

FLORA
OF HIMACHAL
PRADESH



BOTANICAL SURVEY OF INDIA





Volume 3

H. J. CHOWDHERY

B. M. WADHWA

FLORA OF
HIMACHAL PRADESH
ANALYSIS

FLORA OF INDIA

Series 2

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Volume - 3

H.J. CHOWDHERY B. M. WADHWA



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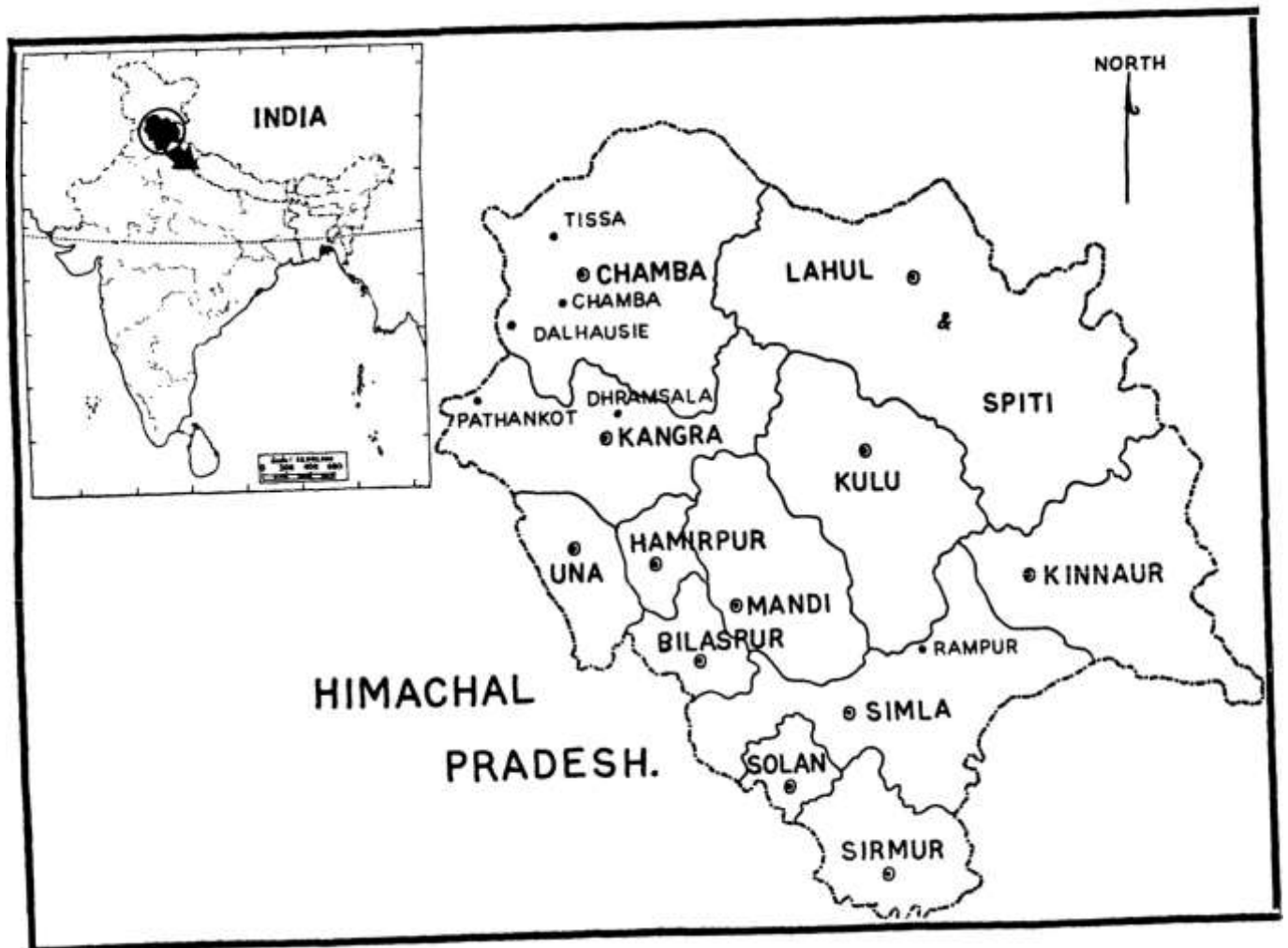
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HYDROCHARITACEAE

B.M. WADHWA AND H.J. CHOWDHERY

Hydrilla verticillata (L. f.) Royle, Ill. Bot. Himal. Mount. I : 376. 1839 ; Hook. f. Fl. Brit. India 5 : 659. 1888 ; Subramanyam, Aquatic Angio. 55. 1962. *Serpicula verticillata* L. f. Suppl. 416. 1781.

Leafy, aquatic herb, usually submerged. Male flowers shortly pedicelled, female sessile. Fruit subulate. Fl. & Fr. : October — January.

Simia (BSD), Sirmur (BSD).

Throughout India in still and running water.

Vallisneria spiralis L. sp. Pl. 1015. 1753 ; Hook. f. Fl. Brit. India 5 : 660. 1888 ; Subramanyam, Aquatic Angio. 57. 1962 ; Stewart, Ann. Cat. Vas. Pl. W. Pak. & Kash. 33. 1972.

Submerged, tufted, stemless herb. Leaves radical, linear, ribbon shaped. Flowers dioecious on long or short scapes. Male spathe shortly peduncled, female spathe connate, tubular, borne on a long, slender scape becoming spirally contracted after anthesis.

Fl. & Fr. : October — March.

Sirmur (BSD).

Throughout India.

CERATOPHYLLACEAE

B.M. WADHWA AND H.J. CHOWDHERY

Ceratophyllum demersum L. Sp. Pl. 992. 1753 ; Hook. f. Fl. Brit. India 5 : 639. 1888 ; Subramaniyam, Aqu. Angio. 52. 1962 ; K. Aziz in Fl. west Pakistan 70 : 1. 1974.

Submerged, aquatic herb. Leaves whorled. Flowers minute.

Fl. & Fr. ⋅

BOTANICAL SURVEY OF INDIA

June — October.

Manul(BSD).

Throughout India.

ORCHIDACEAE

H.J. CHOWDHERY AND B.M. WADHWA

Aerides multiflorum Roxb. Pl. Corom 3 : 68. t. 271. 1820 et Fl. Ind. ed. 2. 3 : 475. 1&3'2 ; Hook. f. Fl. Brit. India 6 : 44. 1öYU.

Epiphytes. Flowers rose — purple. Fl.

& Fr. : April — June.

Kangra (DD), Sirmur (BSD).

Tropical nunalaya, Irom uarhwal eastwarus to Assam.

Calanthe plantaginea Wall. ex Lindl. Sp. Orchid. Pl. 250. 1833 ; Hook. f. Fl. Brit. India 5 : 853. 1890 ; Collett, Fl. Simi. 494. 1902 ; Banerjee & Thapa in J. Bombay nat. Hist. Soc. 69 : 285. 1972 ; Nair, Fl.

Ra | Himal- 270- 1977.

Terrestrial. Flowers pale—pink, spur long.

Fl. & Fr. : April — July.

Chamba (DD, RRL).

Temperate Western Himalaya, Garhwal to Nepal.

Calanthe puberula Lindl. Gen. Sp. Orchid. Pl. 252. 1833 ; Hook. f. Fl. Brit. India 5 : 848. 1890 ; Collett, Fl. Simi. 495. 1902 ; Nair, Fl. Bash.

Himal. 271. 1977.

Terrestrial. Flowers pale — lavender, spur absent.

Fl. & Fr. : May - July.

Chamba (DD).

Subtropical Himalaya.

Calanthe tricarinata Lindl. Gen. Sp. Orchid. Pl. 252. 1833 ; Hook. f. Fl. Brit. India 5 : 847. 1890 ; Collett, Fl. Simi. 494. 1902 ; Banerjee &
OF

Thapa in J. Bombay nat. Hist. soc. 69 : 285. 1972 ;
Nair, Fl. Bash. Himal. 271. 1977.

Terrestrial. Sepals and petals greenish –
yellow, lip brown – purple Spur absent.

Fl. & Fr. : May – July.

Chamba (DD), Kinnaur (DD), Kulu (DD), Simia
(BSD, DD).

Temperate Himalaya, Kashmir to Nepal.

Cephalanthera ensifolia Rich. Orch. Annot. 29.
1817 ; Hook. f. Fl. Brit. India 6 : 125. 1890 ; Collett, Fl. Simi. 497.
1902 ; Nair, Fl. Bash. Himal. 271. 1977.

Terrestrial. Flowers white, not spurred.

Fl. & Fr. : May – June.

Chamba (DD), Kinnaur (DD), Kulu (DD), Simia
(DD).

Temperate Himalaya, Kashmir to Bhutan.

Cymbidium macrorhizon Lindl. Gen. Sp. Orchid.
Pl. 162. 1833 ; Hook. f. Fl. Brit. India 6 : 9. 1890
; Seidenfaden in Bull. Mus. nat. Hist.
Paris ser. 3. no. 71 • 116. 1972.

Terrestrial. Flowers white or pale – yellow with
pink stripes.

Fl. & Fr. : August – October.

Chamba (DD), Simia (DD).

North Western India.

Cypripedium cordigerum D. Don, prodr. Fl. Nep.
37. 1825 ; Hook. f. f. Fl. Brit. India 6 : 170. 1890
; Collett, Fl. Simi. 508. 1902 ; Nair, Fl. Bash.
Himal. 271. 1977.

Terrestrial. Flower greenish – white.

Fl. & Fr. : May – August.

Terrestrial. Flowers

Fl. & Fr. ♂

Chamba (DB), Kinnaur (DD), Kulu (DD), Simia (DD).

Temperate Himalaya from Kashmir upto Bhutan.

Cypripedium himalaicum Rolf. in J. Linn. Soc. 29 : 319. 1892 ; Duthie in Ann. Roy. Bot. Gard. Calcutta 9 : 204. 1906. *C. macranthon* (auct non Swartz) Hook. f. Fl. Brit. India 6 : 170. 1890 p.p.
1 2, purplish • green.

BOTANICAL SURVEY OF INDIA

July — September.

Himalaya — Himachal Pradesh upto Bhutan.

***Epipactis royleana* Lindl. (in Royle, Ill. nr.+ • 1 QQQ nom. nud) Gen. Sp. Orchid. Pl. 461. 1840 ; Hook. f. Fl. Brit. India 6 : 126. 1890 ; Collett, Fl. Simi. 499. 1902 ; Nair, Fl. Bash. Himal. 272. 1977.**

Terrestrial. Flowers ced with yellow center.

Fl. & Fr. : May - October.

Chamba (LDL), Kinnaur (ESL), DD), Kulu (DI)).

Temperate Himalaya — Kashmir to Sikkim.

Epipactis veratrifolia Boiss. et Hohen in Boiss. Diag. Pl. Or. Nov. 2(13) : 11. 1853 ; Nair, Fl. Bash. Himal. 272. 1977 ; Raizada et. al Orch. Muss. 54. 1981. *E. consimilis* Wall. ex Hook. f. Fl. Brit. India 6 : 126. 1890 ; Collett, Fl. Simi. 498. 1902.

Terrestrial. Flowers orange with purplish streaks.

Fl R.r • Mnv — Tune

Kinnaur (BSD), Lahul and spiti (RRL), Simia (BSD).

Temperate Himalaya, Kashmir to Sikkim.

Epipogium aphyllum Sw. Summ. Veg. Scand. 32. 1814 ; Hook. f. Fl. Brit. India 6 : 124. 1890 ; Collett, Fl. Simi. 497. 1902 ; Duthie in Ann. Roy. Bot. Gard. Calcutta 9 : 150. 1906 ; Nair, Fl. Bash. Himal. 297. 1977.

Terrestrial, leafless herb. Flowers yellowish - pink.

Fl. & Fr. : July October.

Kangra (DD), Kulu (BSD).

Temperate Himalaya — Kashmir to Bhutan.

Epipogium roseum (D. Don) Lindl. in J. Proc. Linn. Soc. Bot. I : 177. 1857. *Limodorum roseum* D. Don, Prodr Fl. Nep. 30. 1825. *Epipoplum tuberosum* Duthie in Ann Roy Rat Gnrđ Cnlctlttn O • 151 100K E. *nutans* (Blume) Reichenb. f. in Bonplandia 5 : 36. 1857 ; Hook. f. Fl. Brit. India 6 : 124. 1890.

Terrestrial. Flowers pale - yellow or pinkish - white.

Fl. & Fr- : June — Sentemher

----- OF

Kulu (BSD).

Himalaya — Himachal Pradesh to Sikkim.

Erin alba Lindl. Gen. sp. Orchid. Pl. 67. 1830 ; Hook. f. Fl. Brit. India 5 : 795. 1890 ; Nair, Fl. Bash. Himal. 272. 1977 ; Raizada et al., Orch. Muss. 20. 1981.

Epiphytes. Leaves narrow, strongly nerved. Flowers white, lip yellow and red.

Fl. & Fr. : June — August.

Chamba (DD).

Sub-tropical Himalaya.

Eulophia herbacea Lindl. Gen. Sp. Orchid. Pl. 182. 1833 ; Hook. f. Fl. Brit India 6 : 2. 1890 ; Seiden faden in Bot. Tidskrift 65(1-2) : 142. 1969 ; Nair, Fl. Bash. Himal. 272. 1977 ; Raizada et al., Orch. Muss. 32. 1981.

Terrestrial, glabrous herb. Flowers white, purple—yellow.

Fl. & Fr. : July — August.

Jeori (BSD).

North Western Himalaya and Nepal.

Gastrodia orobanchoides (Falc.) Benth. in Gen. Pl. 3 : 617. 1883 ; Hook. f. Brit. India 6 : 122. 1890 ; Collett, Fl. Simi. 497. 1902 ; Duthie in Ann. Royl. Bot. Gard. Calcutta 9 : 155 1906 ; Nair, Fl. Bash. Himal. 273. 1977. *Gamoplexis orobanchoides* Falc. in Trans. Linn. Soc. 20 : 293. t. 13. 1883.

Terrestrial. Flowers

Fl. & Fr. ⋅

Terrestrial, leafless herb with large tuberous root. Scape yellow — brown.

Fl. & Fr. : June September.

Chamba (BSD, DD), Kinnaur (DD), Kulu (BSD), Simia (DD).

Temperate Himalaya, Kashmir to Garhwal.

Goodyera biflora (Lindl.) Hook. f. Fl. Brit. India 6 : 114. 1890 ; Collett, Fl. Simi. 496. 1902 ; Nair, Fl. Bash. Himal. 273. 1977 ; Raizada ^{et al.}, Orch. Muss. 56. 1981. *Georchis biflora* Lindl. Gen. sp. Orchid. Pl. 496. 1

yellow, not spurred. Lip hairy inside.

June August.

Chamba (BSD), Simia (DD).

Temperate Western Himalaya, Nepal and Tibet.

Goodyera repens (L.) R. Br. in Ait. Hort. Kew. ed. 2.5 : 198. 1813 ;
Hook. f. Fl. Brit. India 6 : 111. 1890 ; Collett, Fl. Siml. 496. 1902 ; Nair
 Fl. Bash. Himal. 273. 1977 ; Raizada et al., Orch. Muss. 59. 1981. *Satyrium*
repens L. sp. Pl. 945. 1753.

Terrestrial herb with white leaves. Lip smooth within. Fl.

& Fr. : April — September.

Kinnaur (BSD, DD), Kulu (BSD), Simia (BSD, DD).

Temperate Himalaya — Simla eastward to Sikkim.

WIQhonnrin nonminntq Thw in Trimen T A Qint

Cevlnn

 soc. 9 : 91. 1885 ; Hook. f. Fl. Brit. India 6 : 133. 1890 ; Nair, Fl. Bash. Himal.
 273. 1977.

Terrestrial. Flowers dark purple.

Fl. & Fr. : August — September.

Kulu (BSD).

North — Western Himalaya.

Habenaria arietina Hook. f. Fl. Brit. India 6 : 138. 1890 ; Collett, Fl. Simi.
 502. 1902 ; Nair, Fl. Bash. Himal. 273. 1977.

Terrestrial.

Fl. & Fr. : July - August.

Simia (DD).

Temperate Himalaya — Simla eastward to Sikkim.

Habenaria commelinifolia (Roxb.) Wall. ex Lindl. Gen. Sp. Orch. Pl.
 325. 1835 ; Hook. f. Fl. Brit. India 6 : 143. 1890. *Orchis commelinaeja/ia*
 Roxb. Fl. Ind. ed. 2. 3 : 451. 1832.

Terrestrial. Flowers white.

Fl. & Fr. : June - September.

Tropical Western Himalaya upto Nepal.

OF

Terrestrial. Flowers

Fl. & Fr. :

Habenaria densa Wall. ex Lindl. Gen. Sp. Orchid. Pl. 326. 1835 ; Hook. f. Fl. Brit. India 6 : 153. 1890 ; Collett, Fl. Simi. 504. 1902 ; Nair, Fl. Bash. Himal. 274. 1977.

Terrestrial, glabrous herb. Flowers yellow - green.

Fl. & Fr. : August - September.

K' lu (BSD).

Temperate Himalaya, Simla to Sikkim.

Habenaria digitata Lindl. Gen. Sp. Orchid. Pl. 307. 1835 ; Hook. f. Fl. Brit. India 6 : 134. 1890 p.p. ; Raizada et al., Orch. Muss. 75. 1981.

Terrestrial Flowers green. Fl.

& Fr. : June — August.

Kainthli (LWG).

Himalaya and Western Ghats.

Habenaria edgeworthii Hook. f. ex Collett, Fl. Siml. 504. t. 166. 1902 ; Duthie in Ann. Royl. Bot. Gard. Calcutta 9 : 187. 1906 ; Nair, Fl. Bash. Himal. 274. 1977 ; Raizada et al., Orch. Muss. 96. 1981. *Platanthera edgeworthii* (Hook. f. ex Collett) Gupta, Fl. Nainital. 349. 1968.

Terrestrial. Flowers yellowish — green.

Fl. & Fr. : July

to er.

Chamba (BSD), Kinnaur (DD), Kulu (BSD, DD), Simia (DD).

North - Western Himalaya.

Habenaria elisabethae Duthie in Journ. Asist. Soc. Bengal 71 : 44. 1902 ; Collett, Fl. Simi. 505. 1902 ; Nair, Fl. Bash. Himal. 274. 1977.

Terrestrial. Flowers very small, green.

Fl. & Fr. : June September.

Simia (DD).

North Western Himalaya.

Habenaria ensifolia Lendl. Gen. Sp. Orchid. Pl. 231. 1835 ; Collett, Fl. Siml. 504. 1902 ; Duthie in Ann. Royl. Bot. Gard. Calcutta 9 : 179. 1906 ; Nair, Fl. Bash. Himal. 274. 1977. *H. pectinata* Hook. f. Fl. Brit.

India 6 : 137. 1890 (non D. Don, 1825. p.p.)

white.

August — October.

Kinnaur (DD), Simia (DD).

Temperate Himalaya, Simla eastward to Sikkim.

Habenaria galeandra (Reichb.) Benth. Fl. Hongk. 263. 1863 ; Hook. f. Fl. Brit. India 6 : 163. 1890 ; Collett, Fl. Simi. 506. 1902 ; Nair, Fl. Bash. Himal. 274. 1977. *Platanthera galeandra* Reichb. f. in *Linnaea* 25 : 226. 1852.

Terrestrial. Flowers purple.

Fl. & Fr. : August — September.

Simia (DD).

Western Himalaya and Nepal.

Habenaria goodyeroides D. Don, Prodr. Fl. Nep. 25. 1825 ; Hook. f. Fl. Brit. India 6 : 161. 1890 ; Collett, Fl. Simi. 505. 1902 ; Nair, Fl. Bash. Himal. 274. 1977.

Terrestrial. Flowers yellow — green.

Fl. & Fr. : August September.

Chamba (DD).

Subtropical Himalaya — Kumaon to Bhutan,

Habenaria intermedia D. Don, Prodr. Fl. Nep. 24. 1825 ; Hook. f. Fl. Brit. India 6 : 138. 1890 ; Collett, Fl. Simi. 502. 1902 ; Nair, Fl. Bash. Himal. 275. 1977.

Terrestrial. Flowers greenish — white.

Fl. & Fr. : July — August.

Chamba, (BSD, DD), Kinnaur (DD), Simia (DD).

Temperate Himalaya — Kashmir to Sikkim.

Habenaria latilabris (Lindl.) Hook. f. Fl. Brit. India 6 : 153. 1890 ; Nair, Fl. Bash. Himal. 275. 1977. *Platanthera latilabris* Lindl. Gen. sp. Orchid. Pl. 289. 1835. *P. acuminata* Lindl. Gen. sp. Orchid. Pl. 289. 1835.

Terrestrial. Flowers yellow — green.

Fl. & Fr. : July - October.

Chamba (BSD, DD), Kinnaur (DD), Kulu (BSD), Simia (BSD).

Temperate Himalaya — Kashmir to Sikkim.

Terrestrial. Flowers

Habenaria marginata Colebr. in Hook. f. Exot. Fl. 2. t. 136. 1824 ;
Hook. f. Fl. Brit. India 6 : 150. 1890 ; Duthie in Ann. Royl. Bot. Gard.
Calcutta 9 : 184. t. 136. 1906.

Terrestrial. Flowers yellow green.

Fl. & Fr. : August — September.

Chamba (DD).

Himalaya — Kashmir to Bhutan.

Habenaria pectinata D. Don, Prodr. Fl. Nep. 1825 ; Hook. f. Fl. Brit.
India 6 : 137. 1890 ; Collett, Fl. Simi. 501. 1902 ; Duthie in Ann. Roy.
Bots Gard. Calcutta 9 : 178. 1906 ; Nair, Fl. Bash. Himal. 275. 1977.

Terrestrial. Flowers white or greenish.

Fl. & Fr. : July — September.

Temperate Himalaya — from Simla eastwards to Sikkim.

Habenaria susannae R. Br. Prodr. 312. 1810 ; Hook. f. Fl. Brit.
India 6 : 137. 1890 ; Collett, Fl. Simi. 501. 1902 ; Nair, Fl. Bash. Himal. 275.
1977.

Terrestrial. Flowers white, fragrant.

Fl. & Fr. r. : u y — ep m

Simia (DD).

Tropical Himalaya.

Hemipilia cordifolia Lindl. Gen. Sp. Orchid. Pl. 296. 1830 ; Hook.
f. Fl. Brit. India 6 : 167. 1890 ; Collett, Fl. Simi. 506. 1902 ; Nair, Fl.
Bash. Himal. 275. 1977.

Terrestrial herb with tuberous roots. Flowers purple.

Fl. & Fr. : August — September.

Simia (DD).

Western temperate Himalaya upto Nepal.

Herminium angustifolium Benth. ex Hook. f. Fl. Brit India 6 : 129. 1890
; Collett, Fl. Simi. 499. 1902 ; Nair, Fl. Bash. Himal. 276. 1977.

Terrestrial, tuberous herb. Flowers green.

Fl. & Fr. : July — October.

Chamba (BSD, DD), Kinnaur (DD), Kulu (BSD), Simia (BSD* DO).

Temperate Himalaya.

Herminium monophyllum (D. Don) Hunt et Summerhayes in Kew Bull. 20 : 51. 1966. *Ecottia monophylla* D. Don, Prodr. Fl. Nepal. 27. 1825. *Herminium gramineum* Lindl. Gen. Sp. Orchid. Pl. 305. 1835 ; Hook. f. Fl. Brit. India 6 : 131. 1890. Terrestrial. Flowers minute.

Fl. & Fr. : August — September.

Simia (DD).

Western and Central Himalaya.

Herminium monorchis (L.) R. Br. in Ait. Hort. Kew. ed. 2. 5 : 191. 1818 ; Hook. f. Fl. Brit. India 6 : 128. 1890 ; Nair, Fl. Bash. Himal. 276. 1977.

Terrestrial herb. Flowers yellow green.

Fl. & Fr. : July - September.

Chamba (BSD, DD), Kinnaur (BSD), Kulu (BSD), Lahul & spiti (BSD, DD).

Alpine Himalaya, Kashmir to SIKKjm.

Herminium pugioniforme Lindl. ex Hook. f. Fl. Brit. India. 6 : 130. 1890 ; Tuyama in Hara, Fl. E. Himal. 2 : 190. 1971.

Terrestrial. Flowers minute.

Fl. & Fr. : August October.

Kulu (BSD).

Alpine Himalaya, Kashmir to Sikkim.

Liparis glossula Reichb. f. in Linnaea 41 : 44. 1877 ; Hook. f. Fl. Brit. India 5 : 693. 1890 ; Nair, Fl. Bash. Himal. 276. 1977 ; Raizada et al., Orch. Muss. 10. 1981.

Pseudobulb large.

Fl. & Fr. : August September, Simia

(DD).

Western and Central Himalaya.

Liparis nervosa (Thunb.) Lindl. Gen. sp. Orchid. Pl. 26. 1830. *Ophrys nervosa* Thunb. Fl. Jap. 27. 1784. *Liparis paradoxa* (Lindl.) Reichb. f. in Walp. Ann. 6 • 218. 1861 ; Hook. f. Fl. Brit. India 5 : 697. 1890 ; Collett, Fl. Simi. 492. 1902 ; Nair, Fl. Bash. Himal. 276. 1977 ; Raizada et al., Orch. Muss. 11. 1981. *Empusa paradoxa* Lindl. in Bot. Reg. 10 : sub. t. 825. 1824.

Variable in habit. Flowers striped, yellow purple.

Fl. & Fr. : August September.

Simia (DD).

Temperate and subtropical Himalaya.

Liparis rostrata Reichb. f. in *Linnaea* 41 ; 44. 1877 ; Hook. f. *Fl. Brit. India* 5. 694. 1990 ; Collett. *Fl. Simi.* 492. 1902 ; Duthie in *Ann. Royl. Bot. Gard. Calcutta* 96. 1906 ; Nair, *Fl. Bash. Himal.* 276. 1277 ; Raizada et al., *Orch. Muss.* 11. 1981.

Flowers yellow - green.

Fl. & Fr. : July August.

Kinnaur (DD), Simia (DD).

Temperate Himalaya, Himachal Pradesh to Nepal.

Malaxis acuminata D. Don, *Prodr. Fl. Nepal.* 29. 1825 ; Tuyame in Hara, *Fl. E. Himal.* 1 : 443. 1966 ; Nair, *Fl. Bash. Hmal.* 276. 1977 ; Raizada et. al., *Orch. Muss.* 7. 1981. *Microstylis wallichii* Lindl. *Gen. sp. Orchid. Pl.* 20. 1830 ; Hook. f. *Fl. Brit. India* 5 : 686. 1888 ; Duthie in *Ann. Royl. Bot. Gard. Calcutta* 9 : 87. 1906 ; Collett, *Fl. Simi.* 491. 1902.

Terrestrial or epiphytic. Flowers greenish purplish or yellowish.

Fl. & Fr. : July August. Chamba (DD).

Temperate and subtropical Himalaya, from Himachal Pradesh to Sikkim.

Malaxis cylindrostachya (Lindl.) Kuntze, *Rev. Gen. Pl.* 2 : 673. 1891 ; Nair, *Fl. Bash. Himal.* 277. 1977 ; Raizada et. al., *Orch. Muss.* 8. 1981. *Dienia cylindrostachya* Lindl. *Gen. Sp. Orchid. Pl.* 21. 1830. *Microstylis cylindrostachya* Reichb. f. in *Walp. Ann. Bot. Syst.* 6 : 207. 1861 ; Hook. f. *Fl. Brit. India* 5 : 689. 1890 ; Collett, *Fl. Simi.* 492. 1902 ; Duthie in *Ann. Royl. Bot. Gard. Calcutta* 6 : 88. 1906.

Terrestrial or epiphytic. Flowers pale yellow.

Fl. & Fr. : July August.

Kangra (BSD), Kulu (BSD), Simia (DD).

Temperate Himalaya, Himachal Pradesh to Sikkim.

Malaxis muscifera (Lindl.) Kuntze, Rev. Gen. Pl. 2 : 673. 1891 ;
Tuyemen in Fl. E. Himal. 1 : 444. 1966 ; Nair, Fl. Bash. Himal. 277.
1977. *Dienia muscifera* Lindl. Gen. Sp. Orchid. Pl. 23. 1830. *Microstylis*
muscifera (Lindl.) Ridley in Jour. Linn. soc. Bot. 24 : 33. 1888 ; Hook.
f. Fl. Brit. India 5 : 689. 1890 ; Collett, Fl. Simi. 491. 1902. Terrestrial

or epiphytic. Flowers pale yellow green.

Fl. & Fr. : July October.

Chamba (BSD, DD), Kinnaur (BSD), Kulu (BSD, DD), Lahul and spiti
(BSD), Simia (DD).

q; mnl nva K R < hmir to Bhutan.

Neottia listeroides Lindl. in Royle, Ill. Bot. Himal. Mount. I : 368. 1838
et Gen. sp. Orchid. Pl. 458. 1840 ; Hook. f. Fl. Brit. India 6 : 103. 1890 ;
Collett, Fl. Simi. 495. 1902 ; Nair, Fl. Bash. Himal. 177. 1977 ; Raizada et
al., Orch. Muss. 45. 1981. *Listera lindleyana* (Decne.) King & Prantl. Ann.
Roy. Bot. Gard. 8 : 258. t. 343. 1898. *Neottia lindleyana* Decne. in Jacquem.
voy. Bot. 163 & Atlas 2 : t. 163. 1844.

Terrestrial. Flowers red brown.

Fl. & Fr. : July September.

Kangra (DD), Kinnaur (BSD, DD), Kulu (BSD, DD), Simia (DD).

Temperate Himalaya, Kashmir eastward Sikkim.

Orchis latifolia L. sp. Pl. 941. 1753 ; Hook. f. Fl. Brit. India 6 : 127.
1890 ; Collett, Fl. Simi. 499. 1902 ; Duthie in Ann. Roy. Bot. Gard. Calcutta
9 : 172. 1906 ; Nair, Fl. Bash. Himal. 277. 1977 ; Raizada et al., Orch. Muss.
64. 1981.

Terrestrial, erect herb with tuberous roots. Flowers dull purple,
spurred, spotted.

Fl. & Fr. : June October.

Chamba (BSD, DD), Kinnaur (BSD), Kulu (DD), Lahul and spiti
(BSD, DD, RRL), Simia (DD).

Western temperate Himalaya, Kashmir to Nepal.

Orchis spathulata Reichp. ex Benth. in Journa Linn. Soc. Bot. 18 :
355. 1880 ; Hook. f. Fl. Brit. India 6 : 127. 1890 ; Tuyama in Hara, Fl. E.
Himal 3 : 162. 1975 ; Nair, Fl. Bash. Himal. 277. 1977.

Terrestrial. Flowers pink.

Fl. & Fr. : July August.

Alpine Himalaya.

Oreorchis foliosa (Lindl.) Lindl. in Journ. Linn. Soc. Bot. 3 : 27. 1859 ; Hook. f. Fl. Brit. India 5 : 709. 1890 ; Tuyama in Hara, Fl. E. Himal. 3 : 446. 1966 ; Nair, Fl. Bash. Himal. 278. 1977. *Corallorhiza foliosa* Lindl. Gen. sp. Orchid. Pl. 535. 1840.

Terrestrial herb, root a tuber. Leaf only one. Flowers deep red.

Fl. & Fr. : July September.

Chamba (BSD), Simia (DD).

Temperate Himalaya.

Oreorchis indica (Lindl.) Hook. f. Fl. Brit. India 5 : 709. 1890 ; Collett, Fl. Siml. 493. 1902 ; Duthie in Ann. Roy. Bot. Gard. Calcutta 9 : 131. t. 112. 1906 ; Nair, Fl. Bash. Himal. 278. 1977 ; Raizada et al., Orch. Muss. 36. 1981. *Corallorhiza indica* Lindl. in Journ. Linn. Soc. Bot. 3 : 26. 1859 (non Decne.)

Terrestrial. Flowers large.

Fl. & Fr. : May August.

Simia (DD).

Temperate Western Himalaya, Simla to Garhwal.

Oreorchis micrantha Lindl. in Journ. Linn. Soc. Bot. 3 : 27. 1859 ; Hook. f. Fl. Brit. India 5 : 709. 1890 ; Collett, Fl. Simi. 493. 1902 ; Duthie in Ann. Roy. Bot. Gard. Calcutta 9 : 132. 1906 ; Tuyama in Hara, Fl. E. Himal. 1 : 446. 1266 ; Nair, Fl. Bash. Himal. 278. 1977 ; Raizada et al., Orch. Muss. 37 : 1981.

Terrestrial herb with 2 leaves. Flowers white.

Fl. & Fr. : June- July.

Simia (DD).

Western Himalaya.

Rhynchostylis retusa Bl. Bijdr. 166. t. 49. 1825 ; Hook. f. Fl. Brit. India 6 : 32. 1890 ; Duthie in Ann. Royl. Bot. Gard. Calcutta 9 : 143. 1906 ; Raizada et al., Orch. Muss. 42. 1981.

Epiphytic. Flowers pink white in drooping, cylindric racemes.

Fl. & Fr. : June September.

Kangra (RRL).

Tropical Himalaya.

Satyrium nepalensis D. Don, Prodr. Fl. Nepal. 26. 1825 ; Hook. f. Fl. Brit. India 6 : 168. 1890 ; Collett, Fl. Simi. 507. t. 168. 1902 ; Tuyama in Hara, Fl. E. Himal. 1 : 450. 1966 ; Nair, Fl. Bash. Himal. 278. 1977 ; Raizada et al., Orch. Muss. 89. 1981.

Terrestrial. Flowers fragrant, dark pink.

Fl. & Fr. : July September.

Kinnaur (DD), Simia (BSD, DD).

Temperate Himalaya.

Spiranthes sinensis (Pers.) Ames, Orch. 2 : 53. 1908 var. *amoena* (M. Bieb.) Hara in J. Jap. Bot. 44 : 59. 1969. *Neottia amoena* M. Bieb. Fl. Taur. Cauc. 3 : 606. 1819. *Spiranthes australis* (R. Br.) Lindl. in Edw. Dot. Regist. 10 : sub. t. 823. 1824 ; Hook. f. Fl. Brit. India 6 : 102. 1890. *S. sinensis* subsp. *australis* (R. Br.) Kitamura in Acta Phytotax. Geo bot. 21 : 23. 1964.

Terrestrial herb. Spikes spirally twisted. Flowers pink or red.

Fl. & Fr. : May October.

Chamba (DD), Kinnaur (BSD, DD), Kulu (BSD), Simia (BSD, DD).

Throughout India.

Vanda testacea (Lindl.) Reichb. f. in Gard. Chron. 2 : 166. 1877 ; Raizada et. al., Orch. Muss. 43. 1981. *Aerides testaceam* Lindl. Gen. Sp. Orchid. Pl. 238. 1833. *Vanda parviflora* Lindl. in Bot. Reg. 30 : Misc. 45. 1844 ; Hook. f. Fl. Brit. India 6 : 50. 1890 ; Duthie in Ann. Royl. Bot. Gard. Calcutta 9 : 144. 1906 ; Banerji et Thapa in J. Bombay. nat. Histo soc. 70(1) : 34. 1973.

Epiphyte, Flowers yellow.

OF

Fl. & Fr. : April June.

Kangra (BSIP), Sirmur (BSD).

Western Himalaya.

Cautleya gracilis (Sm.) Dandy in J. Bot. 70 : 328. 1932. *Roscoea gracilis* Sm. in Trans. Linn. Soc. 13 : 460. 1822. *C. lutea* Royle, Ill. Bot. Himal. Mount. 361, 1839 ; Baker in Hook. f. Fl. Brit. India 6 : 208. 1890 ; Collett, Fl. Simi. 511. 1902.

Leafy herbs. Leaves narrow, sessile. Flowers yellow in drooping spikes, bracts green.

Fl. & Fr. : July August.

Simia (DD).

Temperate Himalaya Kashmir to Sikkim.

Cautleya spicata (Smith) Baker in Hook. f. Fl. Brit. India 6 : 209. 1890 ; Collett, Fl. Siml. 512. 1902. *Roscoea spicata* Smith in Trans. Linn. soc. Lond. 13 : 461. 1822.

Leafy herbs. Leaves broad. Bracts red. Flowers many in erect spikes. Seeds black, enclosed in white aril.

Fl. & Fr. : July September.

Simia (DD).

Himalaya.

Curcuma angustifolia Roxb. in Asiat. Research I 1 : 338. t. 3. 1810 et Fl. Ind. 1 : 31. 1820) Baker in Hook. f. Fl. Brit. India 6 : 210. 1890 ; Collett, Fl. Simi. 512. 1902.

Herbs with tuberous root-stocks. Flowers yellow, crowded in a spike, bracts pink.

Fl. & Fr. : May August.

Kangra (RRL).

Himalaya.

Curcuma aromatica Salisb. Parad. Lond. 2 : t. 96. 1808 ; Baker in Hook. f. Fl. Brit. India 6 : 210. 1890.

Herbs with tubers that are yellow and aromatic inside. Flowers pinkish white, bracts pale green. Fl. & Fr. : June — August.

Kangra (LWG).

Throughout India.

Costus speciosus (Koenig) Smith in Trans. Linn. Soc. Lond. I : 249. 1791 ; Baker in Hook. f. Fl. Brit. India 6 : 249. 1892. *Banksea speciosa* Koenig in Retz. Obs. Bot. 3 : 75. 1783.

Tall, leafy herbs with tuberous root stock. Flowers white in spike, bracts bright, red.

Fl. & Fr. : July — September.

Kangra (RRL).

Throughout India.

Hedychium coronarium Koenig in Retz. Obs. Bot. 3 : 73. 1793 ; Baker in Hook. f. Fl. Brit. India 6 : 225. 1892

Herbs with horizontal, tuberous root stocks. Leaves long. Flowers fragrant, white, tinged with yellow. Fl. & Fr. : August — October.

Simia (LWG).

Throughout India.

Hedychium spicatum Smith in Rees. Cyclop. 17 : *Hedychium* n. 3. 1811 ; Baker in Hook. f. Fl. Brit. India 6 : 227. 1892. var. *spicatum*. Herbs with long leaves and tuberous root-stocks. Flowers white.

Fl. & Fr. : May - September.

Simia (DD, LWG).

Himalaya Himachal Pradesh to Nepal.

Hedychium spicatum Smith var. *acuminatum* (Roscoe) Wall. in Hook. J. Bot. Kew Gard. Misc. 5 : 328. 1853 ; Baker in Hook. f. Fl. Brit. India 6 : 227. 1892. *H. acuminatum* Roscoe, Monandr. Pl. : t. 47. 1825 ; Collett, Fl. Simi. 512. 1902.

Robust, leafy herbs. Leaves broadly lanceolate. Flowers pale - yellow, fragrant.

Fl. & Fr. : August October.

Chamba (CDR}, RRL), Simia (DD).

Himalaya Himachal Pradesh to Sikkim.

Kaempferia rotunda L. Sp. Pl. 3. 1753 ; Roxb. Fl. Ind. I . 15. 1820 ; Baker in Hook. f. Fl. Brit. India 6 : 222. 1890.

Herbs with tuberous root stock. Leaves erect, variegated. Flowers lilac red.

Fl. & Fr. : March - June.

Throughout India.

Roscoea alpine Royle, Ill. Bot. Himal. Mount. 361. t. 89. f. 1. 1839 ; Baker in Hook. f. Fl. Brit. India 6 : 207. 1892 ; Collett, Fl. Simi. 503. 1902 ; Nair, Fl. Bash. Himal. 279. 1977.

Leafy herbs. Leaves sessile, oblong lanceolate. Flowers dark purple. Corolla tube longer than calyx.

Fl. & Fr. : May July.

Chamba (BSD, DD, LWG), Kinnaur (DD), Kulu (DD), Simia (BSD, DD, LWG).

Himalaya Kashmir to Bhutan and Tibet.

Roscoea purpurea J. E. Smith var. *gigantea* Wall. Pl. As. Rar. 3 : 22. 1832. *Roscoea procera* Wall. Pl. As. Rar. 3. t. 242. 1832 ; Baker in Hook. f. Fl. Brit. India 6 : 208. 1892 ; Collett, Fl. Simi. 509. 1902 ; Nair, Fl. Bash. Himal. 279. 1977.

Herbs with leafy stems. Leaves lanceolate. Flowers several, lilac, streaked and tinged with pink.

Fl. & Fr. : June - August.

Lahul and spiti (BSD), Simia (DD).

Western Himalaya.

Zingiber zerumbet (L.) Smith in Exot. Bot. 2 : 105. t. 112. 1806 ; Baker in Hook f. Fl. Brit. India 6 : 247. 1892. *Amomum zerumbet* L. Sp. Pl. 1. 1753.

Herbs with tuberous, root stocks, pale yellow inside. Spikes very dense. Flowers white and sulphur yellow.

Fl. & Fr. : June September.

Kangra (RRL).

Throughout India.

CANNACEAE

B.M. WADHWA AND H.J. CHOWDHERY

Canna indica L. Sp. Pl. 1. 1753. *Canna orientalis* Roscoe, Monandr. Pl. t. 12. 1828. *C. indica*. var. *orientalis* (Roscoe) Baker in Hook. f. Fl. Brit. India 6 : 260. 1892.

Leafy herbs. Leaves oblong, acute. Flowers greenish - bright red.

Fl. & Fr. : July October.

Kangra (RRL).

Throughout India.

MUSACEAE

B.M. WADHWA AND H.J. CHOWDHERY

Musa sapientum L. Sp. Pl. 1477. 1753 ; Baker in Hook. f. Fl. Brit. India 6 : 262. 1892.

Stem of convolute leaf sheaths. Flowers in an erect or eurved spike, bracts large, spathaceous, red. Fruits oblong, trigonous.

Fl. & Fr. : Throughout the year.

Kinnaur (DD).

Cultivated throughout India,

IRIDACEAE

H.J. CHOWDHERY

Belamcanda chinensis (L.) DC. in Redoute, Liliac. 3 : t. 121. 1805 ;
Hook. f. Fl. Brit. India 6 : 277. 1892. *Ixia chinensis* L. 1753. sp. Pl. 36.

Fl. & Fr. : June — August.
Kinnaur (DD), Kulu (BSD).

Cultivated all over India.

Iris decora Wall. Pl. Asiat. Rarior. I .• 77. t. 86. 1830.

Fl. & Fr. : May August.

Simia (DD).

Himalaya - Himachal Pradesh to Assam.

Iris germanica L. Sp. Pl. 38. 1753.

Common purple Iris cultivated throughout hills and plains.

Fl. & Fr. : April June.

Kulu (DD).

Cultivated.

Iris hookeriana M. Foster in Gard. Chron. 1887. I : 611. 1883 ;
Hook. f. Fl. Brit. India 6 : 275. 1892.

Flowers purplish blue, blotched with darker blue shade.

Fl. & Fr. : May July.

Lahul and spiti (RRL).

Western Himalaya.

Iris kemaonensis D. Don ex Royle, Ill. Bot. Himal. Mount. I : 372.
1839 ; D. Don in Trans. Linn. soc. 18 : 311. 1840 ; Hook. f. Fl. Brit. India
6 : 274. 1892 ; Collett, Fl. Simi. 516. 1902 ; Nair, Fl. Bash. Himal. 280.
1977.

Herbs with thick creeping root stock. Flowers bright lilac.

Wall. ex Baker in Journ. Bot. 293. 1874 ; Hook. f. Fl. Brit. India 6 : 344. 1892 ; Collett, Fl. Simi. 526. 1902 ; Nair, Fl. Bash. Himal. 293. 1977.

Herbs with clustered bulbs. Scapes acutely angled. Flowers white, stellate.

Fl. & Fr. : May October.

Chamba (BSD, DD), Kinnaur (DD), Kulu (DD), Simia (BSD, DD).

Temperate Himalaya.

Allium cepa L. sp. Pl. 300. 1753 ; Hook. f. Fl. Brit. India 6 : 337. 1892.

Onion.

Fl. & Fr. : April - September.

Kangra (RRL).

Cultivated throughout India.

Allium lilacinum Royle ex Regal. All. Monogr. 89. 1874 ; Hook. f. Fl. Brit. India 6 : 339. 1852 ; Collett, Fl. Simi. 525. 1902 ; Nair, Fl. Bash. Himal. 283. 1977.

Bulbs solitary. Leaves and scapes teret. Flowers bell shaped, pale red.

Fl. & Fr. : May September.

Lahul and spiti (DD), Simia (DD).

Western Himalaya.

Allium prattii C. H. Wright in Foreb & Hemsley in Journ. Linn. Soc. Bot. 36 : 124. 1903. *Allium victorialis* (auct non L.) Baker in Journ. Bot. 12 : 291. 1874 ; Hook. f. Fl. Brit. India 6 : 342. 1892 ; Nair, Fl. Bash. Himal. 283. 1977.

Herbs with bulbs clustered on an oblique root stock. Flowers greenish - white or yellowish.

Fl. & Fr. : May October.

Chamba (DD), Kinnaur (DD), Lahul and spiti (BSD), Simia (DD).

Temperate Himalaya.

Allium przewalskianum Regel, Allior. Monogr. 164. 1875. *Allium jacquemontii* Regel l. c. 162. 1875 (non Kunth) ; Hook. f. Fl. Brit. India 6 342. 1892.

Herbs with tufted, elongate bulbs. Flowers campanulate, lilac.

Fl. & Fr. : July September.

Lahul and spiti (BSD).

Western Tibet and Himachal Pradesh.

Allium rubellum M. Bieb. Fl. Taur. Cauc. 1 : 264. 1808 ; Hook. f. Fl. Brit. India 6 : 339. 1892 ; Collett, Fl. Simi. 525. 1902 ; Nair, Fl. Bash. Himal. 293. 1977.

Herbs with solitary bulbs. Leaves and scapes terete. Flowers bell shaped, pink.

Fl. & Fr. : June October.

Chamba (BSD), Kinnaur (BSD, DD), Lahul and spiti (BSD, DD).

North - Western Himalaya.

Allium sativum L. sp. Pl. 296. 1753 ; Hook. f. Fl. Brit. India 6 : 337. 1892.

Garlic.

Fl. & Fr. : June September.

Lahul and spiti (BSD).

Cultivated.

Allium semenovii Regel in Bull. Soc. Mosc. 41(1) : 449. 1868 ; Hook. f. Fl. Brit. India 6 : 338. 1892.

Herbs with tufted, cylindric bulbs. Flowers campanulate, pink or pale purple.

Fl. & Fr. : July October.

Chamba (BSD, DD).

Western Himalaya.

Allium sikkimense Baker in Journ. Bot. 12 : 292. 1874 ; Hook. f. Fl. Brit. India 6 : 341. 1892.

Herbs with tufted, cylindric bulbs. Flowers campanulate, lilac purple.

Fl. & Fr. : July September.

Lahul and spiti (RRL).

Nepal to Sikkim Himalaya and Himachal Pradesh.

Allium stracheyi Baker in Journ. Bot. 12 : 293. 1874 ; Hook. f. Fl. Brit. India 6 : 340. 1892.

Herbs with small, clustered bulbs. Flowers campanulate, rosy pale yellow.

Fl. & Fr. : June September.

Chamba (BSD), Lahul and spiti (DD, RRL).

Western Himalaya.

Allium thomsonii Baker in Journ. Bot. 12 : 294. 1874 ; Hook. f. Fl. Brit. India 6 : 340. 1892 ; Nair, Fl. Bash. Himal. 283. 1977.

Herbs with narrowly ovoid, tufted bulbs. Leaves and scapes teret. Flowers red purple, campanulate.

Fl. Fr. : July September.

Lahul and spiti (BSD).

Western Himalaya.

Allium tuberosum Rottl. ex Sprengel, Syst. Veg. ed. 16. 2 : 38. 1825. *A. tuberosum* Roxb. Fl. Ind. ed. 2. 2 : 141. 1832. non Rottl. ex Sprengel 1825 ; Hook. f. Fl. Brit. India 6 : 343. 1892.

Scapigerous herbs with elongate bulbs. Leaves concave and twisted. Flowers small, white or pink. stellate.

Fl. & Fr. : June August.

Chamba (DD), Kulu (DD).

Himalaya and Assam.

Allium wkllichii Kunth, Enum. Pl. 4 : 443. 1843 ; Hook. f. Fl. Brit. India 6 : 341. 1892 ; Collett, Fl. Simi. 526. 1902.

Herbs with small, clustered bulbs. Leaves narrowly sword shaped. Scapes acutely 3 angled. Flowers stellate, purple.

Fl. & Fr. : June October.

Kangra (DD), Simia (DD).

Temperate Himalaya.

Narcissus tazetta L. sp. Pl. 290. 1753.

Fl. & Fr. : August December.

Kulu (DD), Simia (DD).

Cultivated.

***Zephyranthes carinata* Herbert in Curtis, Bot. Mag. 52. t. 2594. 1825,**

Fl. & Fr. : July October.

Lahul and spiti (DD).

Cultivated.

Zephyranthes candida Lindl. Bot. Reg. 821. 1824.

Fl. & Fr. : June August.
Kangra (BSD), Simia (DD). Cultivated.

HYPOXIDACEAE

H. J. CHOWDHERY

Curculigo orchioides Gaertn. Fruct. I : 63. t. 13. 1788 ; Hook. f. Fl. Brit. India 6 : 279. 1892.

Herbs with tuberous roots. Flowers sub sessile, lower bisexual and rest all male.

Fl. & Fr. : June - August.

Kulu (DD).

Himalaya Kashmir to Assam.

Hypoxis aurea Lour. Fl. Cochin. 200. 1790 ; Hook. f. Fl. Brit. India 6 : 277. 1892 ; Collett, Fl. Simi. 516. 1902 ; Nair, Fl. Bash. Himal. 281. 1977.

Stemless perennial, hairy herbs with tubers which are covered with black fibres and pale, fleshy roots.

Flowers yellow on thread like scapes. Capsule oblong, crowned by the withered perianth.

Fl. & Fr. : June September.

Chamba (BSD, DD), Kinnaur (BSD, DD), Kulu (BSD, DD), Simia (BSD, DD) .

Sub-tropical Himalaya.

AGAVACEAE

H. J. CHOWDHERY

Agave cantula Roxb. Fl. Ind. ed. 2. 2 : 167. 1832. *A. cantula* Roxb. Hort. Bengal. 25. 1814 (nom. nud) ; Parker, For. Fl. Punj. ed. 3. 511. 1956. *A. americana* auct. (non. L.) Hook. f. Fl. Brit. India 6 : 277. 1892.

Herbs. Leaves in lax rosette, up to 1 m long. Scape with panicle 4 to 6 m high. Bulbils present.

Fl. & Fr. : July September.

Kinnaur (DD), Solan (DD).

North Western Himalaya. Planted and sometimes occur as an escape.

Agave wightii Drumond & Prain in Beng. Agric. Bull. no. 8 : 15 1906 ; Parker, For. Fl. Punj. ed. 3. 511. 1956.

Herbs. Leaves forming a stiff, compact rosette. Bulbils present.

Kangra (Parker, 1956).

Planted and sometimes occur as an escape.

DIOSCOREACEAE

B.M. WADHWA AND H.J. CHOWDHERY

Dioscorea belophylla Voigt ex Haines, For. Fl. Chota Nagpur 530. 1910 ; Parker, For. Fl. Punjab ed. 3. 515. 1956 ; Siddiqi, Fl. west Pakistan 53 : 3. 1973 ; Nair, Fl. Bash. Himal. 281. 1977. *D. glabra* auct. (non Roxb.) Hook. f. Fl. Brit. India 6 : 294. 1892 (in-part).

Climber. Leaves ovate lanceolate. Male spike clustered. Seeds winged all around.

Fl. & Fr. : September November.

Chamba (DD), Mandi (LWG), Bilaspur (LWG), Simia (BSD, DD).

Sub-tropical Himalaya.

Dioscorea bulbifera L. Sp. Pl. 1033. 1753 ; Parker, For. Fl. Punjab ed. 3. 516. 1956 ; Siddiqi in Fl. west Pakistan 53 : 5. 1973 ; Nair, Fl. Bash. Himal. 282. 1977. *D. sativa* auct. (non L.) Hook. f. Fl. Brit. India 6 : 295. 1892 ; Collett, Fl. Simi. 519. 1902.

Glabrous climbers. Flowers in drooping, clustered spikes. Seeds winged at the base.

Fl. & Fr. : July September.

Chamba (UI), Kangra wSw), Kinnaur UDI.), Sinua U.)U, LWV).

Cultivated throughout Northern India.

Dioscorea deltoidea Wall. ex Kunth, Enum. 5 : 340. 1850 ; Hook. f. Fl. Brit. India 6 : 291. 1892 ; Collett, Fl. Simi. 518. 1902 ; Parker, For. Fl. Punjab ed. 3. 514. 1956 ; Siddiqi in Fl. West Pakistan 53 : 5. 1973 ; Nair, Fl. Bash. Himal. 282. 1977.

Climber. Leaves ovate lanceolate, acuminate, base deeply cordate. Male spike paniculate and often branched. Seeds usually winged all around. Fl. & Fr. : May September.

Chamba (BSD, DD), Kinnaur (BSD, DD), Kulu (BSD, CDRI, DD, RRL, LWG), Simia (BSD, DD, LWG).

Temperate Himalaya.

Dioscorea melanophyma Prain & Burkill in Jour. As. Soc. Beng. 4 : 452. 1908 ; Parker, For. Fl. Puniab ed. 3. 515. 1956 ; Siddiqi in Fl. West Pakistan 53 : 3. 1973 ; Nair, Fl. Bash. Himal. 282. 1977. *D. kumaonensis* auct. (non Kunth) Hook. f. Fl. Brit. India 6 : 290. 1892 ; Collett, Fl. Simi. 518. 1902.

Climber. Leaves 3 5 foliate. Inflorescence pubescent. Seeds winged at the top.

Fl. & Fr. : July October.

Chamba (BSD), Kinnaur (DD), Kulu (BSD, DD), Simla (BSD, DD).

Temperate Himalaya.

Dioscorea pentaphylla L. Sp. Pl. 1032. 1753 ; Wight, Icon. t. 814. 1844 ; Hook. f. Fl. Brit. India 6 : 289. 1892.

Climber. Stem prickly at the base. Leaves 3 5 foliate, glabrous. Male panicles and flowers glabrous, fragrant.

Fl. & Fr. : August September.

Chamba (DD), Kangra (RRL).

Throughout tropical India.

LILIACEAE

H.J. CHOWDHERY

Asparagus adscendens Roxb. Fl. Ind. 2 : 153. 1832 ; Hook. f. Fl. Brit. India 6 : 317. 1892 ; Collett, Fl. Simi. 523. 1902 ; Parker, For. Fl. Punj. ed. 3. 519. 1956 ; Nair, Fl. Bash. Himal. 284. 1977.

Tall, stout, suberect, smooth, white, creeping herbs with straight spines. Cladodes densely crowded in tufts. Flowers in numerous racemes.

Fl. & Fr. : August November.

Kangra (DD, RRL), Kinnaur (DD), Mandi (BSD, BSIP), Solan (RRL).

Western Himalaya.

Asparagus filicinus Buch. Ham. ex D. Don, Prodr. Fl. Nepal. 49. 1825 ; Hook. f. Fl. Brit. India 6 : 314. 1892 ; Collett, Fl. Simi. 523. 1902 ; Parker, For. Fl. Punj. ed. 3. 520. 1956 ; Nair, Fl. Bash. Himal. 284. 1977.

Tall, erect, unarmed shrubs. Cladode curved, flat. Flowers single or in pairs.

Fl. & Fr. : May September.

Chamba (DD), Kinnaur (BSD, DD), Kulu (DD), Mandi (LWG), Simia (DD, LWG).

Temperate and tropical Himalaya.

Asparagus gracilis Royle, Ill, Bot. Himal. Mount. 393. 1840 ; Hook. f. Fl. Brit. India 6 : 315. 1892 ; Collett, Fl. Simi. 523. 1902 ; Parker, For. Fl. Punj. ed. 3. 519. 1956 ; Nair, Fl. Bash. Himal. 284. 1977.

Tall, much branched undershrubs with prickly lower branches. Cladode straight, stiff. Flowers in clusters. Fl. & Fr. : May October.

Kinnaur (BSD, DD), Kulu (CDRI).

North Western India.

Asparagus griffithii Baker in Journ. Linn. Soc. Bot. 14 : 604. 1875 ; Nair, Fl. Bash. Himal. 284. 1977.

Kinnaur (DD).

(Nair, 1977).

Asparagus neglectus Kar. & Kir. in Bull. soc. Nat. Mosc. 14 48. 1844.

Climbing shrubs.

Fl. & Fr. : June September.

Kinnaur (DD).

Temperate and tropical Himalaya.

Asparagus omcinalis L. Sp. Pl. 313. 1753 ; Parker, For. Fl. Punj. ed. 3. 520. 1950 ; Nair, Fl. Bash. Himal. 284. 1977.

Climbing shrubs. Perianths greenish yellow.

Fl. & Fr. : June September.

Chamba (DD), Kinnaur (BSD).

Cultivated as vegetable in gardens.

Asparagus racemosus Willd. Sp. Pl. 2 : 152. 1799 ; Hook. f. Fl. Brit. India 6 : 316. 1892 ; Collett, Fl. Simi. 523. 1902 ; Parker, For. Fl. Punj. ed. 3. 519. 1956.

Tall, scandent, woody, climbing, excessively branched undershrubs. Spines recurved. Cladode curved, terete. Flowers in racemes.

Fl. & Fr. : April — August.

Sirmur (BSD).

Throughout tropical and subtropical parts of India.

Asphodelus tenuifolius Cav. in Anal. Cienc. Nat. 3 : 46. t. 27. 1801 ; Hook. f. Fl. Brit. India 6 : 332. 1892 ; Collett, Fl. Simi. 524. 1902 ; Nair, Fl. Bash. Himal. 285. 1977.

Erect, glabrous herbs. Leaves radical, linear. Flowers racemed, greenish white.

Fl. & Fr. : July October.

Simia (DD).

Throughout the plain and hills of India.

Campylandra aurantiaca Baker in Journ. Linn. Soc. Bot. 14 : 582. t.

20. 1875. *Tupistra aurantiaca* (Baker) Wall. ex Hook. f. Fl. Brit. India 6 : 325. 1892.

Herbs with long, stout roots. Leaves flaccidly coriaceous, sessile. Flowers in spike, yellow.

Fl. & Fr. : June September.

Kinnaur (BSD).

Himachal Pradesh, Nepal and Eastern Himalaya.

Cardiocrinum giganteum (Wall.) Makino in Bot. Mag. Tokyo 27 : 125. 1913. *Lilium giganteum* Wall. Tent. Fl. Nepal. 21. t. 12 13. 1824; Hook. f. Fl. Brit. India 6 : 349. 1892 ; Collett, Fl. Simi. 527. 1902 ; Nair, Fl. Bash. Himal. 286. 1977.

Very tall herbs with tufted bulbs and hollow, tapering upward stems. Leaves broadly cordate ovate. Flowers in racemes, purple white.

Fl. & Fr. : May August.

Kinnaur (DD), Kulu (DD), Simia (DD).

Temperate Himalaya.

Clintonia udensis Trautv. & Meyer var. *alpina* (Kunth ex Baker) Hara in J. Jan- Rot. -3R -- . . .• 72- 1963. *Clintonia alninn* Kunth (Fnum. Pl. 5 : 159. 1850 nom. nude) ex Baker in Journ. Linn. Soc. Bot. 14 : 585. 1875 ; Hook. f. Fl. Brit. India 6 : 361. 1892.

Herbs with creeping root - stocks and narrow, costate leaves. Flowers loosely racemose, white.

FL & Fr. : May - September.

Kangra (DD).

Temperate Himalaya.

Colchicum luteum Baker in Gard. Chron. 33. 1874 ; Hook. f. FL Brit. India 6 : 356. 1892.

Herbs with gibbously ovoid corms, coats dark brown. Flowers large, I - 2, golden yellow. Fl. & Fr. : May August.

Chamba (DD).

North Western temperate Himalaya.

Disporum cantoniense (Lour.) Merr. in Philippe J. Sci. 15 : 229. 1920 ; Nair, Fl. Bash. Himal. 285. 1977. *Fritillaria cantoniense* Lour. Fl. Cochin. 1 : 206. 1790. *Disporum pullum* Salisb. in Trans. Hort. Soc. London : 331. 1812 ; Hook. f. Fl. Brit. India 6 : 360. 1892 ; Collett, Fl. Simi. 530. 1902.

Glabrous, erect herbs with creeping root stocks. Leaves alternate, sessile, long - pointed. Flowers white, tinged with green, perianth bellshaped.

Fl. & Fr. : May August.

Kinnaur (DD), Simia (DD).

Temperate Himalaya.

Dipcadi hysudricum (Edgew.) Baker in J. Linn. Soc. Bot. II : 397. 1817 ; Hook. f. Fl. Brit. India 6 : 347. 1892 ; Collett, Fl. Simi. 526. 1902 ; Nair, Fl. Bash. Himal. 285. 1977. *Uropetalum hysudricum* Edgew. in Trans. Linn. soc. Bot. Lond. 20 : 88. 1846.

Glabrous, bulbous herbs. Leaves radical, narrow. Flowers in racemes, with white green streaks. Fl. & Fr. : June August.

Simia (Collett, 1902).

Western Himalaya and Nepal.

Eremurus himalaicus Baker in Journ. Linn. Soc. Bot. 15 : 283. 1876 ; Hook. f. Fl. Brit. India 6 : 332. 1892 ; Collett, Fl. Simi. 525. 1902 ; Nair, Fl. Bash. Himal. 285. 1977.

Glabrous, scapose herbs. Leaves flat. Flowers in dense raceme, white.

Fl. & Fr. .• June September.

Chamba (DD), Kinnaur (BSD, DD), Lahul and spiti (BSD, DD).

Temperate Western Himalaya.

Fritillaria roylei Hook. Icon. Pl. 9 : t. 860. 1852 ; Hook. f. Fl. Brit. India 6 : 353. 1892 ; Collett, Fl. Simi. 528. 1902 ; Nair, Fl. Bash. Himal. 285. 1977.

Glabrous, erect, unbranched, bulbous herbs. Leaves whorled. Flowers solitary or few, nodding, campanulate, yellow green.

Fl. & Fr. : May September.

Chamba (BSD, DD), Kinnaur (BSD,) Kulu (DD), Simia (DD).

Western temperate Himalaya.

Gagea elegans Wall. ex D. Don in Royle, Ill. Bot. Himal. Mount.

1 : t. 95. f. 2. 1839. *Gagea lutea* (auct. non Schultz f.) Hook. f. Fl. Brit.

India 6 : 355. 1892 ; Collett. Fl. Simi. 529. 1902 ; Nair, Fl. Bash. Himal. 286. 1977.

Small, bulbiferous herbs. Leaves lanceolate. Flowers umbellate, yellow.

Fl. & Fr. : April August.

Chamba (BSD, DD), Kinnaur (DD), Kulu (DD), Lahul and spiti (BSD, DD).

Western Himalaya upto Nepal.

Gagea gageoides (Zucc.) Vved. Fl. Turkm. 1. 2 : 261. 1932 ; Nair, Fl. Bash. Himal. 286. 1977. *Bulbillaria gageoides* Zucc. in Abhandl. Akad. Wiss. Bay. 3 : 230. t. 2. f. 1. 1863. *G. persica* Boiss. Diag. ser. 1. 7 : 108. 1846 ; Hook. f. Fl. Brit. India 6 : 355. 1892 ; Collett, Fl. Simi. 529. 1902.

Small herbs with solitary bulbs. Flowers many, cymose.

Fl. & Fr. : May July.

Lahul and spiti (BSD, DD).

Western Himalaya.

Gagea pseudoreticulata Vved. in Fl. Turkm. 1(2) : 268. 1932. *Gagea reticulata* Schult. f. syst 7 : 542. 1829 30 ; Hook. f. Fl. Brit. India 6 : 356. 1892 ; Collett, Fl. Simi. 529. 1902.

Small, glabrous herbs with grass like leaves. Flowers several in umbels, white green.

Fl. & Fr. : April August.

Chamba (DD), Kinnaur (DD).

Western Himalaya.

Gloriosa superba L: Sp. Pl. 305. 1753 ; Hook. f. Fl. Brit. India 6 : 358. 1892 : Collett, Fl. Simi. 530. 1902 : Nair, Fl. Bash. Himal. 286> 1977.

Herbs, climbing with the help of leaves and fleshy, creeping rootstocks. Leaves with cirrhose tips. Flowers solitary, large, yellow bright red, perianth segments crisped waved. Fl. & Fr. : August October.

Simia (DD).

Throughout tropical India.

Hemerocallis fulva (L.) L. sp. Pl. ed. 2. 1 : 462. 1762 ; Hook. f. Fl. Brit. India 6 : 326. 1892 ; Nair, Fl. Bash. Himal. 286. 1977. H. *lilioasph* ~~delus~~ L. var. *fulva* L. sp. Pl. 324. 1753.

Herbs with fleshy root fibres. Leaves costate, narrowly linear. Flowers large, suberect, yellow red to orange yellow.

Fl. & Fr. : May August.

Chamba (DD).

Himalaya and Khasia hills. Cultivated throughout India.

Iphigenia indica (L.) Kunth, Enum. Pl. 4 : 213. 1843 ; Hook. f. Fl. Brit. India 6 : 357. 1892 ; Collett, Fl. Simi. 529. 1902 ; Nair, Fl. Bash. Himal. 286. 1977. *Melanthium indicum* L. Mant. Pl. Alt. 226. 1771.

Erect, leafy herbs with solid bulbs or corms. Flowers few, erect, purple.

Fl. & Fr. : May October.

Chamba (DD), Simia (BSD).

Throughout India.

Lilium nanum Klotzsch in Klotzsch & Garcke in Bot. Reise Pr. Waldemar 53. 1862 ; Hook. f. Fl. Brit. India 6 : 352. 1892. *Nomacharis nana* (Klotzsch) E. H. Wilson, Lil. E. Asia 13. 1925.

Bulbous herbs with linear, grassy leaves. Flowers small, drooping, campanulate, white.

Fl. & Fr. : June August.

Simia (BSD).

Western Himalaya upto Assam.

Lilium nepalense D. Don in Mem. Werner. Nat. Hist. Soc. 3 : 412. 1821 ; Hook. f. Fl. Brit. India 6 : 350. 1892.

Slender herbs. Flowers drooping, sweet scented, orange yellow with purple dots.

Fl. & Fr. : May August.

Chamba (DD).

Western Himalaya upto Assam.

Lilium polyphyllum D. Don ex Royle, Ill. Bot. Himal. Mount. 388. 1839 ; Hook. f. Fl. Brit. India 6 : 351. 1892 ; Collett, Fl. Simi. 527. 1902 ; Nair, Fl. Bash. Himal. 287. 1977.

Tall, bulbous herbs. Leaves sessile, whorled or opposite. Flowers whorled or solitary or in racemes, pale pink.

Fl. & Fr. : June - September.

Chamba (DD), Kinnaur (DD), Kulu (DD), Simia (DD).

Western temperate Himalaya.

Lilium thomsonianum Royle, Ill. Bot. Himal. Mount. t. 92. 1839 ; Hook. f. Fl. Brit. India 6 : 325. 1892 ; Collett, Fl. Simi. 527. 1902 ; Nair, Fl. Bash. Himal. a-I. 1977.

Tall, bulbous herbs with sessile, thin leaves. Flowers numerous in terminal raceme, pale pink or rose-purple, sweet scented.

Fl. & Fr. : April July.

Simia (Collett, 1902).

Western Himalaya.

Lloydia longiscapa Hook. Icon. Pl. 9 : t. 834. 1852. *L. serotina* (auct non L.) Hook. f. Fl. Brit. India 6 : 354. 1892. p.p.

Small, slender herbs with elongate bulbs. Leaves filiform. Flowers white with violet veins or yellow — purple at the base.

Fl. & Fr. : June August.

Simia (BSD).

Alpine Himalaya and Tibet.

Lloydia serotina (L.) Reichenb. Fl. German. Excur. 102. 1830 ; Hook. f. Fl. Brit. India 6 : 354. 1892 p.p. ; Collett, Fl. Simi. 528. 1902 ; Nair, Fl. Bash. Himal. 287. 1977. *Bulbocodium serotinum* L. sp. Pl. 294. 1753. *Lloydia himalensis* Royle, Ill. Bot. Himal. Mount. t. 93. f. 2. 1839.

Small, glabrous herbs with bulbous roots. Flowers 1 to 2, erect, campanulate, white with violet veins.

Fl. & Fr. : May August.

Chamba (DD), Kinnaur (DD), Kulu (DD), Lahul and Spiti (BSD, DD), Simia (BSD, DD).

Alpine Himalaya.

Notholirion thomsonianum (Royle) Stapf. in Kew Bull. 1934 : 95.
1934. *Fritillaria thomsonianum* Royle, Ill. Bot. Himal. Mount. t. 92. f. 1. 1839.
Lilium roseum wall. ex Hook. f. in Curtis Bot. Mag. 79. t. 4725. 1853 : Hook.
f. Fl. Brit. India 6 : 352. 1892 D.n.

Small, bulbous herbs. Flowers rose — pink to pale — lilac.

Fl. & Fr. : April — August.

Chamba (DD), Mandi (DD).

Temperate Himalaya.

Paris polyphylla Smith in Rees, Cyclop. 26 : Paris n. 2. 1813 ;
Hook. f. Fl. Brit. India 6 : 362. 1892 ; Collett, Fl. Simi. 531. 1902 ; Nair,
Fl. Bash. Himal. 287. 1977.

Glabrous, erect, unbranched herbs with thick, creeping root - stocks.
Leaves whorled, long pointed.

Flowers yellow or yellow — green.

Fl. & Fr. : May — September.

Chamba (LWG), Kinnaur (DD), Simia (BSIP, DD).

Temperate Himalaya.

Polygonatum cirrhifolium (Wall.) Royle, Ill. Bot. Himal. Mount.
1 : 380. 1839 ; Hook. f. Fl. Brit. India 6 : 322. 1892 ; Collett, Fl. Simi. 524.
1902 ; Nair, Fl. Bash. Himal. 288. 1977. *Convallaria cirrhifolia* Wall. in Asiat.
Research. 13 : 382. t. 1820.

Weak, flexuous herbs, climbing with the help of the tips of the leaves.
Leaves whorled, sessile. Flowers in racemes, white, tinged with green or
purple.

Fl. & Fr. : May — September.

Kinnaur (BSD, DD), Kulu (BSD, DD, RRL), Simia (DD).

Temperate Himalaya.

Polygonatum geminiflorum Decne. in Jacquem. Voy. Inde Or. 170. t. 179.
1844 ; Hook. f. Fl. Brit. India 6 : 320. 1892.

Tall, puberulous herbs. Leaves membranous, linear - oblong. Flowers
white.

Fl. & Fr. : June — August.

Kulu (DD), Lahul & Spiti (DD).

Western Himalaya.

Polygonatum graminifolium Hook. Icon. Pl. t. 833. 1871 ; Hook. f. Fl. Brit. India 6 : 319. 1892 ; Nair, Fl. Bash. Himal. 288. 1977.

Dwarf herbs with fleshy rootstocks, constricted at the internodes. Flowers violet.

Fl. & Fr. : June — September.

Kinnaur (DD), Lahul and spiti (BSD).

Western Himalaya.

Polygonatum multiflorum (L.) All. Fl. Pedemont. I . 131. 1785 ; Hook. f. Fl. Brit. India 6 : 319. 1892 ; Collett, Fl. Simi. 524. 1902 ; Nair, Fl. Bash. Himal. 288. 1977. *Convallaria multiflora* L. sp. Pl. 315 1753.

Herbs with arching stems. Leaves alternate, oblong - ovate. Flowers few in a raceme, white to greenish — yellow.

Fl. & Fr. : May — September.

Chamba (DD), Kinnaur (BSD, DD), Lahul & spiti (DD), Simia (BSD, DD).

Western temperate Himalaya.

Polygonatum verticillatum (L.) All. Fl. Pedemont. I • 131. 1785 ; Hook. f. Fl. Brit. India 6 : 321. 1892 ; Collett, Fl. Simi. 524. 1902% Nair, Fl. Bash. Himal. 288. 1977. *Convallaria verticillata* L. sp. Pl. 315. 1753.

Tall, angled, grooved herbs. Leaves in whorls, sessile. Racemes 2 — 5 flowered, greenish white.

Fl. & Fr. : May — September.

Chamba (BSD, DD, RRL), Kinnaur (BSD, DD), Kulu (BSD, DD, RRL), Lahul and spiti (BSD, DD).

Temperate Himalaya.

Polygonatum verticillatum (L.) All. var. *gracile* Baker ex Aitch. in Journ. Linn. Soc. Bot. 18 : 103. 1880.

Fl. & Fr. : June September.

Kinnaur (DD).

Temperate Himalaya.

Smilacina purpurea Wall. Pl. Asiat. Rar. 2 : 38. t. 144. 1831. *Smilacina pallida* Hook. f. Fl. Brit. India 6 : 323. 1892 (p.p. non Royle) ; Collett, Fl. Simi. 524. 1902 ; Nair, Fl. Bash. Himal. 289. 1977.

Stout herbs with creeping rootstocks. Leaves alternate, lower side pale — pubescent.

Fl. & Fr. : April — August.

Chamba (DD), Kinnaur (DD), Kulu (DD), Simia (DD).

Temperate Himalaya.

Smilax aspera L. sp. Pl. 1028. 1753 ; Hook. f. Fl. Brit. India 6 : 306. 1892 ; Collett, Fl. Simi. 521. 1902 ; Parker, For. Fl. Punj. ed. 3. 517. 1956 ; Nair, Fl. Bash. Himal. 289. 1977.

Climbing, large, prickly shrubs with grooved, zigzag branches. Leaves sometimes with prickly teeth on the margins and bearing a pair of long tendrils near the base. Flowers small, white, fragrant. Berry blueblack when ripe.

Fl. & Fr. : May September.

Chamba (DD), Kangra (DD), Kinnaur (DD), Kulu (DD), Mandi (LWG), Simia (BSD, DD).

Throughout India.

Smilax glaucophylla Klotzsch in Klotzsch & Garcke, Bot. Reise Pr. Waldemar. 45. t. 91. 1862 ; Nair, Fl. Bash. Himal. 289. 1977. *Smilax parvifolia* Wall. ex Hook. f. Fl. Brit. India 6 : 304. 1892 ; Collett, Fl. Simi. 521. 1902 ; Parker, For. Fl. Punj. ed. 3. 518. 1956. *Smilax elegans* Wall. ex Kunth, Enum. Pl. 5 : 163. 1850.

Slender, terete, smooth, unarmed herbs. Leaves thin, highly reticulate. Flowers minute, purple.

Fl. & Fr. : May — September.

Chamba (BSD, DD RRL), Kangra (RRL), Kinnaur (BSD, DD, RRL), Kulu (DD, RRL), Simia (BSD, DD).

Temperate Himalaya.

Smilax menispermoidea A. DC. Monogr. Phan. I : 108. 1878. *Smilax elegans* Wall. ex Hook. f. Fl. Brit. India 6 : 305. 1892 (non Wall. ex A. DC.).

Smooth, slender, teret, small shrubs.

Fl. & Fr. : May — August.

Chamba (DD), Kulu (DD).

Temperate Himalaya.

Smilax ovalifolia Roxb. ex D. Don, Prodr. Fl. Nepal. 49. 1825. *Smilax macrophylla* Roxb. Fl. Ind. ed. Carey, 3 : 793. 1832 (non Willd.) ; Hook. f. Fl. Brit. India 6 : 310. 1892 ; Parker, For. Fl. Punj. ed. 3. 516. 1956.

Stout, scandant, prickly shrubs. Leaves glossy above.

Fl. & Fr. : May - July. Simia

(DD).

Tropical Himalaya.

Smilax vaginata Decne. in Jacquem. Voy. Bot. 4 : 169. 1844 ; Hook. f. Fl. Brit. India 6 : 305. 1892 ; Collett, Fl. Simi. 521. 1902 ; Parker, For. Fl. Punj. ed. 3. 518. 1956 ; Nair, Fl. Bash. Himal. 289. 1977.

Smooth, unarmed shrubs. Leaves without tendrils. Flowers minute, purple.

Fl. & Fr. : May — September.

Kinnaur (DD), Simia (LWG).

Western Himalaya.

Theropogon pallidus (Kunth) Maxim. in Bull. Acad. Imp. Sci. St. Petersb. 15 : 90. 1871 ; Hook. f. Fl. Brit. India 6 : 324. 1892. *Ophiopogon pallidus* wall. ex Kunth, Enum. Pl. 5 : 300. 1850.

Herbs with thick root - fibres. Leaves radical, erect, recurved, grassy. Flowers in terminal racemes, drooping, white, tinged with pink.

Fl. & Fr. : June — August. Chamba

(DD).

Temperate Himalaya.

Trillidium govanianum (D. Don) Kunth, Enum. Pl. 5 : 120. 1850. *Trillium govanianum* Wall. ex D. Don in Royle, Ill. Bot. Himal. Mount. 384. t. 93. f. 1. 1839 ; Hook. f. Fl. Brit. India 6 : 361. 1892 ; Collett, Fl. Simi. 531. 1902 ; Nair, Fl. Bash. Himal. 289. 1977.

Glabrous herbs with creeping root stocks and erect, unbranched stems. Leaves 3, in a whorl at the top of the stem with a solitary flowers in the centre. Flowers lurid purple.

Fl. & Fr. : May — September.

Chamba (BSD, DD), Kangra (DD), Kinnaur (BSD, DD), Kulu (DD), Lahul and spiti (BSD), Simia (DD).

Temperate Himalaya.

Tulipa Hook. f. Bot. Mag. t. 2762. 1827 ; Hook. f. Fl. Brit. India 6 : 355. 1892 ; Collett, Fl. Simi. 528. 1902 ; Nair, Fl. Bash. Himal. 290. 1977.

Glabrous, bulbous herbs. Leaves linear, acute, channelled. Flowers terminal, usually one, white, tinged with red and base yellow inside.

Fl. & Fr. : May — August.

Simia (BSD, DD).

Western Himalaya.

Urginea indica (Roxb.) Kunth, Enum. Pl. 4 : 333. 1843 ; Hook. **f.**
Fl. Brit. India 6 : 347. 1892 ; Collett, Fl. Simi. 526. 1902. *Scilia indica* Roxb.
Fl. Ind. ed. Carey 2 : 147. 1832.

Glabrous, bulbous, scapigerous herbs. Leaves radical, linear, flat. Flowers drooping, in a terminal raceme, white with green ribs.

Fl. & Fr. : May - July.

Simia (DD).

Western Himalaya and Nepal.

Yucca gloriosa L. sp. PI 319. 1753.

Shrubs. Leaves leathery with pointed apex. Flowers white, in a crown like inflorescences.

Fl. & Fr. : August — October.

Kulu (BSD).

Cultivated and also as an escape.

HAEMODORACEAE

B.M. WADHWA AND H.J. CHOWDHERY

Aletris pauciflora (Klotz.) Hand. Mazz. Symb. Sin. 7 : 1120. 1936.
Stachyopogon pauciflorus Klotz. in Klotz. and Garcke, Bot. Reise Waldemar.
49. t. 94. 1862. *Aletris nepalensis* Hook. f. Fl. Brit. India 6 : 264. 1892 ; Collett,
Fl. Simi. 514. 1902 ; Nair, Fl. Bash. Himal. 280. 1977.

Small, scapose herbs. Leaves radical, grass — like. Scape tomentose near the top. Flowers white or pale — pink. Seeds minute.

Fl. & Fr. : June — September.

Chamba (BSD), Kinnaur (BSD, DD), Kulu (BSD, DD), Lahul and spiti (BSD, DD), Simia (BSD, DD).

Temperate and alpine Himalaya.

Liriope graminifolia (L.) Baker in Journo Linn. Soc. Bot. 17 : 499. 1879.
Ophiopogon graminifolia L. Sp. Pl. ed. 2. 450. 1762.

Fl. & Fr. : June - July.

Simia (DD).

Himalaya.

Ophiopogon intermedius D. Don, Prodr. Fl. Nepal. 48. 1825 ; Hook. f. Fl. Brit. India 6 : 269. 1892 ; Collett, Fl. Simi. 541. 1902 ; Nair, Fl. Bash. Himal. 280. 1977. *Mondo intermedium* (D. Don) L.H. Bailey, Gentes Herb. 2 : 25. t. 12. 1929. *Mondo wallichianum* (Kunth) L.H. Bailey, Gentes Herb. 2 : 21. t. 11. 1929. *Flueggea wallichiana* Kunth, Enum. Pl. 5 : 303. 1850.

Scapigerous herbs with short stem. Leaves tufted, linear, margins minutely toothed. Flowers white, tinged with lilac. Seeds bright blue.

Fl. & Fr. : June — August.

Chamba (BSD), Kangra (BSD), Kinnaur (DD), Kulu (BSD, DD), Simia (BSD, DD, LWG).

Throughout Inma.

PONTEDERIACEAE

B.M. WADHWA AND H.J. CHOWDHERY

Monochoria hastata (L.) Solms. in A. DC. Mono. Phan. 4 : 523. 1883 ; Baker in Fl. Male. Ser. 1. 4L258. f. 1. 1951 ; Subramaniam, **Aqu. Angios.** 69. 1962. *Pontederia hastata* L. Sp. Pl. 288. 1753. *Monochoria hastaefolia* Presl, Rel. Haenk. 2 : 128. 1827 ; Hook. f. Fl. Brit. India 6 : 362. 1892.

Aquatic herb with spongy root stock. Flowers violet — blue, dotted with red, filaments squarred. Anthers blue and yellow.

Fl. & Fr. : July — September.

Kangra (DD).

Common throughout India

COMMELNACEAE

H.J. CHOWDHERY AND B.M. WADHWA

Commelina beghalensis L. Sp. Pl. 41. 1753 ; Clarke in A. DC. Monog. Phan. 3 : 159. 1881 ; Hook. f. Fl. Brit. India 6 : 370. 1894 ; M. Quaiser and S.M.H. Jafri in Fl. West Pakis. 84 : 10. 1975 ; Collett, Fl. Simi. 532. 1902 ; Nair, Fl. Bash. Himal. 190. 1977.

Herb. Flowers pale — blue, one petal is nearly white. Capsule 5 — seeded with wrinkled seeds.

Fl. & Fr. : July — October.

Chamba (BSD, DD), Kangra (BSD), Kinnaur (BSD, DD), Simia (BSD).

Throughout India.

Commelina paludosa Bl. Enum. Pl. Jav. I : 2. 1827 ; Rao in Notes ROY. Bot. Gard. Edinb. 25 : 181. 1964 ; M. Quaiser and S.M.H. Jafri in Fl. west Pak. 84 : 12. 1975 ; Nair, Fl. Bash. Himal. 290. 1977. *C. obliqua* auct. (non vahl) Ham. ex. D. Don, Prodr. Fl. Nep. 45. 1827 ; Hook. f. Fl. Brit. India 6 : 372. 1874 ; Collett, Fl. Simi. 532. 1902.

Herb. Leaves sessile. Flowers pale — blue. Capsule 3 — seeded, with minutely dotted seeds.

f, • —

QentemherChamba (BSD).

Throughout India.

Commelina paludosa Bl. var. *mathewii* (Clarke) Rolla et Kammathy in Bull. Bot. surv. of India 3 : 168. 1962 ; Nair, Fl. Bash. Himal. 291. 1977. *C. obliqua* Buch. — Ham. ex D. Don var. *mathewii* Clarke in DC. Mon. Phan. 3 : 878. 1881.

Fl. & Fr. : July — October.

Kulu (BSD), Kinnaur (DD).

Throughout India.

Commelina paludosa Bl. var. *viscida* (Clarke) Rolla et Kammathy in Bull. Bot. Surv. India 3 : 168. 1962. *C. obliqua* Buch. — Ham. var. *viscida* Clarke in DC. Mono. Phan. 3 : 178. 1881.

Fl. & Fr. : June October.

Simia (LWG).

Throughout India.

Cyanotis cristata (L.) Schul. f. Syst. 7 : 1150. 1830 ; Clarke in DC. Monogr. Phan. 3 : 247. 1881 ; Hook. f. Fl. Brit. India 6 : 385. 1892 ; Collett,

Fl. Simi. 534. 1902 ; M. Quaiser & S.M.H. Jafri in Fl. west Pakistan 84 : 7.
1975 ; Nair, Fl. Bash. Himal. 291. 1977. *Commelina*

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crinata L. Sp. Pl. 42. 1753. *Tradescantia cristata* (L.) Jacq. Hort. Vindob 2 : 67. t, 137. 1844. *T. imbricata* Roxb. Fl. Ind. 2 : 120. 1824.

Herb. Leaves sessile. Flowers blue.

Fl. & Fr. : August — October.

Chamba (DD), Kangra (BSD), Kinnaur (BSD, DD).

Throughout tropical India.

Cyanotis vaga (Lour.) J.A. & J.H. Schultes, Syst. Veg. 7 : 1153. 1830 ; Rao in Notes Royl. Bot. Gard. Edin. 25 : 186. 1964 ; Nair, Fl. Bash. Himal. 291. 1977. *Tradescantia vaga* Lour. Fl. Cochinch. I : 193. 1790. *Cyanotis barbata* D. Don, Prodr. Fl. Nepal. 46. 1825 ; Hook. f. Fl. Brit. India 6 : 385. 1892 ; Collett, Fl. Siml. 534. 1902. *Tradescantia radicans* Royle, Illustr. Bot. Himal. Mount. 403. 1839.

Herb. Stems often tufted, hairy. Flowers dark — blue. Capsule quadrate. Seeds brown.

Fl. & Fr. : July — October.

Kulu (BSD).

Sub-tropical Himalaya.

Floscopa scandens Lour. Fl. Cochinch. I : 193. 1790 ; Hook. f. Fl. Brit. India 6 : 390. 1892. *Dithyrocarpus rothii* Wight, Icon. t. 208. 1839.

Herb with stout, erect stem. Flowers small, subglobose, white or rosy. Capsule compressed with glaucous seeds.

Fl. & Fr. : September — October.

Kangra (DD).

Throughout tropical India.

Murdannia divergens (Clarke) Bruckn. in Engler & Prantle, Pflanzenfam. ed. 2. ISA : 159. 1830 ; Nair, Fl. Bash. Himal. 291. 1977. *Aneilema divergens* Clarke, Comm. & cyrt. Beng. t. 16. 1874 ; Hook. f. Fl. Brit. India 6 : 376. 1892 ; Collett, Fl. Simi. 533. 1902.

Herb. Panicle terminal. Bracts persistent. Capsule 3 — angled, seeds yellow.

Fl. & Fr. : August — October.

Simia (DD).

Tropical and subtropical Himalaya.

BOTANICAL SURVEY OF INDIA

Murdannia nudiflora (L.) Brenan in Kew Bull. 1950 : 189. 1952 et in Hutch. & Dalz. Fl. W. & Trop. Afr. ed. 2. 3(1) : 24. 1068 ; M. Quiser & S.M.H. Jafri in Fl. West Pakistan 84 • 6. 1975 ; Nair, Fl. Bash. Himal. 291. 1977. *Commelina nudiflora* L. Sp. Pl. 41. 1753 p.p. *Aneilema nudiflorum* Clarke in DC. Monogr. Phan. 3 : 210. 1811 ; Hook. f. Fl. Brit. India 6 : 378. 1892.

Herb. Panicles terminal, small, compact. Bracts caducus. Flowers crowded.

Fl. & Fr. : August — October.

Kangra (RRL), Kinnaur (BSD).

Thronøhout India.

Murdannia scapiflora (Roxb.) Royle, Illust. Bot. Himal. Mount. 403. t. 95. f. 3. 1839. *Commelina scapiflora* Roxb. Fl. Ind. 1 : 178. 1820.

Fl. & Fr. : June — September.

Kulu (DD).

Throughout India.

Murdannia vaginata (L.) Bruckner in Engl. & Prantle, Planzefam. ed. 2 : 15A : 173. 1930. *Aneilema vaginatum* (L.) R. Br. Prodr. 271. 1810.

Fl. & Fr. : September — October.

Kangra (DD).

Himalaya.

JUNCACEAE

H.J. CHOWDHFRV

Juncus articulatus L. Sp. Pl. 327. 1753. *Juncus lampocarpus* Ehrh. ex Hoffm. Deutsch. Fl. 1800 : 166. 1800 ; Hook. f. Fl. Brit. India 6 : 395. 1892 ; Collett, Fl. Simi. 536. 1902 ; Nair, Fl. Bash. Himal. 292• y//.

Densely tufted, stout herbs, Leaves compressed, acute or terete. Capsule green or brown, oblong — ovoid.

Fl. & Fr. : May — October.

Kinnaur (BSD, DD), Kulu (BSD), Lahul and spiti (BSD, DD), Simia (BSD).

North — Western India and Himalaya.

Juncus bufonius L. Sp. Pl. 328. 1753 ; Hook. f. Fl. Brit.

India 6 : 392. 1892 ; Collett, Fl. Simi. 535. 1902 ; Nair, Fl. Bash. Himal. 292. 1977.

Glabrous, densely clustered, dichotomously branched, pale — green herbs. Leaves setaceous. Cymes numerous. Flowers pale — green. Capsule obovoid, mucronate, pale.

Fl. & Fr. : April – October.

Chamba (BSD, DD), Kinnaur (BSD, DD), Kulu (DD, LWG), Lahu } and spiti (BSD, DD), Mandi (LWG).

Northern India and Himalaya.

Juncus compressus Jacquem. En. Stirp. Vind. 60 & 235. 1762.

Slender, 1 2 leaved, tufted, subcompressed, striate herbs. Capsule 3 - celled, shining.

Fl. & Fr. : June - August.

Chamba (DD), Simia (DD).

Western Himalaya.

Juxus concinnus D. Don, Prodr. Fl. Nepal. 44. 1825 ; Hook. f. Fl. Brit. India 6 : 399. 1892 ; Collett, Fl. Simi. 536. 1902. *J. elegans* Royle ex D, Don in Trans. Linn. Soc. Lond. 18 : 321. 1840 ; Nair, Fl. Bash. Himal. 292. 1977.

Herbs with tuberous root stocks and hollow stem. Leaves flat. Flowers white. Anthers protruding. Capsule ovoid, 3 - sided.

Fl. & Fr. : June — October.

Chamba (BSD, DD), Kinnaur (DD), Kulu (BSD, DD), Simia

Temperate and alpine Himalaya — Kashmir to Sikkim.

~~uncus~~ *glaucus* Ehrh. Beitr. 6 : 83. 1789 ; Hook. f. Fl. Brit. India 6 : 393. 1892 ; Collett, Fl. Simi. 536. 1902 ; Nair, Fl. Bash. Himal. 292. 1977.