

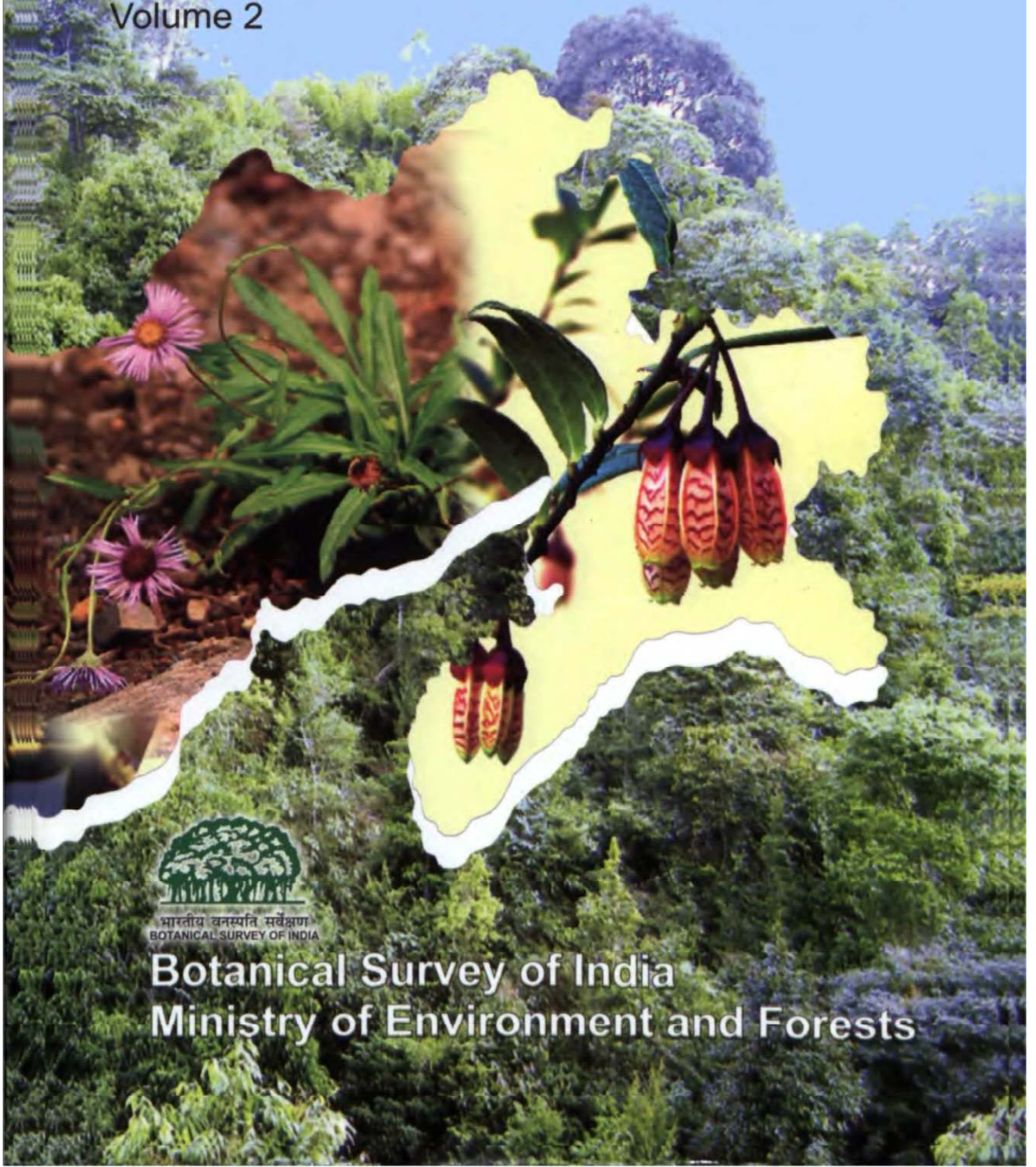


Flora of India  
Series - 2

Volume 2

# Materials for the Flora of Arunachal Pradesh

(ASTERACEAE - CERATOPHYLLACEAE)



भारतीय वनस्पति सर्वेक्षण  
BOTANICAL SURVEY OF INDIA

Botanical Survey of India  
Ministry of Environment and Forests

*Editors*

G.S. GIRI

A. PRAMANIK

&

H.J. CHOWDHERY

ISBN : 81-8177-023-4

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Date of Publication: June, 2008

ISBN: 81-8177-023-4

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*Cover photo* : Subtropical forest in Arunachal Pradesh (Photo : P. Singh)  
Inset : *Agapetes incurvata* (Griff.) Sleumer var. *hookeri* (C.B.Clarke)  
Airy Shaw, *Aster tricephalus* C.B.Clarke & *Salix daltoniana* Andersson

Price Rs.792.00 or \$ 80.00

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Published by the Director, Botanical Survey of India, CGO Complex, 3rd MSO Building, Block F, 5th & 6th Floor, DF Block, Sector I, Salt Lake City, Kolkata 700 064 and Printed at Deep Printers, 70A, Rama Road Industrial Area (NJR), New Delhi-110015. Ph. : 25925099.

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*Aster tricephalus* C.B. Clarke



*Agapetes incurvata* (Griff.) Sleumer  
var. *hookeri* (C.B. Clarke) Airy Shaw



*Clerodendrum japonicum* (Thunb.) Sweet



*Castanopsis indica* (Roxb.) Miq.





*Ficus hirta* var. *roxburghii* (Miq.) King



*Piper sylvaticum* Roxb.



*Piper nigrum* var. *macrostachyum* C. DC.



*Quercus griffithi* Hook. f. et Thomson ex Miq.





*Rhododendron arboreum* subsp. *delavayi* (Franch.) D.F. Chamb.



*Rhododendron hodgsonii* Hook. f.



*Rhododendron thomsonii* Hook. f.



*Rhynchosyris obliquum* Blume





*Salix babylonica* L.



*Salix daltoniana* Andersson



## ASTERACEAE

**Adenostemma lavenia** (L.) Kuntze, Rev. Gen. Pl. 1: 304. 1891; Uniyal in Hajra *et al.*, Fl. India 12: 346. 1995. *Verbesina lavenia* L., Sp. Pl. 902. 1753. *Adenostemma viscosum* J. R. & G. Forst., Char. Gen. Pl. 90, t. 45. 1776; Hook. f., Fl. Brit. India 3 : 242. 1881, *p. p.*

### var. **lavenia**

Perennial herbs, 20-100 cm tall; stems and branches glabrous, pubescent or viscid-pubescent. Leaves lanceolate to oblong-ovate, opposite. Heads homogamous. Involucral bracts ciliate at margin. Achenes subtriangular, glandular-tuberculate.

*Fl. & Fr.*: March Dec.

*Distrib.*: Kameng, Lohit, Siang, Subansiri, Tirap; 800-2500 m, amidst grasses on black humus soil.

**Adenostemma lavenia** var. **elatum** (D. Don) Hochr. in Candollea 5: 298. 1934 ; Uniyal in Hajra *et al.*, Fl. India. 12 : 347. 1995. *A. elatum* D. Don, Prodr. Fl. Nep. 181. 1825. *A. viscosum* var. *elatum* (D. Don) C. B. Clarke, Comp. Ind. 29. 1876 ; Hook. f., Fl. Brit. India 3: 242. 1881, *p. p.*

Herbs; branches pubescent or viscid-pubescent. Leaves alternate, upper sessile. Involucral bracts smooth on margin. Achenes densely muricate or tuberculate.

*Fl. & Fr.*: March Dec.

*Distrib.*: Siang, Tirap; 500 -1500 m.

**Adenostemma lavenia** var. **madurensense** (DC.) Panigrahi in Kew Bull. 30(4): 654. 1975; Uniyal in Hajra *et al.*, Fl. India 12: 347. 1995. *A. madurensense* DC. in Wight, Contrib. Bot. Ind. 9. 1834. *A. viscosum* var. *reticulatum* Hook. f., Fl. Brit. India 3: 242. 1881, *p. p.*, *quoad syn.*

Herbs; branches glabrous, pubescent or viscid-pubescent. Involucral bracts smooth on back. Achenes smooth.

*Fl. & Fr.*: March Dec.

*Distrib.*: Siang, Subansiri, Tirap; 500 1500 m.

**Ageratum conyzoides** L., Sp. Pl. 839. 1753; Hook. f., Fl. Brit. India 3: 243. 1881; Uniyal in Hajra *et al.*, Fl. India 12: 348. 1995; A. S. Chauhan in Hajra, Contrib. Fl. Namdapha 199. 1996.

Herbs or shrubs, 10 100 cm tall; branches hispid hairy. Leaves usually ovate, crenate. Heads discoid, pale purple to white in dense

terminal corymbs or panicles. Involucral bracts oblong, apex acute, fringed. Achenes 5-angled, black.

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

*Distrib.*: Changlang, Lohit, Siang, Subansiri, Tirap; 100-1500 m.

**Ageratum houstonianum** Mill., Gard. Dict. ed. 8. no. 2.1768; C. E. C. Fisch. in Gamble, Fl. Pres. Madras 3: 1302. 1936; Saxena in Bull. Bot. Surv. India 12: 49.1970; Uniyal in Hajra *et al.*, Fl. India 12: 349. 1995.

Annual or perennial herbs, up to 60 cm high. Leaves deltoid, crenate-serrate, pilose. Flowers in 75-100-flowered heads, bluish. Involucral bracts oblong-acuminate, hirsute or pilose on back. Achenes bristly along ribs.

*Fl. & Fr.*: July - Oct.

*Distrib.*: Subansiri; 100-600 m, in open forests, along roadsides.

**Ainsliaea angustifolia** Hook. f. *et* Thomson *ex* C. B. Clarke in J. Linn. Soc. 14: 412. 1875; Hook. f., Fl. Brit. India 3: 388. 1881; Rao in Hajra *et al.*, Fl. India 13: 165. 1995.

Herbs; stems sparsely hairy. Leaves oblanceolate, narrowed into a long petiole, crenate. Heads discoid; flowers white or purplish. Achenes silky, obscurely ribbed with brown pappus.

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

*Distrib.*: Kameng; up to 2000 m, in forests.

**Ainsliaea latifolia** (D. Don) Sch.-Bip. in Pollichia 18,19: 190. 1861; Rao in Hajra *et al.*, Fl. India 13: 167.1995; A. S. Chauhan in Hajra, Contrib. Fl. Namdapha 200. 1996. *Liatris latifolia* D. Don, Prodr. Fl. Nep. 169. 1825. *Ainsliaea pteropoda* DC., Prodr. 7: 14. 1838; Hook. f., Fl. Brit. India 3: 388. 1881.

Herbs, 30 - 70 cm tall; stems hairy or cottony-tomentose. Leaves ovate or ovate-cordate; petioles broadly winged. Head solitary or 1-2 together, axillary, 3-flowered; flowers pale blue. Achenes ribbed, softly silky with pale brown pappus.

*Fl. & Fr.*: Jan. - Dec.

*Distrib.*: Kameng, Lohit, Subansiri, Tawang, Tirap; 1000 - 3000 m, along moist slopes.

**Ambrosia artemisiifolia** L., Sp. Pl. 988.1753; Naithani & Bennet in Ind. J. For. 4: 73. 1981; Chowdhery in Hajra *et al.*, Fl. India 12: 363. 1995.

Erect herbs, up to 3 m high; branches ridged. Leaves deeply cut into many lobes. Heads small, yellowish white with separate male and female flowers. Achenes enclosed in fused involucrel bract, pale brown.

*Fl. & Fr.:* July Sept.

*Distrib.:* Kameng, Lohit, Siang, Subansiri; a weed of Jhum cultivation fallows, along roadsides.

*Note:* The wind borne pollens of this species are said to cause serious allergic diseases.

**Anaphalis adnata** DC., Prodr. 6: 274. 1838; Hook. f., Fl. Brit. India 3: 282. 1881; Pant in Hajra *et al.*, Fl. India 13: 53. 1995.

Stout herbs or undershrubs, 0.5 – 1.5 m tall; stems densely white floccose. Leaves obovate oblong, sub-spathulate or lanceolate, densely clothed with white silky or cottony hairs. Flowers white in dense rounded terminal or axillary corymbose clustered heads, surrounded by white, opaque, involucrel bracts. Achenes oblong, minutely hairy or dotted.

*Fl. & Fr.:* Aug. March.

*Distrib.:* Kameng, Subansiri; 1000 – 1500 m.

**Anaphalis busua** (Buch.-Ham. ex D. Don) DC., Prodr. 6: 275. 1838; Pant in Hajra *et al.*, Fl. India 13: 57. 1995. *Anaphalium busuum* Buch.-Ham. ex D. Don, Prodr. Fl. Nep. 173. 1825. *Anaphalis araneosa* DC., Prodr. 6: 275. 1838; Hook. f., Fl. Brit. India 3: 283. 1881.

Herbs, up to 1 m high; stems erect, cottony or woolly-pubescent, more or less winged due to decurrent leaf bases. Leaves linear-lanceolate to oblanceolate, 1-nerved, semiamplexicaul at base, acuminate at apex. Heads in terminal corymbose clustered; flowers yellowish-green; involucrel bracts obovate-spathulate, white, opaque.

*Fl. & Fr.:* July March.

*Distrib.:* Kameng, Siang, Subansiri, Tawang; up to 250 m.

**Anaphalis contorta** (D. Don) Hook. f., Fl. Brit. India 3: 284. 1881; N. P. Balakr., Fl. Jowai 1: 276. 1981; Pant in Hajra *et al.*, Fl. India 13: 59. 1995. *Antennaria contorta* D. Don in Bot. Reg. 7: t. 605. 1821. *Anaphalis tenella* DC., Prodr. 6: 273. 1838.

Herbs, 10 – 60 cm tall; branches prostrate or ascending, woolly. Leaves linear, 1-nerved, cottony woolly. Heads in terminal corymbs, clustered, enclosed by white, yellowish or purplish involucrel bracts. Achenes oblong, smooth or verrucose.

*Fl. & Fr.:* July Dec.

*Distrib.*: Kameng, Lohit, Siang, Subansiri; 1200 – 5000 m, along roadsides.

**Anaphalis griffithii** Hook. f., Fl. Brit. India 3: 280. 1881; Pant in Hajra *et al.*, Fl. India 13: 61.1995.

Herbs, unbranched, 30 – 80 cm high. Leaves linear-lanceolate, semiamplexicaul at base, grey – woolly or cobwebby beneath; 1-nerved. Heads in terminal, open corymb. Involucral bracts white, up to 4-seriate, ovate or ovate-elliptic, subacute. Achenes oblong, hairy.

*Fl. & Fr.*: Sept. - Feb.

*Distrib.*: Subansiri; up to 2500 m, undergrowth in secondary forests.

**Anaphalis margaritacea** (L.) Benth. in Benth. & Hook. f., Gen. Pl. 2: 303. 1873; Pant in Hajra *et al.*, Fl. India 13: 68. 1995. *Gnaphalium margaritaceum* L., Sp. Pl. 850. 1753. *Anaphalis cinnamomea* C. B. Clarke, Comp. Ind.104. 1876; Hook. f., Fl. Brit. India 3: 281. 1881.

Herbs, erect or decumbent, 20 – 60 cm tall. Leaves narrowly lanceolate, densely clothed with white, grey to cinnamomeous woolly hairs, 3-5 nerved. Heads subglobose in dense terminal corymbs. Involucral bracts opaque, white, ovate, many seriate. Achenes compressed, narrowly oblong.

*Fl. & Fr.*: Aug. – Dec.

*Distrib.*: Kameng; 1500 – 3000 m.

**Anaphalis nepalensis** (Spreng.) Hand.-Mazz., Symb. Sin. 7: 1099. 1936. *Helichrysum nepalensis* Spreng., Syst. Veg. 3: 485. 1826. *Anaphalis nubigena* DC., Prodr. 6: 272. 1838; Hook. f., Fl. Brit. India 3: 279. 1881.

Small, tufted, cottony-woolly herbs, 2-20 cm tall. Lower leaves obovate-spathulate, upper leaves elliptic or lanceolate. Heads solitary or few together.

*Fl. & Fr.*: July – Dec.

*Distrib.*: Kameng, Tawang; upto 5000 m.

**Anaphalis royleana** DC., Prodr. 6: 272. 1838; Hook. f., Fl. Brit. India 3: 280. 1881; Pant in Hajra *et al.*, Fl. India 13: 71 & 72. 1995.

Herbs, 10-15 cm tall; stems many together, softly tomentose. Leaves, linear or linear-oblong, puberulous above, greyish white tomentoes beneath. Heads in terminal corymbs, flowers white. Involucral bracts many seriate, ovate to oblong. Achenes oblong, papillose.

*Fl. & Fr.*: July – Dec.

*Distrib.*: Kameng, Tawang; 4000-4500 m.

**Anaphalis triplinervis** (Sims.) C. B. Clarke, Camp. Ind. 105. 1876; Hook. f., Fl. Brit. India 3: 281. 1881; Pant in Hajra *et al.*, Fl. India 13: 77. 1995. *Antennaria triplinervis* Sims. in Bot. Mag. 51: t. 2468. 1823.

Perennial, woody herbs, up to 50 cm high. Leaves broadly elliptic to oblong or narrowly oblong, densely clothed with white woolly hairs beneath, cobwebby above, amplexicaul, 3(-5) nerved. Heads solitary or few in terminal corymb. Involucral bracts ovate, white. Achenes oblong, tuberculate. Pappus white, bristly.

*Fl. & Fr.*: Sept. Feb.

*Distrib.*: Subansiri; 1500-3000 m.

**Artemisia dubia** Wall. ex Bess. var. **subdigitata** Ling in Kew Bull. 42(2): 444. 1987; Naithani in Hajra *et al.*, Fl. India 1: 19. 1995. *A. glauca auct. non* Pall. ex Willd.: Hook. f., Fl. Brit. India 3: 322. 1881.

Perennial herbs; stems erect, puberulose, more or less purplish. Cauline leaves pinnatifid or pinnati-partite, segments linear or linear-lanceolate. Heads heterogeneous, solitary or in clusters of 2-3 forming raceme; flowers yellow or dull green. Involucral bracts oblong, pale white.

*Fl. & Fr.*: Aug. Feb.

*Distrib.*: Kameng; 2000 m, amidst grasses on black humus soil.

**Artemisia indica** Willd., Sp. Pl. 3: 1846. 1803; Naithani in Hajra *et al.*, Fl. India 12: 27. 1995. *A. vulgaris auct. non* L.: Hook. f., Fl. Brit. India 3: 325. 1881, *p.p.*

Herbs, 1-2 m tall; stems aromatic, pubescent or tomentose. Leaves pinnati-partite, segments narrowly lanceolate, pubescent above, white-felted beneath. Heads ovoid to subglobose, solitary to fascicled.

*Fl. & Fr.*: July March.

*Distrib.*: Dibang valley, Kameng, Lohit, Siang, Subansiri, Tirap; up to 2500 m, along roadsides, waste places.

*Use*: The plant is anthelmintic, asthmatic, and used in preparation of tonic, expectorant. It is also used as a valuable antispasmodic and stomachic.

**Artemisia japonica** Thunb., Fl. Jap. 310. 1784; Naithani in Hajra *et al.*, Fl. India 12: 28. 1995. *A. parviflora* Roxb. ex D. Don, Prodr. Fl. Nep. 181. 1825; Hook. f., Fl. Brit. India 3: 322. 1881.

Annual herbs, laxly villous, 1-2 m tall with nauseating smells. Cauline leaves linear with stipule like appendages at base. Heads dull green, secund in spreading paniced racemes. Achenes ellipsoid, smooth.

*Fl. & Fr.*: Aug. Feb.

*Distrib.*: Kameng; 2000-3000 m, in open and shaded places amongst grasses.

**Artemisia maritima** L., Sp. Pl. 846. 1753; Hook. f., Fl. Brit. India 3: 323. 1881; Naithani in Hajra *et al.*, Fl. India 12: 31. 1995.

Perennial, aromatic herbs, up to 1m tall; stems hoary or tomentose. Leaves 2- pin-natisect. Heads 3-8-flowered, ovoid or oblong in spicate fascicles, homoge-neous. Involucral bracts broadly oblong to obovate, brownish. Receptacle naked.

*Fl. & Fr.*: May March.

*Distrib.*: Arunachal Pradesh.

**Artemisia nilagirica** (C. B. Clarke) Pamp. in Nuovo Giorn. Bot. Ital. n.s. 33: 452. 1926; Naithani in Hajra *et al.*, Fl. India 12: 36. 1995; A. S. Chauhan in Hajra, Contrib. Fl. Namdapha 200. 1996. *A. vulgaris* L. var. *nilagirica* C. B. Clarke, Comp. Ind. 162. 1876. *A. vulgaris auct. non* L.: Hook. f., Fl. Brit. India 3: 325. 1881, *p.p.*

Perennial, aromatic herbs, 1-2 m tall; stems hoary pubescent or tomentose. Leave ovate-elliptic, lobed, densely white woolly beneath, glabrous above. Heads ovoid in sparsely leafy panicles, tomentose.

*Fl. & Fr.*: Aug. Feb.

*Distrib.*: Kameng, Lohit, Siang, Subansiri, Tirap; 1000-2500 m, in open or shaded places amidst grasses or along forest edges.

**Aster ageratoides** Turcz. subsp. **alatopetiolata** Kitam. in Fauna & Fl. Nep. Himal. 247. 1955; Hajra in Hajra *et al.*, Fl. India 12: 79. 1995. *A. trinervius* Roxb. ex D. Don subsp. *ageratoides* (Trucz.) Grierson in Notes Roy. Bot. Gard. Edinburgh 26: 102. 1964, *p.p.*

Rhizomatous herbs, up to 1 m tall; stems and branches pubescent. Leaves elliptic-lanceolate, subentire to distantly serrate at margin, ligulate. Heads white to pale-pink, 10-15 mm across. Achenes 2-3 ribbed with dirty white to reddish pappus.

*Fl. & Fr.*: Oct. Feb.

*Distrib.*: Lohit, Subansiri; 1000-2000 m, on moist soil in open places.

**Aster albescens** (DC.) Hand.-Mazz. in Acta Hort. Gotob. 12. 205. 1938; Hajra in Hajra *et al.*, Fl. India 12 : 79. 1995. *Amphiraphis*

*albescens* DC., Prodr. 5: 343. 1836. *Microglossa albescens* (DC.) Benth. ex C. B. Clarke, Comp. Ind. 59. 1876; Hook. f., Fl. Brit. India 3: 257. 1881.

Shrubs, 50-150 cm high; branches faintly grooved. Leaves ovate or elliptic, subentire, subsessile. Heads small, up to 6 mm across, in loosely clustered corymbs. Achenes puberulous with red pappus.

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

*Distrib.*: Lohit; 2500-4000 m, along open hill slopes.

**Aster flaccidus** Bunge in Mem. Acad. Sci. St. Petersburg. 2: 599. 1838; Hajra in Hajra *et al.*, Fl. India 12: 86. 1995. *A. heterochaeta* C. B. Clarke, Comp. Ind. 44. 1876; Hook. f., Fl. Brit. India 3: 250. 1881, *p.p.* *A. tibeticus* Hook. f., Fl. Brit. India 3: 251. 1881, *p.p.*

subsp. **flaccidus** forma **flaccidus**

Acaulis or shortly stemmed, woolly or tomentose herbs. Leaves obovate-spathulate, villous and ciliate at margin. Heads solitary, 3-4 cm across. Involucral bracts brownish. Achenes glabrescent, pappus whitish.

*Fl. & Fr.*: May Oct.

*Distrib.*: Dibang valley, Lohit; 4000-5000 m, on open slopes, screes

**Aster flaccidus** subsp. **flaccidus** forma **griseobarbatus** Grierson in Notes Roy. Bot. Gard. Edinburgh 26: 131. 1964.

Involucral bracts dark coloured than forma **flaccidus**.

*Fl. & Fr.*: July Sept.

*Distrib.*: Lohit; 3000-4000 m.

**Aster himalaicus** C. B. Clarke, Comp. Ind. 43. 1876; Hook. f., Fl. Brit. India 3: 250. 1881; Hajra in Hajra *et al.*, Fl. India 12: 90. 1995.

Small, robust, laxly villous herbs, up to 50 cm high. Radicle leaves persistent, petiolet, obovate to spathulate, denticulate at margin; cauline leaves semiamplexicaul. Heads solitary, ca 2 cm across, lilac. Involucral bracts purplish tinged, pubescent. Achenes silky, obovate.

*Fl. & Fr.*: April Sept.

*Distrib.*: Kameng; 2500-4500 m, on open hill slopes.

**Aster sikkimensis** Hook. f. in Bot. Mag. t. 4557. 1851; Hook. f., Fl. Brit. India 3: 252. 1881; Hajra in Hajra *et al.*, Fl. India 13: 95. 1995.

Glabrous or puberulous herbs, up to 1 m tall. Leaves lanceolate, semiamplexicaul, distantly denticulate. Heads numerous, small, blue, in terminal corymbs. Achenes hispid, 4-ribbed, pappus white or creamy.



*Fl. & Fr.:* Sept. March.

*Distrib.:* Kameng; 1200-2500 m.

**Aster thomsonii** C. B. Clarke, Comp. Ind. 48. 1876; Hook. f., Fl. Brit. India 3: 252. 1881; Hajra in Hajra *et al.*, Fl. India 13: 96. 1995.

Laxly villous herbs with flexuous branches. Leaves ovate-elliptic, acuminate, dentate-serrate. Heads solitary, 2-4 cm across, purple. Achenes pilose. Pappus pale brown.

*Fl. & Fr.:* Aug. March.

*Distrib.:* Kameng; 2500-3000 m, in shady places.

**Aster tricephalus** C. B. Clarke, Comp. Ind. 43. 1876; Hook. f., Fl. Brit. India 3: 250. 1881; R. R. Rao *et al.*, Fl. Ind. Enum. Asteraceae 13. 1988; Hajra in Hajra *et al.*, Fl. India 12: 98. 1995.

Puberulous herbs, up to 50 cm high. Leaves oblanceolate, spathulate, apex obtuse, margin entire or so, glandular-pilose. Heads solitary or 2-3 together, bluish. Involucral bracts oblanceolate, ciliate. Achenes pubescent. Pappus reddish hairy.

*Fl. & Fr.:* Aug. Feb.

*Distrib.:* Arunachal Pradesh; 3000-4200 m, in moist shady places.

**Aster trinervius** Roxb. *ex* D. Don, Prodr. Fl. Nep. 177. 1825, *non* Gilib. 1791; Hook. f., Fl. Brit. India 3: 352. 1881; Hajra in Hajra *et al.*, Fl. India 12: 98. 1995. *A. ageratoides* Turcz. subsp. *trinervius* var. *spathulatus* Kitam., Fauna & Fl. Nep. Himal. 247. 1955. *A. scaberidus* C. B. Clarke, Comp. Ind. 47. 1876, *non* E. Mey *ex* DC. 1836.

Perennial slender herbs, lower parts glabrescent, upper sparsely to densely hairy, up to 1 m high. Leaves usually lanceolate, entire or serrulate, scabrid. Heads many in corymbs, up to 10 mm across, sparsely pubescent. Involucral bracts linear, 3-seriate. Achenes obovate. Pappus reddish, sparsely hairy.

*Fl. & Fr.:* Sept. Oct.

*Distrib.:* Arunachal Pradesh.

**Bidens bipinnata** L., Sp. Pl. 832. 1753; H. J. Chowdhery in Hajra *et al.*, Fl. India 12: 367. 1995. *B. pilosa* L. var. *bipinnata* (L.) Hook. f., Fl. Brit. India 3: 309. 1881.

Erect, glabrous herbs. Leaves bipinnatifid, segments ovate-lanceolate, sparsely hairy. Heads solitary or few, up to 5 mm across, yellow with 2-5 ray florets. Achenes glabrous to shortly hispid. Pappus awned, 2-4, unequal, bristly.

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

*Distrib.* : Subansiri; up to 2000 m, common weed in waste places, roadsides.

**Bidens biternata** (Lour.) Merr. *et* Sherff in Bot. Gaz. 88: 293. 1929; H. J. Chowdhery in Hajra *et al.*, Fl. India 12: 367. 1995; A. S. Chauhan in Hajra, Contrib. Fl. Namdapha 200. 1996. *Coreopsis biternata* Lour., Fl. Cochinch. 508. 1790. *Bidens pilosa auct. non L.*: Hook. f., Fl. Brit. India 3: 309. 1881, *p.p.*

Erect herbs, up to 90 cm tall, sparsely pubescent when young. Leaves pinnate, segments ovate, deeply dentate. Heads radiate, 5-8 mm across with usually 3-ray florets, white or yellow. Achenes linear, glabrous with 2-5 awns at apex.

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

*Distrib.*: Changlang, Kameng, Lohit, Siang, Subansiri, Tirap; up to 2000 m, in waste places, sandy river-beds.

**Bidens pilosa** L., Sp. Pl. 832. 1753; Hook. f., Fl. Brit. India 3: 309. 1881; H. J. Chowdhery in Hajra *et al.*, Fl. India 12: 372-373. 1995; A. S. Chauhan in Hajra, Contrib. Fl. Namdapha 201. 1996.

Hairy or glabrous herbs, up to 1 m tall. Leaves imparipinnate with translucent dots, coarsely toothed. Heads discoid or radiate with or without white or yellow ray florets. Outer involucre bracts spatulate. Achenes fusiform, black with stout spinescent awns covered with recurved hooks.

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

*Distrib.*: Changlang, Kameng, Lohit, Siang, Tirap; up to 2000 m, in waste places, roadsides.

**Bidens tripartita** L., Sp. Pl. 831. 1753; Hook. f., Fl. Brit. India 3: 309. 1881, *p.p.*; H. J. Chowdhery in Hajra *et al.*, Fl. India 12: 375. 1995.

Stout, glabrous to hirsute herbs, up to 1 m tall. Leaves 3-lobed, tripartite or simple; petioles winged. Heads discoid, solitary. Involucre bracts in 2-series, outer bracts leafy. Achenes cuneate-linear, dark brown, glabrous with retrorsely barbed margins and 2-3 awns at apex.

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

*Distrib.* : Changlang, Kameng, Siang, Subansiri, Tirap; up to 2000 m, in waste places.

*Use*: Leaves are eaten as vegetable either raw or after boiling/cooking.

**Blumea aromatica** DC., Prodr. 5: 446. 1836; Hook. f., Fl. Brit. India 3: 270. 1881; Kanjilal *et al.*, Fl. Assam 3: 113. 1939; S. Kumar in Hajra *et al.*, Fl. India 13: 116. 1995.

Glandular hairy, aromatic undershrubs, up to 3 m tall. Leaves usually obovate, dentate-serrate, hairy on both surfaces. Heads in large terminal or axillary panicles; flowers yellowish or white. Involucral bracts oblong-lanceolate. Receptacle fimbriate. Achenes densely pilose, 10-ribbed, pappus red.

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

*Distrib.*: Kameng; up to 1500 m, in open places.

**Blumea balsamifera** (L.) DC., Prodr. 5: 447. 1836; Hook. f., Fl. Brit. India 3: 270. 1881; Kanjilal *et al.*, Fl. Assam 3: 113. 1939; S. Kumar in Hajra *et al.*, Fl. India 12: 118. 1995; *Conyza balsamifera* L., Sp. Pl. ed. 2, 1208. 1763.

Large, woody shrubs or small trees, aromatic, densely silky, villous or tomentose. Leaves oblong-lanceolate to oblong-obovate, serrulate, appendiculate, upper surfaces pilose, lower silky woolly. Heads sessile, small, in lax panicles, whitish yellow. Achenes ribbed with red pappus.

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

*Distrib.*: Lohit, Siang, Subansiri; up to 1500 m, common in abandoned jhum lands, open places.

*Use*: The decoction of leaves is used as expectorant, warm infusion acts as a sudorific. In S. W. China, Ai or Nagi camphor is distilled from this plant.

**Blumea densiflora** DC., Prodr. 5: 446. 1836; Hook. f., Fl. Brit. India 3: 269. 1881; Kanjilal *et al.*, Fl. Assam 3: 112. 1939; S. Kumar in Hajra *et al.*, Fl. India 13: 122. 1995. *B. densiflora* var. *excisa* C. B. Clarke, Comp. Ind. 89. 1876.

Stout herbs or undershrubs. Leaves large, elliptic-lanceolate, densely tomentose or thick white woolly beneath. Heads sessile in white felted panicles; corolla lobes of female flowers hairy. Achenes 10-ribbed with red pappus.

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

*Distrib.*: Kameng, Lohit, Tirap, Siang; up to 1500 m.

*Use*: Camphor extracted from this plant is pronounced identical with that imported from China (Watt).

**Blumea fistulosa** (Roxb.) Kurz in J. As. Soc. Bengal 46(2): 187. 1877; S. Kumar in Hajra *et al.*, Fl. India 13: 124. 1995; *Conyza fistulosa* Roxb., Fl. Ind. 3: 429. 1832. *B. glomerata* DC. in Wight, Contrib. Bot. Ind. 15. 1834; Hook. f., Fl. Brit. India 3: 262. 1881. *B. nodiflora* Hook. f., Fl. Brit. India 3: 262. 1881.

Velvety or puberulous herbs, 50-120 cm tall. Leaves obovate with tapering base, dentate-serrate. Heads sessile, in compact, globose clusters. Involucral bracts bright purple. Achenes 8-10-ribbed, glabrous or hairy. Pappus white, hairy.

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

*Distrib.* : Kameng, Subansiri; up to 1500 m, in open grasslands, roadsides.

*Use*: Boiled leaves are used as an antidote for diarrhoea.

**Blumea hieracifolia** (D. Don) DC. in Wight, Contrib. Bot. Ind. 15. 1834; Hook. f., Fl. Brit. India 3: 263. 1881; S. Kumar in Hajra *et al.*, Fl. India 13: 125. 1995. *Erigeron hieracifolium* D. Don, Prodr. Fl. Nep. 172. 1825. *B. sericans* Hook. f., Fl. Brit. India 3: 262. 1881.

var. **hieracifolia**

Herbs; stems unbranched, tomentose, silky, villous or woolly. Leaves obovate-spathulate to elliptic-oblong, densely woolly beneath. Heads globose in sessile clusters. Involucral bracts straw coloured with purple tip. Achenes oblong, sparsely hairy. Pappus white.

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

*Distrib.*: Kameng; up to 2500 m, moist places, along roadsides, grasslands.

**Blumea hieracifolia** var. **macrostachya** (DC.) Hook. f., Fl. Brit. India 3: 263. 1881; S. Kumar in Hajra *et al.*, Fl. India 13: 126. 1995. *B. macrostachya* DC., Prodr. 5: 442. 1836.

Robust, tall herbs. Heads in large pedunculate clusters at the end of branches.

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

*Distrib.*: Arunachal Pradesh.

**Blumea lacera** (Burm. f.) DC. in Wight, Contrib. Bot. Ind. 14. 1834; Hook. f., Fl. Brit. India 3: 263. 1881; S. Kumar in Hajra *et al.*, Fl. India 13: 128. 1995. *Conyza lacera* Burm. f., Fl. Ind. 180, t. 59.f.1. 1768. *Blumea fandulosa* DC. in Wight, Contr. Bot. Ind. 14. 1834. *B. cinerascens* DC., Prodr. 5: 438. 1836. *B. lacera* var. *cinerascens* (DC.)

Hook. f., Fl. Brit. India 3: 263. 1881. *B. lacera* var. *glandulosa* Hook.f., Fl. Brit. India 3:263. 1881.

Small, coarse, villous or glandular hairy herbs with strong camphor or terpine smell. Leaves obovate to elliptic-oblong, lyrate lobed, coarsely dentate. Heads yellow in axillary panicles. Achenes grey-brown, minutely pubescent or glabrescent. Pappus white.

*Fl. & Fr.*: June Sept.

*Distrib.*: Kameng.

*Use*: Decoction of leaves is a useful anthelmintic; mixed with black pepper it is given in cholera, also used as astringent and febrifuge.

**Blumea lacinita** (Roxb.) DC., Prodr.5: 436. 1836; Hook. f., Fl. Brit. India 3: 264. 1881; S. Kumar in Hajra *et al.*, Fl. India 3: 128. 1995. *Conyza lacinata* Roxb., Fl. Ind. 3: 428. 1832.

Stout, pubescent or laxly tomentose herbs, 20–150 cm high with stalked glands. Lower leaves lyrate, upper oblanceolate, pilose. Heads in large terminal panicles, yellow. Involucral bracts linear, white, tinged with purple. Achenes ribbed, sparsely pubescent.

*Fl. & Fr.*: Jan. June.

*Distrib.*: Kameng, Lohit, Tirap; up to 2500 m, along roadsides, fallow lands.

**Blumea lanceolaria** (Roxb.) Druce, Rep. Bot. Exch. Club. Brit. Isles 4: 609. 1917; S. Kumar in Hajra *et al.*, Fl. India 13: 130. 1995; A. S. Chauhan in Hajra, Contrib. Fl. Namdapha 201. 1996. *Conyza lanceolaria* Roxb., Fl. Ind. 3: 432. 1832. *Blumea myriocephala* DC., Prodr. 5: 445. 1836; Hook. f., Fl. Brit. India 3: 269. 1881.

Stout, glabrous or puberulous shrubby herbs. Leaves narrowly oblanceolate, upper surfaces rugose, coriaceous with recurved margins. Heads clustered on large terminal panicles. Involucral bracts purplish, ciliate. Achenes hairy, ribbed. Pappus yellowish-white.

*Fl. & Fr.*: May – Feb.

*Distrib.*: Kameng, Lohit; around 1500 m.

**Blumea maritima** Vaniot in Bull. Acad. Bot. 12: 26. 1903; S. Kumar in Hajra *et al.*, Fl. India 13: 133; 1995. *B. henryi* Dunn in J. Linn. Soc. Bot. 35: 503. 1903; Deb & Dutta in J. Bombay Nat. Hist. Soc. 70: 92. 1793.

Shrubby herbs; branches densely woolly. Leaves ovate-lanceolate to oblong-lanceolate, distantly denticulate, densely woolly on lower

surfaces. Heads in axillary clusters on large panicles, reddish-yellow. Involucral bracts linear, dorsally woolly. Achenes oblong, brown, pubescent. Pappus yellowish.

*Fl. & Fr.*: May Sept.

*Distrib.*: Tirap; in evergreen forests at higher elevations.

**Blumea membranacea** DC., Prodr. 5: 440. 1836; Hook. f., Fl. Brit. India 3: 265. 1881; S. Kumar in Hajra *et al.*, Fl. India 13: 134. 1995.

Tall, slender, pubescent herbs. Leaves large, ovate-lanceolate, serrate-dentate, membranous, hairy. Heads many, small, in terminal, lax panicles, yellow. Achenes ribbed, hairy, brown, pubescent. Pappus white.

*Fl. & Fr.*: May Oct.

*Distrib.*: Arunachal Pradesh; in forests along water sources.

**Blumea procera** DC., Prodr. 5: 445. 1836; Hook. f., Fl. Brit. India 3:268. 1881; S. Kumar in Hajra *et al.*, Fl. India 13: 139. 1995; A. S. Chauhan in Hajra, Contrib. Fl. Namdapha 201. 1996.

Herbs or undershrubs, 1-3 m high; younger parts densely velutinous. Leaves oblanceolate, densely velutinous beneath. Heads in terminal large panicles, greenish-white or yellowish. Involucral bracts linear, densely hairy. Achenes brown, pubescent. Pappus white.

*Fl. & Fr.*: June Dec.

*Distrib.*: Kameng, Lohit, Subansiri; up to 1500 m, in moist shaded places.

**Blumea riparia** (Blume) DC., Prodr. 5: 444. 1836; S. Kumar in Hajra *et al.*, Fl. India 13: 141. 1995. *Conyza riparia* Blume, Bijdr. 899. 1826, non H. B. K.; Hook. f., Fl. Brit. India 3: 268. 1881.

Scandent, glabrous herbs or small shrubs, up to 2 m tall; branches terete or grooved. Leaves obovate or elliptic-oblong, base rounded, margin denticulate. Heads yellowish in terminal or axillary lax panicles. Receptacle flat, hairy. Achenes strongly ribbed, hairy. Pappus white.

*Fl. & Fr.*: May Oct.

*Distrib.*: Changlang, Kameng, Subansiri, Tirap; up to 150 m.

**Blumeopsis flava** (DC.) Gagnep. in Bull. Mus. Hist. Nat. Paris 26: 76. 1920; S. Kumar in Hajra *et al.*, Fl. India 13: 145. 1995. *Blumea flava* DC., Prodr. 5: 439. 1836. *Laggera flava* (DC.) Benth. in Benth. & Hook. f., Gen. Pl. 2: 290. 1873; Hook. f., Fl. Brit. India 3: 270. 1881.

Slender herbs, 15-100 cm high; branches grooved. Leaves mostly in rosette at base, obovate, spinulose-dentate; upper leaves oblong - obovate

or oblong elliptic, amplexicaul. Heads golden yellow. Achenes minute, glabrous. Pappus white.

*Fl. & Fr.*: July Oct.

*Distrib.*: Kameng; 2000 3500 m.

**Brachyactis anomalum** (DC.) Kitam. in H. Hara, Fl. E. Himal. 3: 113. 1975; Hajra in Hajra *et al.*, Fl. India 12: 101. 1995. *Erigeron anolmalum* DC., Prodr. 5: 293. 1836. *Brachyactis menthadora* Benth. in Hook., Icon. Pl. 12, t. 1106. 1872; Hook. f., Fl. Brit. India 3: 253. 1881.

Tall, erect, glandular-pubescent herbs, 30 60 cm high. Leaves oblong-lanceolate, upper sessile, decurrent, semiamplexicaul; lower long-petioled. Heads solitary, bluish or rosy to pale blue. Involucral bracts linear, pubescent. Achenes glabrous. Pappus reddish.

*Fl. & Fr.*: Aug. Oct.

*Distrib.*: Dibang valley, Lohit; 3000 4000 m.

*Note*: The plant has got mint like odour.

**Brachycome assamica** C. B. Clarke, Comp. Ind. 40. 1876; Hook. f., Fl. Brit. India 3: 248. 1881; Hajra in Hajra *et al.*, Fl. India 12: 102. 1995.

Glabrous, shrubby herbs with sharply angled branches. Leaves sessile, linear, dilated upward. Heads small, solitary, terminal. Flowers radiate, outer rows ligulate. Achenes terete, striate. Pappus absent.

*Fl. & Fr.*: July -Oct.

*Distrib.*: Arunachal Pradesh. Endemic. Rare.

**Cacalia chenopodifolia** (DC.) Kitam. *ex* Koyama in Mem. Fasc. Sci. Kyoto Univ. ser. Biol. 2 (2): 170. 1969; R. Mathur in Hajra *et al.*, Fl. India 13: 188. 1995. *Senecio chenopodifolius* DC., Prodr. 6: 364. 1838; Hook. f., Fl. Brit. India 3: 354. 1881.

Stout herbs; stems and branches terete, finely pubescent. Leaves membranous, triangular-cordate or obscurely 3-lobed; auricles toothed. Heads small, numerous, discoid, drooping, yellow to deep brown in axillary or terminal racemose panicles. Achenes turbinate, obconic, ribbed, glabrous. Pappus brownish.

*Fl. & Fr.*: Aug. Feb.

*Distrib.*: Kameng; 2000 3500 m.

**Cacalia mortonii** (C. B. Clarke) Kitam. *ex* Koyama in Mem. Fasc. Sci. Kyoto Univ. ser. Biol. 2(2): 166. 1969; R. Mathur in Hajra *et al.*, Fl.



India 13: 191, f. 60. 1995. *Senecio mortonii* C. B. Clarke, Comp. Ind. 208. 1876; Hook. f., Fl. Brit. India 3: 349. 1881.

Shrubby herbs, 1–1.3 m high; younger parts pubescent. Leaves palmately 5-11 lobed; petiole of cauline leaves winged with sheathing base. Heads numerous in corymbs. Involucral bracts linear-oblong. Achenes narrow, oblong, pubescent with yellow pappus.

*Fl. & Fr.*: May–Sept.

*Distrib.*: Kameng, Subansiri; 500–3000 m.

***Carpesium abrotanoides* L.**, Sp. Pl. 860. 1753; Hook. f., Fl. Brit. India 3: 301. 1881; S. Kumar in Hajra *et al.*, Fl. India 13: 6. 1995.

Herbs, younger parts pubescent. Heads sessile or subsessile, inserted along whole length of branches, whitish-yellow. Involucral bracts ovate to oblong. Receptacle glabrous. Achenes elongate, shortly beaked, finely ribbed.

*Fl. & Fr.*: May–Feb.

*Distrib.*: Tirap; up to 1500 m.

*Use*: Used to dye silk. The plant has got medicinal properties and considered as laxative, anthelmintic and diuretic.

***Carpesium cernuum* L. var. *griffithii*** Hook. f., Fl. Brit. India 3: 302. 1881; S. Kumar in Hajra *et al.*, Fl. India 13: 10. 1995. *C. nepalense* Less var. *griffithii* (Hook. f.) S. Kumar in R. R. Rao *et al.*, Fl. Ind. Enum. Asteraceae 22. 1988.

Erect herbs with tomentose stems and branches. Leaves linear to linear-lanceolate, subsessile or short petioled, hirsute on both surfaces. Heads yellow with subtending leafy bracts. Achenes linear-oblong, 10-ribbed.

*Fl. & Fr.*: May–Sept.

*Distrib.*: Kameng. Endemic.

***Carpesium cernuum* var. *pedunculosum*** (Wall. ex DC.) C. B. Clarke, Comp. Ind. 13. 1876; Hook. f., Fl. Brit. India 3: 301. 1881; S. Kumar in Hajra *et al.*, Fl. India 13: 10. 1995. *C. pedunculosum* Wall. ex DC., Prodr. 6: 281. 1838. *C. nepalense* var. *pedunculosa* (Wall. ex DC.) S. Kumar in R. R. Rao *et al.*, Fl. Ind. Enum. Asteraceae 22. 1988, *ut* (C. B. Clarke) S. Kumar.

Glabrous or sparsely hairy herbs. Leaves large, ovate with winged petioles. Heads on very long, stiff, naked peduncles. Achenes linear-oblong, 10-ribbed.

*Fl. & Fr.*: Aug. Sept.

*Distrib.*: Kameng.

**Centipeda minima** (L.) A. Br. *et* Aschers., Ind. Sem. Fl. Berol. App. 6. 1867; Naithani in Hajra *et al.*, Fl. India 12: 48. 1995. *Artemisia minima* L., Sp. Pl. 849. 1753. *Centipeda orbicularis* Lour., Fl. Cochinch. 493. 1790; Hook. f., Fl. Brit. India 3: 317. 1881.

Prostrate herbs, spreading from woody rootstocks, 10–15 cm high, glabrous or sparsely woolly. Leaves obovate-oblong, distantly toothed. Heads sessile, globose, solitary, yellow. Involucral bracts ovate to lanceolate, 2-seriate. Achenes 4-angled, angles hairy. Pappus absent.

*Fl. & Fr.*: May Oct.

*Distrib.*: Kameng; up to 1500 m, in moist places.

**Cirsium interpositum** Petrak in Fedde, Repert. 43: 283. 1838; Uniyal in Hajra *et al.*, Fl. India 12: 170. 1995. *Cnicus griffithii* Hook. f., Fl. Brit. India 3: 363. 1881. *Cirsium lepskyi* Petrak in Fedde, Repert. 9: 197. 1911.

Robust herbs, stems hollow, cottony. Leaves pinnatifid, lobes lanceolate, spinescent above, white appressed-tomentose beneath. Heads crowded. Involucral bracts aristate, glabrous. Achenes 4-angled, obovoid-oblong.

*Fl. & Fr.*: Aug. Feb.

*Distrib.*: Kameng, Subansiri, Tirap; up to 1500 m.

*Use*: The aromatic seeds and young shoots are edible.

**Cirsium shansiense** Petrak in Mitt. Thuring. Bot. Ver. n.f.1: 176. 1943; Uniyal in Hajra *et al.*, Fl. India 12: 170. 1995. *Cnicus sinensis* (Gard. & Champ.) C. B. Clarke, Comp. Ind. 219. 1876; Hook. f., Fl. Brit. India 3: 364. 1881.

Robust herbs, up to 3 m high, glabrous or sparsely pubescent. Leaves sessile, linear-oblong or lanceolate, sinuate lobed, ciliate and spinescent, white-tomentose beneath. Heads solitary, long peduncled, purple. Involucral bracts oblong with spinulose tips.

*Fl. & Fr.*: May Oct.

*Distrib.*: Kameng; up to 1600 m.

**Cirsium verutum** (D. Don) Spreng., Syst. Veg. 3: 370. 1826; Uniyal in Hajra *et al.*, Fl. India 12: 171. 1995. *Cnicus verutus* D. Don, Prodr. Fl. Nep. 167. 1825. *Cirsium involucreatum* DC., Prodr. 6: 639. 1838. *Cnicus involucreatus* (DC.) Hook. f., Fl. Brit. India 3:

362. 1881. *C. involucratus* var. *horrida* Hook. f., Fl. Brit. India 3: 362. 1881. *Cirsium involucratum* var. *horridum* (Hook. f.) N. P. Balakr., Fl. Jowai 1: 256. 1981.

Glandular pubescent herbs or shrubs, up to 2 m high. Leaves deltoid or rhomboid-ovate, entire or dentate, glabrous above, cottony beneath. Heads sessile, 2-4-flowered in trichotomous, convex corymbs, pale blue or white, enclosed by stiff, spiny, woolly involucre bracts. Achenes 4-5 ribbed. Pappus white.

*Fl. & Fr.:* May Dec.

*Distrib.:* Kameng, Subansiri; up to 2800 m, in open wastelands, along roadsides.

***Cissampelopsis volubilis*** (Blume) Miq., Fl. Ind. Bat. 2: 103. 1856; Uniyal in Hajra *et al.*, Fl. India 13: 200. 1995. *Cacalia volubilis* Blume, Bijdr. 903. 1826. *Senecio araneosus* DC., Prodr. 6: 364. 1838; Hook.f., Fl. Brit. India 3: 351. 1881, *p.p.*, *excl. S. walkeri* Arn.

Shrubby herbs; stems and branches grooved, glabrous or sparsely cottony woolly. Leaves broadly ovate, cordate, upper surfaces greyish tomentose, lower white floccose. Heads discoids, creamy-white. Achenes cylindric, glabrous, striate. Pappus white.

*Fl. & Fr.:* May Oct.

*Distrib.:* Kameng, Lohit, Subansiri; up to 2500 m.

***Cissampelopsis walkeri*** (Arn.) Jeffrey *et* Chen in Kew Bull. 39(2): 341. 1984; Uniyal in Hajra *et al.*, Fl. India 13: 200. 1995. *Senecio walkeri* Arn. in Nova Acta Phys. Med. Acad. Caes. Leop. Carol. Nat. Cur. 18: 349. 1831; Hook. f., Fl. Brit. India 3: 351. 1881. *S. araneosus* var. *walkeri* (Arn.) C. B. Clarke, Comp. Ind. 182. 1876.

Extensive climbers; branches grooved, floccose-tomentose when young. Leaves obovate, glabrous. Heads discoid, oblong, pale green.

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

*Distrib.:* Kameng, Subansiri; up to 2100 m.

***Conyza angustifolia*** Roxb., Fl. Ind. 3: 429. 1832; Hook. f., Fl. Brit. India 3: 258. 1881; Hajra in Hajra *et al.*, Fl. India 12: 104. 1995.

Woody, scaberulous herbs, up to 1 m high. Leaves sessile, long, narrowly linear, serrate. Heads in slender, peduncled cymes. Achenes minute, silky. Pappus reddish.

*Fl. & Fr.:* April Oct.

*Distrib.:* Tirap; up to 1500 m.

***Conyza bonariensis*** (L.) Cronq. in Bull. Torrey Bot. Club 70 (6): 632. 1943; Hajra in Hajra *et al.*, Fl. India 12: 104. 1995. *Erigeron bonariensis* L., Sp. Pl. 863. 1753; A. S. Chauhan in Hajra, Contrib. Fl. Namdapha 202. 1996. *E. linifolius* Willd., Sp. Pl. 3: 1955. 1803; Hook. f., Fl. Brit India 3: 254. 1881.

Erect herbs, up to 1.5 m tall. Leaves cuneate at base, acute at apex, coarsely serrate-incised. Heads in long, leafy panicles, ray florets purplish tipped, disc florets pale yellow. Achenes subglabrous. Pappus yellowish.

*Fl. & Fr.*: June Feb.

*Distrib.*: Changlang, Kameng, Lohit, Subansiri, Tirap, in open grasslands, waste places.

***Conyza canadensis*** (L.) Cronq. in Bull. Torrey Bot. Club. 70 (6): 632. 1943; Hajra in Hajra *et al.*, Fl. India 12: 105. 1995. *Erigeron canadensis* L., Sp. Pl. 863. 1753; Hook. f., Fl. Brit. India 3: 254. 1881.

Slender herbs; branches pubescent, hirsute or nearly glabrous. Leaves narrowly linear. Heads small, pale rosy or glabrous. Pappus dirty white.

*Fl. & Fr.*: May Sept.

*Distrib.*: Kameng; up to 1500 m.

***Conyza japonica*** (Thunb.) Less *ex DC.*, Prodr. 5: 382. 1836; Hook. f., Fl. Brit., India 3: 258. 1881; Hajra in Hajra *et al.*, Fl. India 12: 105. 1995. *Erigeron japonicum* Thunb., Fl. Jap. 312. 1784.

Erect herbs. Leaves sessile, obovate-spathulate, serrate, basal leaves rosette, upper cauline. Heads densely glomerate in terminal panicles, white or yellowish. Achenes glabrous. Pappus reddish-brown.

*Fl. & Fr.*: March July.

*Distrib.*: Kameng, Subansiri; in open grasslands.

***Conyza leucantha*** (D. Don) Ludlow *et Raven* in Kew Bull. 17: 71. 1963; Hajra in Hajra *et al.*, Fl. India 12: 105. 1995. *Erigeron leucanthus* D. Don, Prodr. Fl. Nep. 171. 1825. *Conyza viscidula* Wall. *ex DC.*, Prodr.5: 383. 1836; Hook. f., Fl. Brit. India 3: 258. 1881.

Stout herbs, erect, viscid-pubescent. Leaves oblong-lanceolate to elliptic-oblong. Heads glomerate in large terminal and axillary panicles or loose corymbs, white or pink. Pappus reddish or white.

*Fl. & Fr.*: Aug. Feb.

*Distrib.*: Kameng; in shady places.

***Conyza sumatrensis*** (Retz.) E. Walker in J. Jap. Bot. 46: 72. 1971; Hajra in Hajra *et al.*, Fl. India 12:109. 1995. *Erigeron sumatrensis* Retz., Obs. Bot. 5:28. 1789. *E. floribundus* (Kunth) Sch.-Bip. in Bull. Soc. Bot. Fr. 12: 81. 1865. *Conyza floribunda* Kunth, Nov. Gen. Sp. 4:73. 1820.

Tall herbs, sparsely pubescent. Leaves oblanceolate, alternate at base, upper linear-lanceolate. Heads numerous in racemose panicles. Female flowers minutely ligulate. Achenes sparsely pubescent.

*Fl. & Fr.*: Aug. Oct.

*Distrib.*: Kameng, Subansiri, Tirap.

***Conyza semipinnatifida*** Wall. ex DC., Prodr. 5: 382. 1836; Hook.f., Fl. Brit. India 3: 257. 1881; Hajra in Hajra *et al.*, Fl. India 12: 108. 1995.

Erect, villous or hirsute herbs, up to 60 cm high. Leaves obovate-spathulate or oblanceolate. Heads globose, crowded, yellow. Involucral bracts slender. Achenes glandular. Pappus white.

*Fl. & Fr.*: June July.

*Distrib.*: Arunachal Pradesh.

***Cotula australis*** (Sieb. ex Spreng.) Hook. f., Bot Antarch. Voy. 2(1): 128. 1852 & in Handb. Newzeal. Fl. 1: 128. 1853; Gamble, Fl. Pres. Madras 2: 712. 1921; Naithani in Hajra *et al.*, Fl. India 12: 54. 1995. *Anacyclus australis* Sieb. ex Spreng. in L., Syst. Veg. ed. 16, 3: 497. 1826.

Small, erect pubescent, flaccid herbs. Leaves pinnatifid, segments oblong-linear. Heads small, solitary on long filiform peduncles. Achenes of ray florets flat, winged, glandular; disc florets thick, not winged.

*Fl. & Fr.*: June Sept.

*Distrib.*: Arunachal Pradesh.

***Cotula hemisphaerica*** (Roxb.) Wall. ex C. B. Clarke, Comp. Ind. 150. 1876; Naithani in Hajra *et al.*, Fl. India 12: 54. 1995. *Artemisia hemisphaerica* Roxb., Fl. Ind. 3: 422. 1832; Hook. f., Fl. Brit. India 3: 316. 1881.

Erect, glabrous or villous herbs. Leaves pinnatisect with deeply cut, linear, mucronate segments. Heads solitary, yellow, erect, but drooping at maturity. Receptacle naked. Achenes angular.

*Fl. & Fr.*: June Oct.

*Distrib.*: Kameng; Lohit; in dried cultivated field.

**Crassocephalum crepidioides** (Benth.) Moore in J. Bot. 1: 211. 1912; R. Mathur in Hajra *et al.*, Fl. India 13: 201. 1995. *Gynura crepidioides* Benth. in Hook. f., Fl. Niger. 438. 1849.

*Local name:* Jogen (Adi); Gendahamang (Apat., Hill-Miri).

Annual, erect, succulent, glabrous or hispid herbs. Leaves elliptic-ob lanceolate, lyrate lobed, pubescent. Heads cylindrical, in lax terminal corymbs, red. Achenes dark brown, ribbed with silky-white pappus.

*Fl. & Fr.:* April Dec.

*Distrib.:* Subansiri, Tirap.

*Use:* Leaf juice is applied in cuts to prevent bleeding and relief pain.

**Cremanthodium bhutanicum** Ludlow in Bull. Brit. Mus. (Nat. Hist.) Bot. 5 (5): 278. 1976; R. Mathur in Hajra *et al.*, Fl. India. 13: 309. 1995.

Perennial, erect herbs with remains of petiolar bases and old leaves. Radical leaves linear to linear-ob lanceolate with reflexed margin, glaucous beneath, distinctly petiolate; cauline leaves linear, semiamplexicaule. Capitula solitary, nodding, radiate, bright yellow. Achenes oblong, glabrous.

*Fl. & Fr.:* Aug. Sept.

*Distrib.:* Tawang, ca. 4570 m.

**Cremanthodium palmatum** Benth. subsp. **rhodocephalum** R. Good in J. Linn. Soc. Bot. 48: 271. 1929; R. Mathur in Hajra *et al.*, Fl. India 13: 315. 1995.

Small rhizomatous herbs, hairy. Leaves palmately lobed, margin distinctly dentate, lower surfaces purple hairy. Capitula linear, usually solitary, radiate, campanulate, purple. Achenes elliptic-oblong, flattened.

*Fl. & Fr.:* Aug. Sept.

*Distrib.:* Arunachal Pradesh.

**Dendranthema mutellina** (Hand.-Mazz.) Kitam. in H. Hara *et al.*, Enum. Fl. Pl. Nepal 3: 24. 1982. *Tanacetum mutellina* Hand. Mazz. in Anz. Akad. Wiss. Wien, Math.-Nat. 61: 203. 1925. *T. nubigenum* auct. non DC.: Hook. f., Fl. Brit. India 3: 318. 1881, *p.p.*

Hoary or woolly herbs, rootstocks woody. Leaves pinnatisect. Heads many, yellow with purple-brown tinge, involucre bracts woolly at margin. Achenes ovoid-oblong, brown, ribbed.

*Fl. & Fr.:* July Sept.

*Distrib.*: Arunachal Pradesh; 3000–4500 m.

**Dichrocephala integrifolia** (L. f.) Kuntze, Rev. Gen. Pl. 1: 333. 1891; Hajra in Hajra *et al.*, Fl. India 12: 114. 1995. *Hippia integrifolia* L. f., Suppl. Pl. 389. 1781. *Cotula latifolia* Pers., Syn. 2: 464. 1806. *Dichrocephala latifolia* (Pers.) DC. in Wight, Contrib. Bot. Ind. 11. 1834; Hook. f., Fl. Brit. India 3: 245. 1881.

Aromatic herbs, erect or often creeping at base, densely pubescent. Leaves lyrate, irregularly dentate-crenate. Heads on slender divaricating peduncles; ray florets greyish-white, gland dotted; disc florets greenish-yellow or green. Achenes minutely puberulous. Pappus of bisexual flowers bristled.

*Fl. & Fr.*: March–Dec.

*Distrib.*: Changlang, Kameng, Lohit, Siang, Subansiri, Tirap; up to 3000 m, in open grasslands, waste places and roadsides.

**Dubyaea hispida** (D. Don) DC., Prodr. 7: 247. 1838; Mamgain & R. R. Rao in Hajra *et al.*, Fl. India 12: 275. 1995. *Hieracium hispidum* D. Don, Prodr. Fl. Nep. 165. 1825, *non* Forsk. *Lactuca dubyaea* C. B. Clarke, Comp. Ind. 271. 1876; Hook. f., Fl. Brit. India 3: 409. 1881.

Robust, hispid herbs with creeping rhizomes. Leaves ovate-oblong. Heads drooping or nodding with black glandular hairy peduncles. Achenes black with pale, slender beak, ribbed, compressed. Pappus pale white.

*Fl. & Fr.*: May–Oct.

*Distrib.*: Kameng; 2500–4000 m.

**Eclipta prostrata** (L.) L., Mant. Pl. 2: 286. 1771; H. J. Chowdhery in Hajra *et al.*, Fl. India 12: 381. 1995. *Verbesina prostrata* L., Sp. Pl. 902. 1753. *Verbesina alba* L., Sp. Pl. 902. 1753. *Eclipta alba* (L.) Hassk., Pl. Jav. Rar. 528. 1848; Hook. f., Fl. Brit. India 3: 304. 1881.

Diffuse or erect herbs, up to 50 cm high, strigillose to hirsute. Leaves opposite, elliptic-oblong, shallowly toothed, pubescent. Heads small, white, solitary or fascicled. Achenes minute, dark brown, verrucose. Pappus of 1-2 minute teeth.

*Fl. & Fr.*: April–Dec.

*Distrib.*: Kameng, Tirap. Moist, in humid places, roadsides.

*Use*: Widely used medicine as a tonic, deobstruent in hepatic and splenic enlargements, and relieves headache when applied with oil. Leaf juice is given in fever and jaundice. It is also used as hair tonic for promoting growth.



**Elephantopus scaber** L., Sp. Pl. 814. 1753; Hook. f., Fl. Brit. India 3: 242. 1881; Uniyal in Hajra *et al.*, Fl. India 13: 333. 1995.

Dichotomously branched herbs, up to 70 cm tall; branches stout, villous or strigillose. Leaves in basal rosette, spatulate. Heads 2-5-flowered, in dense clusters, purple; each cluster supported by 3 cordate, rigid, ovate bracts. Achenes truncate, brown, finely ribbed, hairy.

*Fl. & Fr.*: Aug. March.

*Distrib.*: Tirap; in grasslands, along roadsides and cultivated fields.

*Use*: Decoction of root and leaves is given in fever. Boiled bruised leaves with rice is given for swelling or pains in stomach.

**Emilia scabra** DC., Prodr. 6: 303. 1838; R. Mathur in Hajra *et al.*, Fl. India 13: 211. 1995. *E. sonchifolia* (L.) DC. var. *scabra* (DC.) Hook. f., Fl. Brit. India 3: 336. 1881.

Puberulous or scabrid herbs. Leaves all radical, ovate-lanceolate, lower surfaces purplish green, scaberulous. Flowering stems leafless. Heads purple. Involucral bracts dark brown. Achenes linear-oblong, dirty brown, hispid on angles.

*Fl. & Fr.*: Jan. Dec.

*Distrib.*: Lohit.

**Emilia sonchifolia** (L.) DC. in Wight, Contrib. Bot. Ind. 24. 1834; Hook. f., Fl. Brit. India 3: 336. 1881; R. Mathur in Hajra *et al.*, Fl. India 13: 312. 1995. *Cacalia sonchifolia* L., Sp. Pl. 1835. 1753.

Erect herbs, up to 60 cm tall, glabrous or sparsely puberulous. Radical leaves lyrate-pinnatifid or lobed with triangular-ovate, terminal lobes. Flowering stems leafy. Heads in lax corymbs, pinkish-purple. Involucre cylindrical, sparsely puberulous. Achenes 5-ribbed, scabrid, brown.

*Fl. & Fr.*: Jan. Dec.

*Distrib.*: Kameng; up to 1500 m, in open grasslands, roadsides.

**Erechtites valerianaefolia** (Wolf) DC., Prodr. 6: 295. 1838; R. Mathur in Hajra *et al.*, Fl. India 13: 216. 1995. *Senecio valerianefolius* Wolf, Ind. Sem. Hort. Berol. 1825, *teste* Reichenb. Ic. Bot. Exot. 59, t. 85. 1827.

Slender herbs, up to 1.5 m tall. Leaves ovate-elliptic, irregularly incised, glabrous. Heads pinkish-purple, cylindrical. Involucral bracts connate, glabrous. Achenes brown, sparsely puberulous.

*Fl. & Fr.*: May Oct.

*Distrib.*: Lohit, Siang.

**Erigeron acer** L., Sp. Pl. 863. 1753; Hook. f., Fl. Brit. India 3: 255. 1881; Hajra in Hajra *et al.*, Fl. India 12: 117. 1995.

var. **acer**

Densely hispidly hairy herbs. Leaves elliptic to obovate, entire or serrate, tomentose or woolly. Involucral bracts 2-3-seriate, subulate-lanceolate. Achenes oblanceolate, subsilky.

*Fl. & Fr.*: July - Sept.

*Distrib.*: Kameng; 3000 - 4500 m.

**Erigeron acer** var. **khasianus** (Hook. f.) Hajra in Harja *et al.*, Fl. India 12: 118. 1995. *E. aplina* L. var. *khasiana* Hook. f., Fl. Brit. India 3: 255. 1881.

Erect herbs, very sparsely hairy. Heads few.

*Fl. & Fr.*: July - Sept.

*Distrib.*: Kameng; up to 2000 m.

**Erigeron annuus** (L.) Pers., Syn. Pl. 2: 431. 1807; Hajra in Hajra *et al.*, Fl. India 12: 120. 1995. *Aster annuus* L., Sp. Pl. 875. 1753.

Erect, sparsely hairy herbs. Basal leaves broadly ovate to obovate. Heads 3-many in corymbiform panicles. Florets dimorphic. Achenes minutely pubescent.

*Fl. & Fr.*: June - Aug.

*Distrib.*: Kameng.

**Erigeron multiradiatus** (Lindl. ex DC.) C. B. Clarke, Comp. Ind. 56. 1876; Hook. f., Fl. Brit. India 3: 256. 1881; Hajra in Hajra *et al.*, Fl. India 12: 123. 1995. *Stenactis multiradiata* Lindl. ex DC., Prodr. 5: 299. 1836.

Erect herbs, hirsute or pubescent. Leaves cauline, obovate to lanceolate. Heads solitary or few, long peduncled; ray florets long, thread like, dark purple, disc florets yellow. Achenes glabrous. Pappus red.

*Fl. & Fr.*: July - Sept.

*Distrib.*: Kameng; 2500 - 3500 m.

**Erigeron sublyratus** DC. in Wight, Contrib. Bot. Ind. 9. 1834; Hajra in Hajra *et al.*, Fl. India 12: 125. 1995. *E. asteroides* Roxb., Fl. Ind. 3: 432. 1832, *non* Andr. ex Bassel 1921; Hook. f., Fl. Brit. India 3: 254. 1881.

Pubescent or villous herbs, up to 60 cm high. Radical leaves obovate, cauline leaves obovate or spatulate. Heads solitary or subcorymbose;

ray florets pink, disc florets yellow. Achenes minute, flat, narrowly obovoid, pappus reddish or dirty white.

*Fl. & Fr.:* May Sept.

*Distrib.:* Kameng; up to 2000 m.

**Ethulia conyzoides** L. f., Decas Prima 1. t. 1. 1762; Uniyal in Hajra *et al.*, Fl. India 13: 335. 1995.

Herbs, up to 60 cm high; stems ribbed, glandular, appressed pubescent. Leaves oblanceolate, denticulate, glandular, rusty pubescent on nerves beneath. Heads many flowered. Achenes obpyramidal, 4-5-angled, reddish glandular between angles. Pappus absent.

*Fl. & Fr.:* Feb. Nov.

*Distrib.:* Arunachal Pradesh.

**Eupatorium cannabinum** L. subsp. **asiaticum** Kitam. var. **heterophyllum** (DC.) Kitam. in Acta Phyt. Geobot. 32: 139. 1981; Uniyal in Hajra *et al.*, Fl. India 12: 352. 1995. *E. heterophyllum* DC., Prodr. 5: 180. 1836. *E. cannabinum auct. non L.*: Hook. f., Fl. Brit. India 3: 243. 1881.

Straggling, pubescent herbs. Leaves usually palmately 3-5-fid, coarsely serrate, scabrid above, pubescent beneath. Heads corymbose. Achenes 5-ridged, black. Pappus white.

*Fl. & Fr.:* Aug. Feb.

*Distrib.:* Kameng, Subansiri; weed in waste places, along roadsides.

*Use:* Used as deobstruent in visceral obstruction and also as discutient in hydrophic swellings of legs and scrotum.

**Eupatorium capillifolium** (Lam.) Small in Mem. Torrey Bot. Club 5: 31. 1894; Deb in J. Bombay Nat. Hist. Soc. 70: 92. 1973; Uniyal in Hajra *et al.*, Fl. India 12: 352. 1995. *Artemisia capillifolia* Lam., Encycl. Meth. Bot. 1: 267. 1783.

Perennial, pubescent herbs or undershrubs. Leaves finely dissected, segments filiform. Heads 5-flowered, in axillary panicles. Involucral bracts with scarious margin. Achenes angled. Pappus reddish.

*Fl. & Fr.:* June Oct.

*Distrib.:* Tirap; often cultivated as garden plant.

**Eupatorium chinense** L., Sp. Pl. 837. 1753; Uniyal in Hajra *et al.*, Fl. India 12: 352. 1995. *E. reevesii* Wall. ex DC., Prodr. 5: 179. 1856; Hook. f., Fl. Brit. India 3: 243. 1881.

Tall, erect or scandent, slender herbs, glandular pubescent. Leaves ovate to ovate-oblong, hairy. Heads pale purple, in terminal compact panicles, 5-flowered. Achenes hairy on ribs.

*Fl. & Fr.:* May Dec.

*Distrib.:* Kameng; in open grasslands, shady forest edges.

**Eupatorium odoratum** L., Syst. Nat. ed. 10, 1205. 1759; Hook. f., Fl. Brit. India 3: 244. 1881; Uniyal in Hajra *et al.*, Fl. India 12: 354. 1995. *Chromolaena odorata* King *et* Robinson in Phytologia 20: 204. 1970; A. S. Chauhan in Hajra, Contrib. Fl. Namdapha 202. 1996. *Eupatorium conyzoides* Vahl, Symb. Bot. 3: 96. 1794; Hook. f., Fl. Brit. India 3: 244. 1881. *E. repandum* Willd., Sp. Pl. 3: 1767. 1803.

Herbs or shrubs, up to 2 m high, glandular pubescent. Leaves deltoid or rhomboid-ovate, entire or dentate, long acuminate, glandular pubescent beneath. Heads 20-40-flowered, in trichotomous convex corymbs, pale blue or white. Involucral bracts oblong, sparsely pubescent. Achenes 4-5-ribbed. Pappus white.

*Fl. & Fr.:* Nov. - Apr.

*Distrib.:* Lohit, Siang; 100 1000 m, in secondary forests.

**Galinsoga parviflora** Cav., Ic. & Descr. Pl. 3: 41, t. 281. 1795; Hook. f., Fl. Brit. India 3: 311. 1881. H. J. Chowdhery in Hajra *et al.*, Fl. India 12: 388. 1995.

Weak, erect, glabrous or sparsely glandular hairy herbs, up to 30 cm tall. Heads axillary or terminal; ray florets 4-5, white; disc florets many, yellow. Achenes black, fusiform, puberulous. Pappus scales not awn tipped.

*Fl. & Fr.:* Oct. May.

*Distrib.:* Kameng, Subansiri; 1800 2200 m, in waste places and cultivated fields.

**Galinsoga quadriradiata** Ruiz *et* Pavon, Syst. Veg. 1: 198. 1798; H. J. Chowdhery in Hajra *et al.*, Fl. India 12: 388. 1995. *Adventia ciliata* Rafin., New Fl. America 1: 67. 1836. *Galinsoga ciliata* (Rafin.) Blake in Rhodora 24: 35. 1922; Kitam. in H. Hara, Fl. E. Himal. 339. 1966.

Herbs, densely glandular hairy, up to 50 cm tall. Heads axillary or terminal, white. Achenes black, turbinate, puberulous. Pappus scales awn tipped.

*Fl. & Fr.:* Sept. March.

*Distrib.:* Kameng, Subansiri; up to 1500 m.

**Gerbera maxima** (D. Don) Beauv. in Bull. Soc. Bot. Geneve ser. 2, 2: 44. 1910; R. R. Rao in Hajra *et al.*, Fl. India 13: 175. 1995. *Chaptalia maxima* D. Don, Prodr. Fl. Nep. 166. 1825. *Gerbera macrophylla* Benth. in Benth. & Hook. f., Gen. Pl. 2: 497. 1873; Hook. f., Fl. Brit. India 3: 391. 1881.

Scapigerous herbs, rootstocks prominent. Leaves sagittate, often irregularly pinnatifid, woolly when young, yellowish brown tomentose beneath. Flowers white in 15 - 45 cm long peduncled heads; ray florets absent. Achenes faintly puberulous, strongly ribbed. Pappus dirty white to reddish.

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

*Distrib.*: Kameng; in grasslands, moist stony places.

**Gerbera nivea** (Wall. ex DC.) Sch.-Bip. in Flora (Regensb.) 27: 780. 1844; Hook. f., Fl. Brit. India 3: 390. 1881; R. R. Rao in Hajra *et al.* Fl. India 13: 175. 1995. *Oreoseris nivea* Wall. ex DC., Prodr. 7: 18. 1838.

Perennial, grey pubescent herbs with elongate rootstocks. Leaves lanceolate to oblanceolate or obovate pinnatifid, softly woolly beneath. Scape solitary, heads drooping with yellowish ray florets. Achenes glabrous. Pappus tawny white.

*Fl. & Fr.*: July - Oct.

*Distrib.*: Arunachal Pradesh, at higher elevations.

**Gnaphalium affine** D. Don, Prodr. Fl. Nep. 173. 1825. *G. luteo-album auct. non L.*: Hook. f., Fl. Brit. India 3 : 288. 1881. *G. luteo-album* L. var. *multiceps* DC., Prodr. 6: 222. 1838. *G. luteo-album* subsp. *affine* (D. Don) Koster in Blumea 4: 484. 1941.

*Local name*: Buli (Adi); Miang (Apat.).

Erect herbs, up to 60 cm tall, densely woolly. Leaves sessile, oblong-spathulate, densely woolly tomentose beneath. Heads in terminal condense corymbs; peduncles buff tomentose ; corolla with pinkish red apex. Achenes linear, brown. Pappus yellowish.

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

*Distrib.*: Kameng, Siang, Subansiri, Tirap; up to 2500 m, in cultivated fields, roadsides, waste places.

*Note*: Koster (1941) recognised *G. luteo-album* subsp. *affine* reducing *G. affine* D. Don. The same is maintained by Pant (1995), who remarked that the subspecies *typica* and subspecies *affine* are more or less distributed throughout India. However, only *G. affine* is recognised here.

**Gnaphalium hypoleucum** DC. in Wight, Contrib. Bot. Ind. 21. 1834; Hook. f., Fl. Brit. India 3: 288. 1881; Pant in Hajra *et al.*, Fl. India 3: 86. 1995.

Small woolly herbs. Leaves linear, base semiamplexicaul, auricled. Heads in corymbose clusters, pale brown. Achenes oblong-obovoid. Pappus white.

*Fl. & Fr.*: March Nov.

*Distrib.*: Kameng, Siang, Subansiri, Tirap; 2000 3000 m.

*Use*: Commonly used as vegetable by Abories.

**Gnaphalium pensylvanicum** Willd., Enum. Hort. Berol. 867.1809; P. C. Pant in Hajra *et al.*, Fl. India 13: 89. 1995; A. S. Chauhan in Hajra, Contrib. Fl. Namdapha 202. 1996. *G. peregrinum* Fernald in Rhodora 45: 479, t. 795. 1943. *G. purpureum auct. non L.*: Hook. f., Fl. Brit. India 3 : 289. 1881.

Herbs, up to 50 cm high, erect or decumbent; stems and branches pearl grey cottony tomentose. Leaves spatulate-lanceolate, laxly villous upper surfaces, white woolly beneath. Heads in axillary or terminal clusters, densely woolly tomentose, inflorescence prominently leafy; involucre bracts 2-3 seriate, brownish. Achenes brown. Pappus free.

*Fl. & Fr.*: Jan. Nov.

*Distrib.*: Changlang, Lohit; in open dry places, along dry streams and canals.

**Gnaphalium purpureum** L., Sp. Pl. 854. 1753; Hook. f., Fl. Brit. India 3: 289. 1881, *p.p.*; Pant in Hajra *et al.*, Fl. India 13: 92. 1995.

Stout herbs, sparsely cottony. Leaves spatulate, white woolly beneath. Heads yellowish brown, in spicate clusters. Achenes oblong, dark brown. Pappus yellowish hairy.

*Fl. & Fr.*: April Nov.

*Distrib.*: Kameng, Siang, Subansiri.

**Grangea maderaspatana** (L.) Poir. in Lam., Encycl. Meth. Bot. suppl. 2. 825. 1812; Hook. f., Fl. Brit. India 3: 247. 1881; Hajra in Hajra *et al.*, Fl. India 12: 127. 1995. *Artemisia maderaspatana* L., Sp. Pl. 849. 1753.

Prostrate, spreading herbs, villous or pubescent. Leaves sinuate-pinnatifid, coarsely serrate-dentate, pubescent. Heads usually solitary, subglobose, yellow, in leaf opposed peduncles. Achenes flattened. Pappus cupular.

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

*Distrib.*: Kameng; weeds, growing flat and spread all sides from centre forming dense patches.

**Gynura bicolor** (Roxb. ex Willd.) DC., Prodr. 6: 299. 1838; Hook. f., Fl. Brit. India 3: 318. 1881; R. Mathur in Hajra *et al.*, Fl. India 13: 218. 1995. *Cacalia bicolor* Roxb. ex Willd., Sp. Pl. 3: 1731. 1804. *Cacalia cusimbua* D. Don, Prodr. Fl. Nep. 179. 1825. *Gynura angulosa* DC., Prodr. 6: 298. 1836; Hook. f., Fl. Brit. India 3: 334. 1881. *Gynura cusimbua* (D. Don) Moore in J. Bot. 1: 212. 1912; A. S. Chauhan in Hajra, Contrib. Fl. Namdapha 203. 1996.

*Local name*: Kochibamang (Apat.)

Succulent, erect or decumbent herbs, 1 - 3 m tall. Leaves spirally arranged, elliptic-lanceolate, sessile, amplexicaule, auricled at base. Heads many, large, orange-yellow. Achenes oblong, glabrous or pubescent. Pappus white.

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

*Distrib.*: Changlang, Kameng, Lohit, Siang, Subansiri, Tirap; in moist shady places

*Use*: The bitter leaf juice is taken orally as a preventive measure against worms.

**Gynura nepalensis** DC., Prodr. 6: 300. 1838; Hook. f., Fl. Brit. India 3: 333. 1881; Mathur in Hajra *et al.*, Fl. India 13: 221. 1995.

Tall, shrubby herbs, pubescent or subtomentose; branches corymbosely branched. Leaves sessile, obovate to elliptic-lanceolate. Heads many, in terminal corymbs, yellow, involucre bracts hoary villous. Achenes cylindrical, glabrous or sparsely pubescent. Pappus white.

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

*Distrib.*: Kameng, Tirap; up to 1500 m.

**Gynura procumbens** (Lour.) Merr., Enum. Philip. Fl. Pl. 3: 618. 1923; R. Mathur in Hajra *et al.*, Fl. India 13: 223. 1995. *Cacalia procumbens* Lour., Fl. Cochinch. 485. 1790. *Gynura sarmentosa* DC., Prodr. 6: 298. 1838; Hook. f., Fl. Brit. India 3: 335. 1881.

Climbing herbs, pubescent when young. Leaves elliptic to rhomboid, purplish tinged beneath, shortly petioled. Capitula discoid, campanulate, in lax corymbs. Achenes glabrous.

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

*Distrib.*: Kameng; in higher elevations.

**Gynura pseudochina** (L.) DC., Prodr. 6: 299. 1838; Hook. f., Fl. Brit. India 3: 334. 1881; R. Mathur in Hajra *et al.*, Fl. India 13: 223. 1995. *Senecio pseudochina* L., Sp. Pl. 867. 1753.

Perennial herbs with short stems and tuberous roots, glabrous or pubescent. Leaves basal, in rosette, obovate to spatulate, sometimes pinnatisect. Heads few, on leafless long scapes, orange-yellow. Achenes glabrous, red or brown. Pappus white.

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

*Distrib.*: Kameng, Lohit, Tirap; up to 1500 m.

**Hemistepta lyrata** Bunge ex Fisch. & Mey. in Index Sem. Hort. Bot. Petrop. 2: 38. 1835; Hajra in Hajra *et al.*, Fl. India 13: 181. 1995. *Saussurea affinis* Spreng. ex DC., Prodr. 6 : 540. 1838; Hook. f., Fl. Brit. India 3: 373. 1881.

Herbs, up to 3 m tall, corymbosely branched above. Leaves lyrate, pinnatifid at base, cottony below. Heads large, in long peduncled corymbs, pale red; receptacles bristly. Achenes obovoid, smooth, 10-ribbed. Pappus white.

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

*Distrib.*: Kameng, Siang; 600 - 1500 m.

**Hypochoeris glabra** L., Sp. Pl. 810. 1753; Hook. f., Fl. Brit. India 3: 401. 1881; Mangain & R. R. Rao in Hajra *et al.*, Fl. India 12: 250. 1995.

Scapigerous slender herbs. Leaves radical, rosulate, sinuate pinnatifid. Flowering stems many, stout, grooved, leafless. Heads long peduncled, solitary, yellow. Outer achenes truncate, inner ones with a long slender beak. Pappus white, 2-seriate.

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

*Distrib.*: Kameng; up to 2000 m; in moist slopes.

**Inula cappa** (Buch.-Ham. ex D. Don) DC., Prodr. 5: 469. 1836; Hook. f., Fl. Brit. India 3: 295. 1881; S. Kumar in Hajra *et al.*, Fl. India 13: 13. 1995; A. S. Chauhan in Hajra, Contrib. Fl. Namdapha 203. 1996. *Conyza cappa* Buch.-Ham. ex D. Don, Prodr. Fl. Nep. 176. 1825.

Stout, aromatic undershrubs, 2 - 3 m tall, branches brownish silky or woolly. Leaves oblong-lanceolate, amplexicaul, densely white woolly or tomentose. Heads many, in terminal or axillary corymbs; corolla yellow. Achenes silk hairy. Pappus dirty white.

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



*Distrib.*: Changlang, Kameng, Lohit, Siang, Subansiri; in open forests and waste places.

***Inula eupatorioides*** DC., Prodr. 5: 469. 1836; Hook. f., Fl. Brit. India 3: 295. 1881.

Stout shrubs, 1–3 m tall, branches pubescent. Leaves spirally arranged, ligules narrow, coriaceous, scaberulous above. Heads in terminal or axillary panicles. Flowers yellow. Achenes silky pubescent. Pappus pale brownish.

*Fl. & Fr.*: Sept.–March.

*Distrib.*: Kameng, Lohit, Tirap; up to 2000 m, in open forests and grasslands.

***Inula hookeri*** C. B. Clarke, Comp. Ind. 122. 1876; Hook. f., Fl. Brit. India 3: 294. 1881; S. Kumar in Hajra *et al.*, Fl. India 13: 18. 1995.

Perennial, tall herbs, up to 80 cm high, shaggy or glabrescent. Leaves lanceolate, auricled at base, margin gland toothed. Heads terminal, solitary, yellow, very broad with long hairs. Achenes angled, glabrous. Pappus dirty white.

*Fl. & Fr.*: July–March.

*Distrib.*: Kameng, Siang; 2000–3000 m.

***Inula kalapani*** C. B. Clarke, Comp. Ind. 123. 1876; Hook. f., Fl. Brit. India 3: 295. 1881; S. Kumar in Hajra *et al.*, Fl. India 13: 19. 1995.

Unbranched herbs, up to 50 cm tall, hirsute to pubescent. Radical leaves elliptic, cauline oblong, amplexicaul. Heads blue in corymbs. Achenes minute, glabrous. Pappus scanty, reddish.

*Fl. & Fr.*: Aug. – April.

*Distrib.*: Kameng; up to 4000 m, amidst grasses in open places.

***Inula nervosa*** Wall. *ex* DC., Prodr. 5: 471. 1836; Hook. f., Fl. Brit. India 3: 293. 1881; S. Kumar in Hajra *et al.*, Fl. India 13: 20. 1995. *I. nervosa* var. *purpurascens* Hook. f., Fl. Brit. India 3: 293. 1881.

Pubescent, hirsute or villous, glandular hairy herbs. Leaves elliptic or elliptic-lanceolate, scaberulous, hairs with tubercled bases. Heads solitary or corymbose, white with yellow centre. Achenes silky. Pappus dirty white.

*Fl. & Fr.*: May–Oct.

*Distrib.*: Kameng; 1200–2000 m.

**Inula rubricaulis** (DC.) C. B. Clarke, Comp. Ind. 126. 1876; Hook.f., Fl. Brit. India 3: 296. 1881; S. Kumar in Hajra *et al.*, Fl. India 13 25. 1995. *Amphiraphis rubricaulis* DC., Prodr. 5: 343. 1836.

Undershrubs; branches long, slender, flexuous. Leaves elliptic-lanceolate, serrate with subparallel nerves. Heads in short axillary racemes, ray florets pink, disc florets yellow. Achenes silky.

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

*Distrib.*: Kameng; up to 4000 m, along roadsides and forest floor.

**Ixeris gracilis** (Wall. ex DC.) Stebb. in J. Bot. London 75: 50. 1937; Mamgain & R. R. Rao in Hajra *et al.*, Fl. India 12: 278. 1995. *Lactuca gracilis* Wall. ex DC., Prodr. 7: 140. 1838; Hook. f., Fl. Brit. India 3: 410. 1881.

Annual, erect herbs with white latex; stems solitary or many from the roots. Radical leaves linear or linear-lanceolate, cauline not auricled. Heads in terminal corymb, 3-8-flowered, cylindrical, yellow. Achenes pale red, compressed, many ribbed. Pappus dirty white.

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

*Distrib.*: Kameng, Subansiri, Tirap; up to 1500 m, grows in crannies of rocks on river bed and remain firmly fixed.

**Ixeris polycephala** Cass., Dict. Sci. Nat. 24: 50. 1822; Mamgain & R. R. Rao in Hajra *et al.*, Fl. India 12: 279. 1995. *Lactuca polycephala* (Cass.) Benth. & Hook. f., Gen. Pl. 2: 526. 1873; Hook. f., Fl. Brit. India 3: 410. 1881.

Flaccid, annual herbs. Radical leaves linear-lanceolate; cauline auricled, membranous. Heads in subumbellate corymbs, 10 - 20 flowered, yellow. Achenes reddish brown, strongly ribbed with silvery pappus.

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

*Distrib.*: Kameng; up to 2000 m.

**Lactuca gracilliflora** DC., Prodr. 7: 139. 1838; Hook. f., Fl. Brit. India 3: 406. 1881; Mamgain & R. R. Rao in Hajra *et al.*, Fl. India 12: 289. 1995.

Annual or biennial herbs, 50 - 200 cm high, stout, leafy, paniculately branched. Lower leaves pinnatifid, deltoid; upper leaves sessile, ovate-lanceolate. Heads in large drooping panicles, blue, violet or purple. Achenes oblanceolate, brown, smooth. Pappus dirty white.

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

*Distrib.*: Kameng; 2000–3500 m, on moist and shady slopes.

**Lactuca indica** L., Mant. Pl. 2: 278. 1771; Mamgain & R. R. Rao in Hajra *et al.*, Fl. India 12: 299. 1995. *L. brevirostris* Champ. ex Benth. in Hook., Kew J. 4: 237. 1852; Hook. f., Fl. Brit. India 3: 405. 1881.

Tall, erect, glabrous herbs. Leaves linear-lanceolate, shortly auricled at base. Heads pale yellow within, purplish outside. Achenes ellipsoid, black. Pappus dirty white or yellowish.

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

*Distrib.*: Kameng, Subansiri; up to 2000 m.

**Laggera alata** (D. Don) Sch.-Bip. ex Oliver in Trans. Linn. Soc. London 29: 94. 1873; S. Kumar in Hajra *et al.*, Fl. India 13: 148. 1995. *Erigeron alatum* D. Don, Prodr. Fl. Nep. 171. 1825; Hook. f., Fl. Brit. India 3: 271. 1881.

Stout, much branched, pubescent or tomentose, leafy herbs; stems with continuous, entire wing. Leaves oblong-lanceolate, denticulate, woolly beneath. Heads in leafy racemes on short axillary winged branches, pink. Achenes oblong, dark brown, hairy. Pappus white.

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

*Distrib.*: Kameng; 2000–3500 m, on open dry hilly slopes.

**Laggera crispata** (Vahl) Hepper *et* Wood in Kew Bull. 38: 83. 1983; S. Kumar in Hajra *et al.*, Fl. India 13: 151. 1995. *Conyza crispata* Vahl, Symb. Bot. 1: 71. 1790. *Laggera pterodonta* (DC.) Sch.-Bip. ex Oliver in Trans. Linn. Soc. London 29: 94. 1873; Hook. f., Fl. Brit. India 3: 271. 1881.

Annual or perennial herbs; stems much branched, deeply toothed, lobed or winged. Leaves oblong-lanceolate, serrate-dentate, glandular pubescent. Heads purplish, in terminal corymbiform panicles. Achenes faintly ribbed, hairy. Pappus white.

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

*Distrib.*: Changlang, Kameng, Tirap; 1200- 2000 m.

**Launaea acaulis** (Roxb.) Babcock ex Kerr. in Craib., Fl. Siam. Enum. 2: 299. 1936; Mamgain & R. R. Rao in Hajra *et al.*, Fl. India 12: 304. 1995. *Prenanthes acaulis* Roxb., Fl. Ind. 3: 403. 1832. *Lactuca glabra* DC. in Wight, Contrib. Bot. Ind. 26. 1834; Hook. f., Fl. Brit. India 3: 396. 1881.

Dwarf, glabrous herbs. Roots long, woody. Leaves mostly radical, narrowly oblanceolate. Heads few, yellowish, cylindrical. Achenes ellipsoid, strongly ribbed. Pappus silvery white.

*Fl. & Fr.*: May Sept.

*Distrib.*: Kameng; up to 1500 m, on open slopes and wastelands.

**Ligularia japonica** (Thunb.) Less., Syn. Comp. 390. 1832; R. Mathur in Hajra *et al.*, Fl. India 13: 232. 1995. *Arnica japonica* Thunb., Fl. Jap. 319. 1784. *Senecio macranthus* C. B. Clarke, Comp. Ind. 319. 1876; Hook. f., Fl. Brit. India 3: 349. 1881.

Tall, robust, sparingly pubescent, succulent herbs, 1-2 m high. Leaves reniform in outline, palmately 7-9-lobed, glandular pubescent beneath. Heads large, few, radiate on long peduncle, white. Achenes oblong, black. Pappus reddish.

*Fl. & Fr.*: May Oct.

*Distrib.*: Kameng; 3000 4000 m, on open slopes.

**Microglossa pyrifolia** (Lam.) Kuntze, Rev. Gen. Pl. 1: 353. 1891; Hajra in Hajra *et al.*, Fl. India 12: 133. 1995. *Conyza pyrifolia* Lam., Encycl. Meth. Bot. 2: 89. 1786. *Microglossa volubilis* DC., Prodr. 5: 320. 1836; Hook. f., Fl. Brit. India 3: 257. 1881.

Sprawling shrubs, up to 3 m high; branches grooved. Leaves ovate-lanceolate, obscurely toothed. Heads clustered in rounded corymbs, white. Achenes compressed, 4-angled, puberulous. Pappus red.

*Fl. & Fr.*: April Oct.

*Distrib.*: Changlang, Tirap; 1500 2500 m.

**Mikania micrantha** Kunth in H. B. K., Nov. Gen. Sp. 4: 134. 1820; Uniyal in Hajra *et al.*, Fl. India 12: 357. 1995; A. S. Chauhan in Hajra, Contrib. Fl. Namdapha 203. 1996. *M. scandens auct. non* Willd.: Hook. f., Fl. Brit. India 3: 244. 1881.

Climbing or twining, glabrous or puberulous shrubs. Leaves opposite, cordate or truncate at base, distantly blunt toothed, sometimes villous beneath. Heads in corymbose panicles, 4-flowered, homogamous. Achenes 4-5-ribbed, glandular. Pappus reddish.

*Fl. & Fr.*: Dec. March.

*Disturb.*: Throughout Arunachal Pradesh; quickly spreading weed, often become problematic cause of health hazards.

**Myriactis nepalensis** Less. in Linnaea 6: 128, t. 2. 1831; Hook. f., Fl. Brit. India 3: 247. 1881; Hajra in Hajra *et al.*, Fl. India 12: 134. 1995; A. S. Chauhan in Hajra, Contrib. Fl. Namdapha 203. 1996.

Herbs; stems ribbed, glabrous, villous or hispid. Leaves ovate to lanceolate. Heads greenish yellow, marginal flowers ca 10 seriate, ligules elliptic. Achenes mucronate at apex.

*Fl. & Fr.:* Dec. – March.

*Distrib.:* Changlang, Kameng, Lohit, Siang, Subansiri, Tirap; 1500-3000 m.

**Myriactis wallichii** Less. in *Linnaea* 6: 129. 1831; Hook. f., *Fl. Brit. India* 3: 247. 1881; Hajra in Hajra *et al.*, *Fl. India* 12: 135. 1995.

Slender herbs, sparsely hairy. Leaves elliptic-lanceolate, hispidulous. Heads in panicles, very small, globose, greenish yellow; marginal flowers 3-5-seriate, ligules linear.

*Fl. & Fr.:* July Oct.

*Distrib.:* Kameng, Lohit, Tirap; 2500 - 4000 m, in moist places near water sources.

**Petasites albus** (L.) Gaertn., *Fruct. Sem. Pl.* 2: 406. 1791; Panigrahi & Kar in *Bull. Bot. Surv. India* 8: 234. 1966; R. Mathur in Hajra *et al.*, *Fl. India* 13: 319. 1995. *Tussilago alba* L., *Sp. Pl.* 856. 1753.

Herbs; rhizomes fibrous, creeping, white woolly. Leaves subrosulate, long petiolate, reniform, densely appressed tomentose beneath. Capitula homogeneous, radiate on densely tomentose peduncle, white. Achenes minutely scabrid. Pappus white.

*Fl. & Fr.:* May Sept.

*Distrib.:* Kameng, in moist places.

**Petasites kamengicus** Deb in *Ind. For.* 93(4): 255. 1967; R. Mathur in Hajra *et al.*, *Fl. India* 13: 319. 1995.

Acaulis herbs; rootstocks tuberous. Leaves radical, reniform, cordate, densely woolly beneath. Capitula heterogeneous, in lax thyrse; female capitula surrounded by disc floret. Achenes cylindric, 10-ribbed.

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

*Distrib.:* Kameng.

**Picris hieracioides** L., *Sp. Pl.* 792. 1753; Hook. f., *Fl. Brit. India* 3: 393. 1881; Mamgain & R. R. Rao in Hajra *et al.*, *Fl. India* 12: 235. 1995.

Tall herbs, 30 - 120 cm high; corymbosely branched. Leaves radical, oblanceolate, rugose, densely hairy. Heads long peduncled, yellow. Achenes slightly curved, narrowed at both ends. Pappus white, feathery.

*Fl. & Fr.:* May Sept.

*Distrib.:* Kameng; between 1500 - 2500 m.

*Note:* Kitamura (Acta Phytotax. Geobot. 27: 37. 1957) recognised two subspecies, **kaimaensis** Kitam. and **nuristanica** Kitam. under **P. hieracioides** based on nature of stem, leaves and indumenta. Mamgain & Rao (*l.c.*) recorded the former subspecies from Kashmir in north-west to Meghalaya in north-east, while the latter from Jammu & Kashmir only. The additional material from Arunachal Pradesh, though superficially resembles to subsp. *kaimaensis* only, but require further scrutiny.

**Piloselloides hirsuta** (Forssk.) C. Jeffrey in Kew Bull. 21: 218. 1967; R. R. Rao in Hajra *et al.*, Fl. India 13: 184. 1995. *Arnica hirsuta* Forssk., Fl. Aegypt. Arab. 151. 1775. *Gerbera piloselloides* (L.) Cass., Dict. Sci. Nat. 18: 461. 1820; Hook. f., Fl. Brit. India 3: 389. 1881.

Perennial, acaulescent herbs, rootstocks silky villous. Leaves radical, elliptic to obovate-oblong, denticulate, villous beneath; petioles long. Scape with solitary head, ray- florets purplish. Achenes compressed, papillose. Pappus reddish.

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

*Distrib.:* Kameng, Subansiri; up to 3000 m.

*Use:* Leaves used for hot fomentation in rheumatic pain.

**Pluchea linearifolia** C. B. Clarke, Comp. Ind. 95. 1876; Hook. f., Fl. Brit. India 3: 273. 1881; Kumar in Hajra *et al.*, Fl. India 13: 155. 1995.

Annual, erect, scabrous herbs. Leaves linear with broad base, coriaceous, recurved. Heads corymbosely clustered at end of long branches, yellowish. Achenes cylindrical, ribbed, strigose. Pappus of basally united bristles.

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

*Distrib.:* Arunachal Pradesh.

**Prenanthes hookeri** C. B. Clarke *ex* Hook. f., Fl. Brit. India 3: 412. 1881; Mamgain & R. R. Rao in Hajra *et al.*, Fl. India 12: 313. 1995.

Stout or slender herbs, much branched, glabrous. Leaves hastate or cordate with amplexicaul, winged petioles, dilated and auricled at base. Heads blue-purple, peduncles long. Achenes narrowly elliptic, compressed.

*Fl. & Fr.:* Aug. Oct.

*Distrib.:* Kameng, Subansiri; 1200 - 2000 m, on slopes.