therefore raised to specific rank". J. D. Hooker while merging *Artemisia grata* Wall. ex DC. from western peninsula with *A. vulgaris* expresses his inability to separate these two species except that *A. grata* has broader leaves. Therefore we feel *Artemisia grata* Wall. ex DC. is the oldest name for our western peninsular species.

FLOWERS & FRUITS: October-January.

2. ***Artemisia parviflora*** Buch-Ham. ex Roxb. Fl. Ind. 3:420, 1832; Dalz. & Gibs. 314; Birdwood, 16; FBI 3:322; *Markham,

386; Cooke, T. 650 & 2:47 (2:104); Puri & Mahajan, 125.

A. glabrata DC., in Wight, Contr. 20, 1834; Wight, Icon. t. 1111.

Common undershrub among the grasses. Very common at Bhilar Estate.

LOCAL NAME: Dauna.

FLOWERS & FRUITS: October-April.

1. **Bidens biternata** (Lour.) Merrill & Sherff ex Sherff, Bot. Gaz. 88:293, 2929; Santapau, Fl. Purandhar, 68, 1957.

Coreopsis biternata Lour., Fl. Cochinch. 508, 1790.

B. pilosa auct. (non Linn., 1753) Hook f., in Flora Brit. India 3: 309, 1881; Cooke, T. 650 & 2:44 (2:101); Birdwood, 16.

B. wallichii DC., Prodr. 5: 598, 1837; Graham, 101; Dalz. & Gibs. 128.

Common weed in wastelands and among grasses at Lingmala and Bhilar Estate.

FLOWERS & FRUITS: October-April.

Blainvillea Cass.

1. **Blainvillea acmella** (Linn.) Philipson, Blumea 6: 350, 1950; Chavan & Oza, Fl. Pava-garh, 125, 1966.

Verbesina acmella Linn., Sp. Pl. 901, 1753.

Eclipta latifolia Linn. f. Suppl. Pl. 378, 1781.

B. latifolia (Linn. f.) DC. in Wight Contr. Bot. Ind. 17, 1834; Dalz. & Gibs. 127; FBI 3: 305.

B. rhomboidea Cass. in Dict. Sc. Nat. 29: 494, 1823; Cooke, T 2:40 (2:97).

Rare species in wastelands and along road-sides.

FLOWERS & FRUITS: September-December.

Blumea DC. (nom. cons.)

1. Plants densely white woolly all over *B. malcomii*
1. Plants glabrate or pubescent, never woolly all over 2
2. Phyllaries at least the outer oblong-ovate to oblong-lanceolate *B. lanceolata* var. *spectabilis*

2. All phyllaries linear or linear-lanceolate 3
3. Capitula glomerate *B. fistulosa*
3. Capitula paniculate 4
4. Leaves spinous-toothed; corolla of both types of florets hairy 5
5. Heads in sessile, axillary clusters *B. belangeriana*
5. Heads in pedunculate clusters 6
6. Plants erect *B. eriantha*
6. Plants prostrate *B. oxydonta*
4. Leaves not spinous-toothed; corollas of female florets glabrous 7
7. Achenes ribbed 8
8. Plants glabrate *B. virens*
8. Plants pubescent or glandular hairy *B. membranacea*
7. Achenes sub-angulate to terete 9
9. Leaves usually not lobed; corollas purple to lilac *B. mollis*
9. Leaves often lyrate; corollas yellow *B. lacera*

1. **Blumea belangeriana** DC., Prodr. 5:444, 1936; FBI 3:266; Cooke, T. 2:22 (2:78); Randeria, Blumea 10(1):277, 1960.

Rare species at Mahabaleshwar.

FLOWERS: December-February.

2. **Blumea eriantha** DC. in Wight, Contrib. Bot. Ind. 15, 1834; FBI 3:266; Cooke, T. 2: 22 (2:78); Randeria Blumea, 10(1):279, 1960.

Common along road-sides and in open forest areas.

FLOWERS: December-March.

LOCAL NAME: Nimurdi.

3. **Blumea fistulosa** (Roxb.) Kurz., Jour. As. Soc. Bengal, 46(2): 187, 1897; Randeria, Blumea 10(1):256, 1960.

B. glomerata DC. in Wight Contrib., 15, 1834; Dalz. & Gibs. 125; FBI 3: 262; Cooke, T. 2: 20 (2: 76), Birdwood, 16.

B. holosericea Dalz. & Gibs., Bombay Flora 126, 1861 (non DC., 1834).

This species is included here on authority of Birdwood. Cooke in Flora of Bombay Pre-

sidency reports it on the authority of Dalzell & Gibson only.

LOCAL NAME: Bhamburda.

4. **Blumea lacera** (Burm. f.) DC. in Wight Contrib. 14, 1834; Graham, 97; FBI 3:263; Cooke, T. 2:20 (2:76); Randeria, Blumea 10(1): 264, 1960.

Conyza lacera Burm. f., Fl. Ind. 180, t. 59, f. 1, 1768.

B. leptocladea Dalz. & Gibs., Bombay Fl. 126, 1861 (non DC., 1834).

Rare species at Mahabaleshwar.

FLOWERS: September-January.

LOCAL NAME: Burando.

5. **Blumea lanceolata** (Roxb.) Druce var. **spectabilis** (DC.) Randeria in Blumea 10(1): 220, 1960.

B. spectabilis DC., Prodr. 5: 445, 1836; FBI 3: 269; Cooke, T. 2: 23 (2: 79).

There is only one specimen of this species from Mahabaleshwar in Blatter Herbarium. Collected by L. J. Sedgwick.

FLOWERS: January.

6. **Blumea malcolmii** (Clarke) Hook f. in Flora Brit. India 3:266; 1881; Birdwood, 16; Crooke, T. 2:22 (2:78); Puri & Mahajan, 125; Randeria, Blumea 10(1):278, 1960.

Pluchea malcolmii C. B. Clarke, Comp. Ind. 95, 1876.

Rare herb among rocky places along Fitzgerald Ghat. Common near Chinaman's falls.

FLOWERS: October-March.

7. **Blumea membranacea** DC., Prodr. 5: 440, 1836; FBI 3:265; Cooke, T. 2:21 (2:77); Randeria, Blumea 10(1): 269, 1960.

Common and abundant herb on earthbanks on Fitzgerald Ghat.

FLOWERS: December-March.

LOCAL NAME: Mharbir.

7. **Blumea mollis** (Don) Merrill, Phil. Jour. Sci. Bot. 5:256, 1910; Randeria, Blumea 10 (1):261, 1960.

Erigeron molle D. Don, Prodr. 172, 1825.

B. wightiana DC. in Wight Contrib. 14, 1834; FBI 3:26; Cooke, T. 2: 19 (2:75).

Rare species at Mahabaleshwar near Lingmala.

FLOWERS: December-January.

8. **Blumea oxyodonta** DC. in Wight Contrib. Bot. Ind. 15, 1834; FBI 3:266; Cooke, T. 2:21 (2:77); Randeria Blumea, 10 (1):280, 1960, Puri & Mahajan, 125.

Rare species at Mahabaleshwar. Only known from a single collection.

FLOWERS: March.

9. **Blumea virens** DC. in Wight, Contrib. Bot. Ind. 14, 1834; FBI 3:264; Cooke, T. 2: 21 (2:77); Randeria, Blumea 10 (1):272, 1960.

Rare species.

FLOWERS: May-June.

Caesulia Roxb.

1. **Caesulia axillaris** Roxb., Pl. Cor. 1:64, t. 93, 1795; Graham, 96; Dalz. Gibs. 126; Wight, Icon. t. 1102; FBI 3: 291; Cooke, T. 2:35 (2:92); Puri & Mahajan, 125.

Rare species at Mahabaleshwar, in damp places and in ricefields.

FLOWERS: August-May.

Calendula Linn.

1. **Calendula officinalis** Linn., Sp. Pl. 921, 1753; Graham, 101; Dalz. & Gibs. suppl. 48; Cooke, T. 2:68 (2:126); Bot. Mag. t. 3204, Birdwood, 17.

Cultivated garden plant frequently grown in private gardens.

FLOWERS: Throughout the year.

Carthamus Linn.

1. **Carthamus tinctorius** Linn., Sp. Pl. 830, 1753; Graham, 95; Dalz. & Gibs. suppl. 45; Cooke, T. 2:68 (2:126-7).

Frequently cultivated for its oil seed.

FLOWERS: March-May.

LOCAL NAME: Kusumba.

Centrantherum Cass.

1. Achenes deeply ribbed *C. phyllolaenum*

1. Achenes faintly ribbed *C. lilacinum*

1. **Centrantherum lilacinum** (Dalz. & Gibs.) comb. nov.

Decaneuron lilacinum Dalz. & Gibs., Bombay Fl. 314, 1861;

C. tenue (Wight) Clarke, Comp. Ind. 4:1876; FBI 3:228;

Cooke, T. 650 & 2:7 (2: 63);** Lee, 634; Birdwood, 16;

Puri & Mahajan, 125; Santapau, 122.

C. molle Benth. var. *tenui* Wight ex Clarke, Comp. Ind. 4, 1876 (as synonym).

Rare species at Mahabaleshwar near Arthur's Seat, and along the Fitzgerald Ghat.

FLOWERS: October-November.

*2. **Centrantherum phyllolaenum** (DC.) Benth. ex Clarke, Comp. Ind. 4:1876; FBI 3:228; Cooke, T. 2:7 (2:62); Birdwood, 16; Dalz. & Gibs. 667; Puri & Mahajan, 125.

Decaneuron phyllolaenum DC. Prodr. 7:264, 1838.

D. molle Dalz. & Gibs., Bombay Fl. 122, 1861 (non DC., 1838).

**Major H. H. Lee, Apendex A — List of Mahabaleshwar Plants, in Bombay Gazetteer Vol. 19 (Satara), pp. 625-646, 1885.

* Recently all our specimens of this species sent to L. K. Kirkman, University of Georgia Herbarium have been identified by her as *Phyllocephalum scabridum* (DC. in Wight) Kirkman.

Common herb in partially shaded places along margins of forests and along roadsides.

FLOWERS: August-October.

Conyza Less.

1. Leaves linear to spatulate; achenes puberulous

..... *C. stricta*

1. Leaves lanceolate; achenes glabrous *C. viscidula*

2. **Conyza stricta** Willd., Sp. Pl. 3: 1922, 1804;

FBI 3:258; Birdwood, 16; Cooke, T. 650 &

2:17 (2:73); Puri & Mahajan, 125; Santapau

401, 1962.

C. absinthifolia DC. in Wight, Contr. 16, 1834; Graham, 97; Dalz. & Gibs. 124; Lee, 635.

C. adenocarpa Dalz. & Gibs., Bombay Fl. 125, 1861; FBI 3: 259.

Frequent herb on loose sandy soil with yellowish white flowers.

LOCALITIES: Lodwick Point, Tiger Path, Lingmala, Kate's Point, Wada and Petit road.

FLOWERS: October-December.

2. **Conyza viscidula** Wall. ex DC., Prodr. 5: 383, 1834; Clarke, Comp. Ind. 63, 1876; FBI 3:258.

Quite frequent, much branched herb along forest borders.

LOCALITIES: Fitzgerald Ghat, Chinaman's Falls, Bhilar Estate, near Pratapsing Park.

FLOWERS: December-January.

Cyathocline Cass.

1. **Cyathocline purpurea** (Don) O. Kuntze, Rev. Gen. Pl. 338, 1891; Puri & Mahajan, 125.

Tanacetum purpureum Don, Prodr. Fl. Nepal. 181, 1825.

C. lyrata Cass. in Ann. Soc. Sci. Nat. ser. 1, 17: 420, 1829; Wight, Icon. t. 1098; FBI 3: 246; Birdwood, Cooke, T. 2:15 (2:71).

Common and abundant herb in semi-shaded places and along water courses. It is also quite common in ricefields after the harvests.

LOCALITIES: Chinaman's Falls, Dhobi's Falls, Madhu Kosh.

FLOWERS: September-March.

LOCAL NAME: Gangotra.

Dichrocephala DC.

1. **Dichrocephala integrifolia** (Linn. f.) O. Kuntze, Rev. Gen. Pl. 333, 1891; Hara, Fl. East Himal. 338, 1966.

Hippia integrifolia DC. in Wight, Contrib. 11, 1834; Dalz. & Gibs. 124; Wight, Icon t. 1096; Birdwood, 16; Cooke, T. 650 & 2:14 (2:70); Puri & Mahajan, 125; Santapau, 292, 1963.

Common and abundant weed all over in wastelands and along roadsides. Plants are very variable in size and in the nature of pubescence. Mahabaleshwar plants show both glabrous as well as densely pubescent nature. In fact Rev. Fr. Santapau had separated pubescent forms of this species and kept them in a separate folder under the name *D. tomentosa*, but to the best of our knowledge it has not been published.

LOCALITIES: Chinaman's Falls, Dhobi's Falls, Yenna Lake, Petit Road, Madhu Kosh, Satara Road, Market.

FLOWERS: May-October.

Echinops Linn.

1. **Echinops echinatus** Roxb., Fl. Ind. 3:447, 1832; Graham, 95; Dalz. & Gibs., 131; FBI 3:358; Cooke, T. 2:54 (2:112); Puri & Mahajan, 126.

Common herb on arid dry land.

FLOWERS: February.

Eclipta Linn. (nom. cons.)

1. **Eclipta alba** (Linn.) Hassk., Pl. Jav. Rar. 528, 1848; Dalz. & Gibs. 117; FBI 3:304; Santapau, in Rec. Bot. Surv. Ind. 150, 1953; T. P. Ramamoorthy, in Fl. Hassan Dist. 612, 1976.

Verbesina alba Linn. Sp. Pl. 902, 1753;

E. prostrata (Linn.) Linn., Mant. 2:286, 1771; Graham, 99; Dalz. & Gibs. 127; Santapau in J. Bombay nat. Hist. Soc. 54: 475, 1957.

V. prostrata Linn., Sp. Pl. 902, 1753.

Common gregarious herb in moist places. It is also found as a weed among the grasses in cultivated fields and in gardens.

FLOWERS: Throughout the year.

LOCAL NAME: Maka, Bhangra.

Elephantopus Linn.

1. **Elephantopus scaber** Linn., Sp. Pl. 814, 1753; Graham, 96; Wight, Icon. t. 1086; FBI 3:242; Lee 634; Cooke, t. 2:12 (2:68).

Rare herb in shady places.

FLOWERS: September-December.

Erigeron Linn.

1. **Erigeron karvinskianum** DC., Prodr. 5: 285, 1836; Santapau, 126.

Common along the hedges from Ripon Hotel to Bus stand. Also common weed near race-course. Probably it is an escape from cultivation.

FLOWERS: November-March.

Eupatorium Linn.

1. **Eupatorium glandulosum** H. B. K., Nov. Gen. & Sp. 4:122, 1820 & Bot. Reg. t. 1723, 1834; Bot. Mag. t. 8139, 1907.

E. adenophorum Spreng., Syst. 2:420, 1826; Koster, in Blumea 1(3): 502, 1935.

Common herb near water courses, in fields and on forest fringes. Flowers pure white.

Koster, in Blumea (1. c.) puts *E. glandulosum* H.B.K. in synonymy of *E. adenophorum* Spreng. But *E. glandulosum* H.B.K. is the earlier and the correct name for this species.

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FLOWERS: March-April.

LOCALITIES: Chinaman's Falls, Yenna Lake, Goatweed, Mexican white Floss Flower.

Galinsoga Ruiz & Pavon

1. Leaves with non-ciliate and dentate margins *G. parviflora*

1. Leaves with ciliate and serrate margins *G. ciliata*

1. ***Galinsoga ciliata*** (Raf.) Blake, in Rhodora, 24:35, 1922.

Adventina ciliata Raf., New Fl. N. Amer. 1:67, 1936.

G. parviflora var. *hispida* DC., Prodr. 5:677, 1836. (non *G. hispida* Benth., 1844).

Common weed in cultivated fields and in gardens.

FLOWERS: September-April.

LOCALITIES: Tiger Path, Lingmala, Bhilar Estate, Yenna Lake, Petit Road.

2. ***Galinsoga parviflora*** Cav., Ic. Descr. Pl. 3:41, t. 281, 1795; Clarke, Comp. Ind. 112, 1876; FBI 3:311.

An American weed in cultivated lands and in waste places. Abundant especially on the sides of irrigation canals.

LOCALITIES: Chinaman's Falls, Tiger Path, Madhu Kosh, Bhilar Estate.

FLOWERS: August-May.

Gnaphalium Linn.

1. Heads in leafy spikes; plants less than 15 cm tall *G. polycaulon*

1. Heads in corymbs; plants more than 20 cm. tall *G. luteo-album*

1. ***Gnaphalium luteo-album*** Linn., Sp. Pl. 851, 1753; FBI 3:288; Birdwood, 16; Cooke, T. 650 & 2:30 (2:86).

Common erect herb in wet places and near the lake. Flowers heads golden yellow.

FLOWERS: March-June.

2. ***Gnaphalium polycaulon*** Persoon, Syn. 2: 421, 1807; T. P. Ramamoorthy in Fl. Hassan Dist. 616, 1976.

G. indicum auct. (non Linn., 1753); Dalz. & Gibs. 130, 1861; FBI 3:289; Cooke, T. 2:30 (2:87); Puri & Mahajan, 125.

Prostrate herb abundant in moist soils near lake and in wet places. Branches radiating on ground.

FLOWERS: October-December.

Guizotia Cass. (nom. cons.)

1. ***Guizotia abyssinica*** (Linn. f.) Cass., Dict. Sci. Nat. 59: 248, 1829; FBI 3:308; Cooke, T. 2:66 (2:125).

Polymnia abyssinica Linn. f. suppl. 383, 1781.

G. oleifera DC., Prodr. 5:551, 1834; Dalz. & Gibs. 128.

Cultivated for oil seeds. Occasionally found in wild as an escape from cultivation.

FLOWERS: October-January.

LOCAL NAMES: Til, Ramtil, Kala Til.

Gynura Cass.

1. ***Gynura cusimbua*** (D. Don) S. Moore in Journ. Bot. 50:212, 1912; Santapau, Fl. Khadala, ed. 3, 134, 1967.

Cacalia cusimbua D. Don, Prodr. Fl. Nepal. 179, 1825.

G. angulosa DC., Prodr. 6:298, 1837; Clarke, 170; FBI 3:334; Cooke, T. 2:49 (2:106); Puri & Mahajan, 125.

G. simplex Dalz. & Gibs. Bombay Fl. 130, 1861; Cooke, T. 650, 1885.

G. nitida Woodrow in J. Bombay nat. Hist. Soc. 11:650, 1898 (non DC., 1837).

Common along Fitzgerald Ghat and along the edges of forests, but nowhere abundant.

FLOWERS: September-November.

Helianthus Linn.

1. **Helianthus annuus** Linn., Sp. Pl. 904, 1753; Graham, 100; Cooke, T. 2:66 (2:124).

Very common in gardens as an ornamental plant. Rarely cultivated on large scale for oil seeds.

FLOWERS: Throughout the year.

LOCAL NAME: Surya phul.

Lactuca Linn.

1. **Lactuca sativa** Linn. Sp. Pl. 795, 1753; Maheshwari, Fl. Delhi, 188-9, 1976.

L. scariola Linn. var. *sativa* (Linn.) Hook. f. in Fl. Brit. India 3:404; Cooke; T. 2:61 (2:119).

Cultivated vegetable plant. Leaves used as salad.

FLOWERS & FRUITS: October-March.

LOCAL NAMES: Lettuce, Salad.

Birdwood, in his catalogue (p. 16), has included *Lactuca heyneana* DC., but subsequently this species has not been collected by any collector and there is no authentic specimen in any herbarium.

Lamprachenium Benth.

1. **Lamprachenium microcephalum** (Dalz.) Benth. in Benth. & Hook. f. Gen. Pl. 2:226, 1873; FBI 3:229; Lee, 634; Birdwood, 16; Cooke, T. 650 & 2:8 (2:64); Puri & Mahajan, 125.

Decaneuron microcephalum Dalz., in Kew Journ. Bot. 3: 231, 1851; Dalz. & Gibs. 122.

Common herb along hedges and in wastelands.

FLOWERS: December.

LOCAL NAME: Bramhmadandi.

Notonia DC.

1. **Notonia grandiflora** DC., Wight, Contr. 24, 1834; Dalz. & Gibs. 132; Markham, 386; Birdwood, 16; Cooke, T. 2:50 (2:107).

N. corymbosa DC., Prodr. 6:442, 1837.

N. balsamina Dalz. & Gibs., Bombay Fl. 133, 1861.

It is very common species along Khandala Ghat near Wai. But we have not seen it on Mahabaleshwar plateau or Mahad Ghat.

FLOWERS: September-November.

LOCAL NAME: Vander roti.

Parthenium Linn.

- Parthenium hysterophorus** Linn., Sp. Pl. 988, 1753; R. S. Rao, in J. Bombay nat. Hist. Soc. 54: 218-20, t. 1, 1956.

American weed gradually spreading in grasslands and in open wastelands.

FLOWERS: July-December.

LOCAL NAMES: Congress gavat.

Senecio Linn.

1. Heads ebracteolate; pappus absent *S. belgaumensis*
1. Heads bracteolate; pappus present 2
2. Pappus hairy, slender *S. dalzellii*
2. Pappus paleaceous *S. grahami*
1. **Senecio belgaumensis** (Wight) C. B. Clarke, Comp. Ind. 200, 1876; FBI 3:348; Birdwood, 17; Cooke, T. 2:53 (2:111); Puri & Mahajan, 125.

Madacarpus belgaumensis Wight, in Calcutta Journ. nat. Hist. 7:157, 1847; Wight, Icon. t. 1152; Dalz. & Gibs. 130; Birdwood, 17.

Rare herb at Mahabaleshwar.

FLOWERS: August-January.

LOCAL NAME: Sonki.

2. **Senecio dalzellii** C. B. Clarke, Comp. Ind. 201, 1876; FBI 3:346; Birdwood, 17; Cooke, T. 2:52 (2:110).

S. lawii C. B. Clarke, Comp. Ind. 201, 1876.
Reported here on the authority of Birdwood.

FLOWERS: November-December.

3. **Senecio grahami** Hook. f. in Flora Brit. India 3:347, 1881; Birdwood, 17; Cooke, T. 650 & 2:52 (2:110); Puri & Mahajan, 125; Santapau, 400, 1962 & 293, 1963.

S. reticulata Clarke, Comp. Ind. 199, 1876. (non DC., 1834).

Doronicum reticulatum Wight, Cal. Journ. nat. Hist. 7:156, 1847; Wight, Icon. t. 1151B; Dalz & Gibs. 130.

Common and abundant herb in open grasslands.

FLOWERS: August-December.

LOCAL NAME: Sonki.

Sonchus Linn.

1. **Sonchus asper** (Linn.) Garsault, Fig. Pl. Anim. Med. 4:332, t. 565, 1767; FBI 3: 414; Graham, 94; Cooke, T. 2:61 (2:120).

S. oleraceus var. *asper* Linn. sp. Pl. 794, 1753.

Rare plant near Lingmala falls on earth banks.

FLOWERS: January-March.

LOCAL NAME: Mhatara.

Spilanthus Linn.

1. **Spilanthus paniculata** Wall. ex DC., Prodr. 5:625, 1834.

S. acmella auct. (non [Linn.] Murr., 1774); Graham, Cat. Bombay Pl. 99, 1839; Dalz. & Gibs. 129; FBI 3:307; Birdwood, 16; Cooke, T. 650 & 2:42 (2:99); Puri & Mahajan, 125.

S. calva Wight, Icon. t. 1109, 1846 (non DC., 1834).

Suberect herb along sides of streams and lake. Quite common in wet ricefields after harvests. Leaves on chewing cause numbness of tongue followed by profuse salivation.

FLOWERS: December.

LOCAL NAME: Akkalkara.

Synedrela Gaertn.

1. **Synedrela nodiflora** (Linn.) Gaertn. Fruct. 2:456, t. 171, f. 7, 1791.

Verbesina nodiflora Linn. Cent. Pl. 1:28, 1755, Amoem. Acad. 4:290, 1759.

A tropical American weed growing in cultivated and wastelands.

FLOWERS: November.

Tricholepis DC.

1. Pappus absent or rarely of few hairs.....

..... *T. amplexicaulis*

1. Pappus rigid, sub-paleaceous *T. glaberrima*

1. **Tricholepis amplexicaulis** C. B. Clarke, Comp. Ind. 240, 1876; FBI 3:281; Cooke, T. 2:51 (2:115); Puri & Mahajan, 126.

This is not a common plant but found in patches at Elphinston Point.

FLOWERS: December.

LOCAL NAME: Dahan.

2. **Tricholepis glaberrima** DC. Prodr. 6: 754, 1837; Dalz. & Gibs. 131; FBI 3:381; Lee, 635; Birdwood, 17; Cooke, T. 650 & 2:56 (2:114); Puri & Mahajan, 126.

Serratula indica Willd. Sp. Pl. 3:1642, 1804; Graham, 95.

Frequent herb among the grasses in open grasslands.

FLOWERS: October.

LOCAL NAME: Dahan.

Tridax Linn.

1. **Tridax procumbens** Linn., Sp. Pl. 900, 1753; FBI 3:311; Birdwood, 16; Cooke, T. 2:45 (2:102); Puri & Mahajan, 125.

A South American weed naturalized and growing everywhere in wastelands and in gardens.

FLOWERS: Throughout the year.

LOCAL NAME: Pathri.

Vernonia Schreb.

1. Achenes pubescent or silky..... *V. cineria*
1. Achenes glabrous or glandular.....2
2. Leaves thin, membranaceous, not tomentose
..... *V. divergens*
2. Leaves thick, coriaceous, densely wooly tomentose beneath *V. indica*
1. ***Vernonia cineria*** Less. in Linnaea 4: 291, 1829; Graham, 96; Dalz. & Gibs. 121; FBI 3: 233; Birdwood, 16.

Conyza cineria Linn. Sp. Pl. 862, 1753.

Frequent on the lower slopes of the Ghat roads.

FLOWERS: Throughout the year.

LOCAL NAMES: Sahadevi, Moti sadori.

2. ***Vernonia divergens*** (Roxb.) Edg. in Journ. Asiat. Soc. Bengal 21:172, 1853; FBI 3:234; Lisboa, 216; Cooke, T. 650 & 2:11 (2:67); Puri & Mahajan, 125.

Eupatorium divergens Roxb., Fl. Ind. 3:414, 1832; Dalz. & Gibs. 123.

Decaneuron divergens DC., Prodr. 5: 68, 1836; Wight, Icon. t. 1084.

Rare undershrub along the edges of the forests.

FLOWERS: December-March.

LOCAL NAMES: Bundar, Bondar.

3. ***Vernonia indica*** C.B. Clarke, Comp. Ind. 16, 1876; Lisboa, 216; FBI 3:238; Cooke, T. 2:11 (2:67); Puri & Mahajan, 125.

Decaneuron dendigulense DC., in Wight, Contrib. Bot. Ind. 7, 1834 non *Vernonia dendigulense* DC., 1838).

This species included here on authority of Puri and Mahajan.

Vicoa Cass.

1. ***Vicoa cernua*** Dalz. in Dalz. & Gibs. Bombay Fl. 126 & 314, 1861; FBI 3:297; Birdwood, 16; Lee, 635; Cooke, T. 650 & 2:32 (2:89); Puri & Mahajan, 125.

Rare herb among grasses in partially shaded places and along the margins of forests.

FLOWERS: October-January.

Wedelia Jacq. (nom. cons.)

1. ***Wedelia urticaefolia*** (Bl.) DC. in Wight Contrib. 18, 1834; Wight, Icon. t. 1106; FBI 3:306; Birdwood, 16; Cooke, T. 2:41 (2:98).
Wollastomia biflora Dalz. & Gibs., Bombay Fl. 128, 1861 (Excl. syn., non DC., 1834).
Verbesina biflora Wall. ex Graham, Cat. Bombay Pl. 100, 1839.
V. urticaefolia Blume, Bijdr. 911, 1825.

Rare undershrub in shady places among the undergrowths near the margins of the forests.

FLOWERS: August-September.

Xanthium Linn.

1. ***Xanthium strumarium*** Linn., Sp. Pl. 987, 1753; FBI 3:303; Cooke T. 2:37 (2:94).
X. indicum Koen. ex Roxb., Fl. Ind. 3:601, 1832; Graham, 101; Dalz. & Gibs. 127; Wight, Icon. t. 1104.

Rare weed in wastelands.

FLOWERS & FRUITS: September-April.

LOBELIACEAE

Lobelia Linn.

1. Erect stout herbs; flowers in terminal racemes *L. nicotinaefolia*
 1. Prostrate or procumbent herbs; flowers axillary, solitary 2
 2. Stems not winged *L. alsinoides*
 2. Stems winged *L. heyneana*
 1. ***Lobelia alsinoides*** Lamk., Encycl. 3: 588, 1791; Santapau, Fl. Khandala, ed. 3, 140.
L. trigona Roxb., Fl. Ind. 2:111, 1824; FBI 3: 423; Dalz. & Gibs. 133; Wight, Icon. t. 1170; Cooke, T. 2:72 (2:130).
Birdwood, 17; Puri & Mahajan, 126.
- Common weed in moist places and in drying ricefields.

FLORA OF MAHABALESHWAR

FLOWERS: September-March.

2. **Lobelia heyneana** Roem. & Schultz. Syst. 5:50, 1819, Santapau, 139.

L. trialata Buch.-Ham. in D. Don, Prodr. 157, 1825; Birdwood, 17, FBI 3: 425; Woodrow, in Journ. Bombay nat. Hist. Soc. 12: 162, 1898; Cooke, T. 2:72 (2:130); Puri & Mahajan, 126.

Frequent herb on earth clearings along roadsides.

FLOWERS: August-October.

3. **Lobelia nicotinaefolia** Heyne ex Roth., Nov. Sp. Pl. 143, 1821; Graham, 102; Dalz. & Gibs. 133; FBI 3:427; Birdwood, 17; Cooke, T. 2:72 (2:131); Puri & Mahajan, 126.

Very common herb. Often gregarious on open grassy slopes along the edges of the forests. A very distinct and attractive plant conspicuous by the masses of white flowers in long terminal spikes, above the dense foliage.

FLOWERS: October-April; FRUITS: November-April.

LOCAL NAMES: Devnal, Bokenal, Dhaval.

CAMPANULACEAE

1. Capsules loculicidally dehiscent within the calyx-teeth 2
2. Corolla rotate, lobes linear; stigma capitate *Cephalostigma*
2. Corolla campanulate, lobes short and broad; stigma lobed *Wahlenbergia*
1. Capsule dehiscent at the base or on sides below the calyx teeth *Campanula*

Campanula Linn.

1. Flowers dimorphic; corolla 5-6 mm long *C. cordata*
1. Flowers all similar; corolla 10-13 mm long.... *C. alphonsii*
1. ***Campanula alphonsii*** Wall. ex DC., Prodr. 7:473, 1837; FBI 3:440; Wight, Icon. t. 1177; Cooke, T. 2:76 (2:134); V. D. Vartak, J. Univ. Poona, 10:8, 1957.

A rare species. Only collected from a vertical rock near Kate's Point.

FLOWERS: October.

2. ***Campanula cordata*** Wall. ex Roxb., Fl. Ind. Carey ed., 2: 101, 1832; Rao, in Bull. Bot. Surv. India, 10 (suppl. 2): 45, 1969.

C. canescens Wall., DC., Prodr. 7:473, 1837; FBI 3:439; Santapau, in Journ. Bombay nat. Hist. Soc. 45: 446, 1945.

446; 1945.

Cephalostigma spathulatum Thwaites, Enum. 422, 1859.

Rare slender herb, found on moist beds of streams in wet soils. Collected from Lingmala and Old Mahabaleshwar only.

FLOWERS & FRUITS: November-December.

Cephalostigma DC.

1. Stems erect; leaves oblong *C. erecta*
1. Stems flexuose; leaves broadly ovate..... *C. flexuosa*
1. ***Cephalostigma erecta*** (Roth ex. R. & S.) Vatke in Linnaea, 38: 699, 1874.

Dentella erectum Roth, ex Roem. & Schultes, Syst. Veg. 5:25, 1819.

C. schimperi Hochst. ex Rich., Tent. Abyss. 2: 2, 1851.

Wahlenbergia perfoliata Wight & Arn., in Prodr. 405, 1834; Wight, Icon. t. 842, 1844.

C. hirsutum Hk. f. & Thomson, in Journ. Linn. Soc. 2:9, 1858 (p.p.); Dalzell & Gibs. 133 (non Edgew., 1851).

Rare species, only collected from Bhilar Estate.

FLOWERS: November.

2. ***Cephalostigma flexuosa*** Hk. f. & Thomson in Journ. Linn. Soc. 2:9, 1858; Cooke, T. 650 (Bombay Gazette).

This species is reported here on the authority of T. Cooke only. Although he reports it in the earlier publication he does not repeat its occurrence at Mahabaleshwar in Flora of Bombay Presidency later.

Wahlenbergia Schrad.

1. **Wahlenbergia marginata** (Thunb.) DC., Monog. Campan. 143, 1830; Santapau, 140.

Campanula marginata Thunb., Fl. Japan, 89, 1784.

C. dehiscens Roxb., Fl. Ind. 1:504, 1832; Graham, 103.

W. gracilis Schrad., Blumea 38, 1827; FBI 3:429; Cooke, T. 650 & 2:74 (2:133).

W. agrestis DC., Prodr. 7: 434, 1836; Dalz. & Gibs. 134; Wight, Icon t. 1175.

Common in moist grounds near Yenna Lake and near streams and in ricefields.

FLOWERS AND FRUITS: December-May.

PLUMBAGINACEAE

Plumbago Linn.

1. Flowers white or blue 2

2. Calyx covered with stalked glands all over *P. zeylanica*

2. Calyx glandular in the upper part only..... *P. auriculata*

1. Flowers red *P. indica*

1. **Plumbago auriculata** Lamk., Encycl. 2:270, 1786; Degener, in Fl. Hawai. fam. 292, 1946.

P. capensis Thunb., Prodr. Capen. 33, 1794; Graham, 166; Dalz. & Gibs. suppl. 72; Cooke, T. 2: 78 (2:137).

Cultivated garden plant with pale blue flowers grown as ornamental plant.

FLOWERS: May-December.

LOCAL NAME: Nila chitrak.

2. **Plumbago indica** Linn. in Stickman Herb. Amb. 24, 1754; Merrill, Interpr. Rump. 414, 1917.

P. rosea Linn., Sp. Pl. ed. 2, 215, 1765; FBI 3: 481; Graham, 166; Cooke, T. 2: 78 (2:137).

P. coccinea Boiss. in DC. Prodr. 12:693, 1848; Dalz. & Gibs. suppl. 71.

An ornamental cultivated plant .

FLOWERS: Throughout the year.

LOCAL NAME: Lal chitrak.

3. **Plumbago zeylanica** Linn., Sp. Pl. 151, 1753; Graham, 166; Dalz. & Gibs. 220; Wight Ill. t. 179; Cooke, T. 2:78 (2:136-7).

Rare perennial herb along the edges of the forests, in white flowers. Sometimes seen in cultivations and in gardens.

FLOWERS: August-September.

LOCAL NAMES: Chitrak, Safed chitrak.

PRIMULACEAE

Anagallis Linn.

1. Leaves alternate; flowers white *A. pumila*

1. Leaves opposite; flowers blue *A. arvensis*

1. **Anagallis arvensis** Linn., Sp. Pl. 148, 1753; FBI 3:506; Birdwood 17; Cooke, T. 2:80 (2: 139); 136; Maheshwari, Fl. Delhi, 203, 1976.

A. coerulea Lamk., Fl. Lips. 5: 1771.

A. arvensis Linn. var. *coerulea* (Lamk.) Gren. & Godr. Fl. Pr. 2: 467, 1852.

Rare herb at Fitzgerald Ghat, and in Yenna Valley.

FLOWERS: September-October.

2. **Anagallis pumila** Swartz, Prodr. Veg. Ind. Occ. 1: 40, 1788; Pax & Kunth, Pfreich. 22: 331, t. 71, 1905; Santapau, 401, 1962.

Centunculus tenellus Duby, in DC., Prodr. 8:72, 1844; FBI 3: 506; Cooke, T. 2:80 (2:140).

Micropyxis tenella Wight, Icon. t. 1585, 1850.

One of the most common and abundant herb among the grasses. Due to its smaller size it is generally hidden among the grasses and goes unnoticed in field studies.

FLOWERS & FRUITS: October-November.

Lysimachia obovata Ham. ex Hook. f. Flora Brit. Ind. 3: 503, 1881, has been reported by Lisboa (Climate of Mahabaleshwar, 1886). But subsequently nobody has collected this species from Mahabaleshwar. Probably an escape from cultivation.

(To be continued)



Bole, P. V. and Almeida, M. R. 1982. "MATERIAL FOR THE FLORA OF MAHABALESHWAR INDIA 4." *The journal of the Bombay Natural History Society* 79, 594–606.

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