CHAPTER VI

ENUMERATION OF SPECIES

I

Note: (* ) Asterisk in the text denotes author's collection number.

Abbreviations:

T -- Temperate
TS -- Temperate, Subalpine
SA -- Subalpine, Alpine
A -- Alpine
Ranunculaceae

Aconitum Linn.

A. heterophyllum Wall. ex Royle

Perennial, erect, leafy, lower leaves petioled, upper ovate-cordate, incised, amplexicaule; racemes panicled, follicles 5; flowers blue. July-August. Open slopes. SA

Tarsar (3962 m) 1608* lower leaves long petioled and 3-lobed, rotundate, Lidderwat (3060 m) 1609* much robust and branched, Sonamarg (2740 m) 790*, Pir Panjal (2900 m) 4000*, 4001*, 4002*; Kongawattan (2900 m) 7*; Aparwat (3940 m) 4301* lower leaves long petioled, 3-5 lobed, deeply incised; Sangam-Amarnath (3500 m) 913*; Barga Maidan (3400 m) 4400*.

A. chasmanthum Stapf ex Holmes

Perennial, erect; leaves palmate-partite, petioled, upper sessile, segments linear; racemes dense, bluish green; ovary with yellow hairs. June-July. Meadowlands. A

Domel (2900 m) 919*, Barga Maidan (3400 m) 4401*.

A. violaceum Stapf

Much robust than A. chasmanthum; leaves petioled, upper sessile, acute; flowers light blue. July-August. Dense slopes. A

Drass (3045 m) 1772*, 1574*; Parakhchak (3500 m) 1607*, 1556*. 
A. laeve  
A. laeve Royle
Perennial, erect, much branched; leaves palmately deeply lobed; helmet with short rounded protuberances; bracts small; follicles 3; flowers dull purple.
July-August. SA
Domel-Sangam (2900 m) 914*; Sarbal (2850 m) 783*, 784*; Khillanmarg (2950 m) 2027*.

Actaea Linn.
A. spicata L.
Erect perennial; leaves alternate, acute, ternately compound; flowers small, white; fruit a berry.
May-July. Moist shady slopes. SA
Sonamarg (2740 m) 450*, 449*, 448*; Gulmarg (2653m) 486*.

Adonis Linn.
A. chrysocvathus Hook.f. & Thoms.
Perennial, rootstock scaly; radical leaves petioled, compound, segments linear, crenate; flowers bright yellow. May-July. Open slopes. A
Panchtarni (3300 m) 913*; Aharwat slopes (3800 m) 2028*; Damamsar (4000 m) 4500*.

Anemone Linn.
A. falconeri Thoms.
Rootstock fiberous; radical leaves many, long petioled, 3-partite, segments ovate-cuneate; flowers small, white, single per scape.
May-June. Shady slopes. T3
Bovjan (2700 m) 1457*.
A. obtusiloba D. Don

Perennial; stem softly hairy; leaves deeply divided into 3 segments, lower petioled; scape single flowered, white (varies) with a purple spot. The height of the plant remarkably decreases with the increasing altitude. Meadowlands. TSA-Lidderwat (3048 m) 764*, Sonamarg (2740 m) 784*, Khilanmarg (2950 m) 276*, 496*, 479*; Arizal-Tosmaidan (2900 m) 1201* glabrate, 1194*; Ledwas (3140 m) 1464* densely wooly; Dara (2255 m) 659*; Duksum (2438 m) 399*, 401*, 400* quite a robust specimen, wooly more prominent on the leaf margin; Bovjan (2700 m) 796*; Mahinag (3800 m) 3*; Pir Panjal (3000 m) 1386*.

A. tetrasepala Royle

Woody rootstock; erect perennial, glabrate; leaves 5-lobed; flowers in simple or compound umbels, white; achenes obovate with an incurved beak. June-July. Amongst junipers or shady slopes. A Sarbal (2850 m) 737* beak slightly incurved; Naginbal (3220 m) 4501* achenes wider than in 787*; Pir Panjal (3020 m) 1302*, 1359* double umbel.

Aquilegia Linn.

A. fragrans Benth.

Tall semiglabrous annual; flowers cream coloured, sweet scented; spur not incurved. June-July.
Shady slopes. SA
Sonamarg (3000 m) 789*, Baltal (2600 m) 2065*, Shikargah (2400 m) 729*, Sangam-Amarnath (3500 m) 933*, Naginbal (3220 m) 4503* flowers purple; Damamsar (3700 m) 4504*, 4505*; Bovjan (2600 m) 610*, 609*, 1480* quite glaucous; Naranag (2500 m) 1444*, 1445*; Pir Panjal (3100 m) 1304*, 1376*.

*A. moorcroftiana* Wall. ex Royle
Glabrous; sepals ovate, obtuse; spur short, obtuse, slightly incurved; flowers purple. June-July.
Open slopes. SA
Ledwas-Mahdev (3600 m) 666*.

*A. nivalis* Benth.
Glabrous; stem short; radical leaves ternately compound, much dissected, segments obtuse; sepals ovate; spur variable, incurved. June-July. Open slopes. SA
Apharwat (3940 m) 461*, Pir Panjal (3202 m) 1303* scape with compound subsessile leaves, 1385*.

*Callianthemum C.A.Mey.*

*C. pimpinelloides* (D.Don ex Royle) Hook. f. & Thoms.
Densely tufted, glabrous; roots fibrous; leaves dense, petioled, 2-3 pinnate, segments orbicular, acute; flowers pale with orange nectar. May-June.
Meadowlands. SA
Gulmarg (2600 m) 230*, 1117*; Ledwas (3140 m) 1463*.
Caltha Linn.

*C. palustris* L. var. *alba* (Jacq. ex Gamb.) Hook. f. & T. Rootstock densely fibrous; radical leaves long petioled, finely toothed, upper sessile; flowers white. May-July. Along streams and wetlands. T3A Sonamarg (2900 m) 444*; Gulmarg (2700 m) 256*; Ledwas (3145 m) 1467*; Dara (2270 m) 332*, 333* dentations coarse, aristate; Zaffarkhani Nullah (2200 m) 1517*; Duksum (2500 m) 397*, 419*; Kongawattan-Kounsernag (2800 m) 4*.

Cimicifuga Linn.

*C. foetida* Linn.

Erect perennial herb; leaves ternately compound; flowers small; fruits many seeded; follicles with a curved beak. June-July. Shady slopes. SA Bovjan (2700 m) 613*; Kongawattan (2700 m) 8*, 9*.

Clematis Linn.

*C. connata* DC.

A large woody climber; leaflets 3, ovate-cordate, coarsely serrate; sepals brown, not ribbed, tomentose beneath. Shady slopes. August-September. T3.

Ahrabal (2400 m) 1*, 2*.

*C. orientalis* Linn.

A large woody climber, glabrous; leaflets lanceolate, serrate; sepals ovate, acuminate, hairy on the upper surface; flowers cream coloured. July-August. Open slopes. SA.
Delphinium Linn.

**D. cashmerianum** Royle

Stem glabrous; leaves palmately 3-7 lobed, lobes sharply cut, hairy; flowers in corymbs; spur conical, blue. June-August. Shady slopes. SA

Sanku-Panikar (2950 m) 1526*, 1527*; Sangam - Amarnath (3580 m) 916*, 921* leaves much hairy, deeply cut; Mahinag-Kounsernag (3800 m) 6*.

**D. denudatum** Wall. ex Hook.f. & Thoms.

Tall, glabrous, branched; cauline leaves petioled, segments linear, acute; flowers blue. June-July. Shady slopes. S

Baltal-Sangam (2700 m) 1016*, Dara (2270 m) 608*.

**D. roylei** Munz

Stem hoary; leaves subsessile, segments multifid; spur straight; flowers deep blue. Open slopes. A

Amarnath (4000 m) 2066*

Paeonia Linn.

**P. emodi** Wall. ex Hook.f.

Erect perennial herb; leaves alternate, compound, leaflets entire, glabrous; sepals rounded, persistent; flowers yellowish white. Open slopes. May-June. SA

Gulmarg (2800 m) 604*, 605*, 606*. Pir Panjal (3000 m) 1321*
Ranunculus Linn.

*R. brotherusii* Freyn.
Diffuse, hairy; radical leaves reniform, upper cauline leaves 3-5 partite; sepals silky; achenes small. Moist open slopes. August-September. A Upshi-Chushul (3520 m) 5009*

*R. hirtellus* Royle
Erect, pubescent; leaves 3-partite; achenes on an oblong receptacle, beaked; flowers yellow. Shady slopes. T3A
Aru-Lidderwat (2508 m) 1611*; Tarsar (3950 m) 1612*, Sonamarg (2300 m) 443*, 4600*, 434*; Amarnath (3600 m) 1030*, Gulmarg (2800 m) 331*, Arizal-Toshmaidan (2300 m) 1190*, Ledwas (3140 m) 1462*, 694*; Pir Panjal (3000 m) 1305*, Duksum (2500 m) 420*, 407*, 408* upper leaves distinctly 5-fid, lanceolate.

*R. laetus* Wall. ex Hook. f. & Thoms.
Stem much branched, hairy; leaves 3-partite; achenes many on a globose head; flowers yellow. May-July. Meadowlands. T3
Aru (2408 m) 768*, Drass (3045 m) 1568*.

*R. pulchellus* C.A. Mey.
Erect, glabrous; leaves elliptic-oblong to oblong-lanceolate, entire; sepals hairy, black tipped; achenes on an oblong head, glabrous, beak straight; flowers yellow. May-July. Wetlands. SA
Bodhkhbarbu (3305 m) 1*
R. trichophyllus Chaix

Leaves all submerged, multifid, auricles large; flowers small; achenes wrinkled; flowers pale yellow. May–June. Shallow ponds. T3 Arizal-Sikhnag (2600 m) 2025*

Thalictrum Linn.

T. alpinum L. var. microphyllum (Royle) Hand.-Mazz.

Small, slender; leaves all radical, pinnate; racemes lax; achenes few, oblong, beak curved. July–August. Around glaciers. A Nera Pass (4300 m) 11-25777A (Morawetz)

T. minus L. ssp. maius (Crantz.) Rouy & Fouc.

Robust, stem much branched, glabrous; leaflets acute; anthers shortly beaked; flowers yellow. June–July. Rocky crevices. T3 Sonamarg (2900 m) 731*, Arizal (2400 m) 1223*

T. cf. secundum Edgew.

Tall, much branched, glabrous; leaflets obovate, pale beneath, all petioled; anthers shortly beaked. June–July. Open slopes. SA Pir Panjal (3000 m) 4506*

T. vaginatum Royle

Tall, stem glabrous; leaves pinnately decompound, glandular pubescent beneath; achenes strongly ribbed, sessile. June–July. Open slopes. SA Sangam (3400 m) 955*
**Trollius** Linn.

*T. acaulis* Lindl.

Erect perennial; rootstock stout, fibrous; radical leaves long petioled, palmate 5-partite, segments incised; flowers solitary, large, yellow. June-August. Moist slopes. A Tarsar (3962 m) 1613*; Gumri (3380 m) La34*; Apharwat slopes (3700 m) 462*; Ledwas (3140 m) 1466*, 663*.

**BERBERIDACEAE**

**Berberis** Linn.

*B. lycium* Royle

Shrubby; leaves subsessile, narrowly oblong-obovate, mucronate, entire; racemes corymbose, larger than the leaves, drooping. May-July. Open slopes. TS Tangamarg (2150 m) 240*

*B. pachyvacantha* Koehne

Shrubby; leaves subsessile, oblong-obovate, larger than *B. lycium*, obtuse, coarsely serrate; inflorescence not drooping. May-July. Shady slopes. TS Bovjan (2500 m) 1482*

**Epimedium** Linn.
Epimedium Linn.

**E. elatum** Morr. & Decne.
Herbs with a creeping rootstock; leaves 3-5 ternately compound, leaflets oblong-ovate, cordate, spinulous toothed, lateral oblique; flowers yellowish white. Shady situations. TS. Dara (2270 m) 411*; Wangat-Naranag (2500 m) 1430*, 1431*.

Podophyllum Linn.

**P. emodi** Wall. ex Royle
Scapigerous herb; leaves two, long petioled, lobes acutely serrate; sepals deciduous; berry red; flowers creamy white. May-June. Forest shade. TS. Gulmarg (2563 m) 1614*; Bovjan-Ledwas (2500 m) 1456*; Duksurn (2438 m) 409*.

PAPAVERACEAE

Meconopsis Vig.

**M. aculeata** Royle
Prickly perennial; leaves irregularly pinnatifid, segments oblong-lanceolate; flowers bluish purple. June-August. Rocky shade. A Pir Panjal top (3100 m) 1312*.
Papaver Linn.

**P. nudicaule** Linn.
Perennial; radical leaves oblong-obovate, long petioled; sepals densely hairy; flowers orange.
Open slopes. A
Panchtarni (3800 m) 1049*.

**CAPPARIDACEAE**

Capparis Linn.

**C. spinosa** Linn.
Low spreading shrub; leaves simple, orbicular; stipules thorny; flowers white. June-August.
Open slopes. TSA
Khalsi (2945 m) La14*.

**FUMARIACEAE**

Corydalis DC:

**C. adianifolia** Hook. f. & Thoms.
Stems many; leaves pinnate, reniform; racemes many flowered; flowers yellow. July-August. A
Bodhkhbarbu (3305 m) La15*. 
**C. cashmeriana** Royle

Cauline leaves alternate, oblong-lanceolate, subsessile to petioled; flowers lax, sky blue with dark purple tips. June-August. Moist open slopes. 

Ledwas (3140 m) 633*, 634*.

**C. crassissima** Camb.

Stem simple; leaves pinnate, succulent, reniform, 3-lobed; racemes dense flowered; bracts large, obovate-lanceolate, spatulate; flowers yellow. August-September. Scree slopes. 

Amarnath (4200 m) 988*, 1017*.

**C. diphylla** Wall.

Stem simple; leaves opposite to whorled, 2-3 ternately cut, ovate-lanceolate, radical leaves 0; flowers purple with dark tips. May-July. Shady slopes. 

TSA

Bovjan-Ledwas (2900 m) 1477*; Dara (2500 m) 376*; Sonamarg (3000 m) 429*; Gulmarg (2653 m) 1113*, 505*, 232*; Zaberwan (2300 m) 1110*.

**C. quvaniana** Wall. ex Tent.

Stem stout; radical leaves 2-pinnatisect, cauline few, 1-2 leaved; flowers yellow; spur usually equal to petals. May-July. Moist open situations. 

SA

Khillanmarg (3010 m) 652*, 1054*; Bovjan (2900 m) 669*; Duksum (2600 m) 414*, 415*, 416*; Pir Panjal
C. moorcroftiana Wall. ex (Hook. f. & Thoms.)
Stout, erect, branched; leaves 2-3 pinnatisect;
racemes many flowered; bracts large, lanceolate,
SA.
Baltal (2600 m) 982*; Baltal-Sangam (3200 m) 927*;
Barga Maidan (3600 m) 4405*; Khillanmarg (3010 m) 1052*.

C. ramosa Wall.
Weak, branched; leaf segments linear-obovate;
racemes lax; bracts cut into linear lobes;
flowers yellow. SA. June-July. Open slopes.
Sangam-Amarnath (3500 m) 983*; Aru-Lidderwat (2700 m) 1626*;
Tarsar (3600 m) 1627*; Thajwas (3100 m) 312*;
Khillanmarg (2700 m) 274*;
Ahrabal-Kongwattan (2500 m) 10*, 11*.

C. ramosa Wall. var. typica Prain
Leaf segments linear, acute; racemes dense;
flowers yellow. June-July. Open slopes. SA.
Pahalgam (2500 m) 1396*; Ferozpur Nullah (2700 m) 1267*.

C. cf. stewartii Fedde
Weak; leaves pinnate, lobes ovate; racemes lax;
flowers yellow. June-July. Moist situations. A
Drogthalan (3700 m) 4407*; Barga Maidan (3300 m) 4408*.
C. stricta Steph.
Stout, erect, branched; leaves thick, 2-pinnate; racemes branched; flowers yellow. July-August.
Open slopes. A
Thajwas (3010 m) 4315*, 4316*.

C. thyrsiflora Prain
Glabrous, erect; radical leaves glaucous, pinnules petioled; racemes dense; bracts variable; flowers yellow. July-August. Rocky crevices. A
Khillanmarg (2950 m) 4314*.

BRASSICACEAE

Alliaria Linn.
A. petiolata (M. Bieb.) Cav. & Grande
Annual, erect; racemes lax; flowers white; siliqua broadly linear, terete. May-June. Wastelands. T3.
Zaberwan (2000 m) 1095*; Dara (2200 m) 344*, 353*.

Arabidopsis (DC.) Heynch.
A. himalaica (Edgew.) O. E. S.
Perennial, erect, pubescent with ascending branches; leaves coarsely toothed, amplexicaule; racemes bracteate up to the apex. May-June. Open slopes. S A Drass (3045 m) 1543*; Meenamarg (3180 m) La7*, La10*, 1523*; Tarsar (3962 m) 1615*; Sanku-Panikar (3010 m) 1532*; Apharwat slopes (3900 m)
A. mollissima (C.A. Mey.) N. Busch.
Perennial, erect, simple or branched, densely pubescent; leaves coarsly toothed; racemes bracteate but not up to the apex. May-June. Open slopes. SA.

Drass (3100 m) 1541*; Sonamarg (2800 m) 806*, 807*; Sangam (3500 m) 1029*; Baltal (2900 m) 953*; Poshpatri (3850 m) 958*; Tosmaidan (2800 m) 1191*; Naranag (2600 m) 1442*, 1434*.

A. stricta (Camb.) Busch.
Erect annual covered with rough scabrous hairs; lower leaves oblong, spathulate, upper cuneate, sessile or petioled; flowers lilac; pods terete. May-June. Open slopes. SA.

Sonamarg (2800 m) 811*, 804*.

A. thaliana (L.) Heynh.
Erect annual, branched from the base; radical leaves rosulate, cauline leaves few; siliqua upcurved, cylindrical. March-May. Waste places. TS.
Zaffarkhani Nullah (2200 m) 1506*

A. wallichii (Hook. f. & Thoms.) N. Busch.
Erect annual, simple or sparsely branched; basal leaves lyrate-pinnatifid, irregularly toothed; siliqua not ascending. May-June. Dry slopes. SA.
Drass (3045 m) La2*; Sonamarg (2700 m) 2014*.
Arabis Linn.

*A. amplexicaule* Edgew.

Perennial, erect; single flowering stem; basal leaves rosulate, obovate-oblong; siliqua descending. April-May. Open slopes. T3.

Dara (2200 m) 357A*, 335*; Zaberwan (2000 m) 1091*; Naranag (2600 m) 1422*.

*A. nova* Vill.

Tall erect annual; basal leaves few, spatulate, toothed, sessile or shortly petioled; racemes 5-10 flowered; siliqua straight, finely pubescent. April-May. Forest shade. T3.

Zaffarkhani Nullah (2300 m) 1504*; Dara (2200 m) 357*.

*A. pterosperma* Edgew.

Tall perennial; cauline leaves ovate-spatulate, obtuse, laxly hairy, minutely toothed, half amplexicaule, sparsely branched; flowers white. April-June. Open slopes. TSA.

Arizal-Tosmaidan (2900 m) 1196*.

*A. tenuirostris* O.E.S.

Tall perennial, much branched; upper leaves linear-lanceolate; siliqua acute, curved, drooping. May-June. Open slopes. 3A.

Zoji La (3430 m) 1531*, Baltal-Sangam (3400 m) 963*; Gumri (3380 m) La3*.
**A. tibetica** Hook. f. & Thoms.

Low, branched from the base, sometimes spreading, densely hairy; lower leaves ob lanceolate-spathulate, upper lanceolate; siliqua compressed, linear. May-June. Open slopes. SA.

Zoji La (3430 m) 1530*; Gumri (3880 m) La7*; Sarbal (2850 m) 4601*; Aphaswat slopes (3940 m) 262*; Khillanmarg (3500 m) 267*, 268*, 271*.

**DUBIUS**

**A. kashmeriana** Naqshi

Low annual, branched; basal leaves oblong-ovate, glabrous, long petioled, cauline few, long petioled; siliqua ascending. May-June. Meadowlands. SA.

Arizal-Tosmaidan (2800 m) 1224*.

**Barbarea** R.Br.

**B. intermedia** Boreau

Biennial or Perennial, erect, branched; basal leaves from 5-7, lateral lobes and an ovate terminal lobe; siliqua linear, oblong, terete; flowers yellow. May-June. Moist slopes. TS.

Somamarg (2900 m) 439*; Gulmarg (2600 m) 456*; Khillanmarg (2950 m) 272*; Duksum (2438 m) 424*; Kongwattan (3000 m) 16*.

**B. vulgaris** R.Br.

Stout perennial, glabrous, erect, branched; leaves lyrate, stalked, terminal lobes much longer than the lateral lobes; siliqua broad, erect; flowers yellow. May-June. Moist slopes. TS.
Tangamarg (2150 m) 239*; Gulmarg (2600 m) 269*, 508*; Ferozpur Nullah (2500 m) 1233*; Bovjan (2700 m) 239*, 272*; Dara (2200 m) 338*; Duksum (2438 m) 395*; Mahinag (3500 m) 15*.

**Brassica** Linn.

**B. rapa** Linn. ssp. *compestris* (L.) Clapham

Tall annual, root thin; siliqua with a beak as long as the valves; leaves obovate, rotundate, auricled; flowers yellow. May-June. Open fields. T3.

Drass (3045 m) 1563*; Sonamarg (2700 m) 839*.

**B. nigra** Linn.

Annual, bristly hairy below, much branched; leaves pinnatifid, upper smaller; flowers bright yellow; siliqua oblong, valves with mid vein. May-June. Open slopes. 3A.

Khalsi (2945 m) 546A*

**Braya** Sternb. & Hoppe

Small perennial.

**B. oxycarpa** Hook. f. & Thoms.

Small perennial, branched from the base, spreading; cauline leaves lyrate-pinnatifid, upper lobe obtuse; siliqua linear-lanceolate, flattened; flowers white. June-July. Open slopes. 3A.

Thajwas (3300 m) 2031*.

**Capsella** Moench.

**C. bursa-pastoris** Linn.
Erect annual, sparsely hairy; basal leaves rostrate to pinnate, petiolate, upper leaves sessile, sinuate-dentate. April-May. Wastelands. TSA.

Drass (3045 m) 1535*; Parakhchak (3500 m) 1545*.

**Cardamine** Linn.

**G. hirsuta** Linn.

Glabrous, annual; leaflets petioled; flowers small, white. May-June. Open waste places. TS.

Zaffarkhani Nullah (2300 m) 1509*; Dara (2300 m) 363*, 346*.

**C. impatiens** Linn.

Annual, leaflets shortly petioled, petioles auricled; flowers small, white. May-June. Moist open slopes. TS.

Sonamarg (2700 m) 803*; Zaffarkhani Nullah (2300 m) 1513*; Dara (2300 m) 385A*; Duksum (2500 m) 394*.

**C. macrophylla** Willd.

Stout, erect perennial; leaflets ovate-lanceolate; flowers large, white or pink. May-July. Moist open slopes. SA.

Gulmarg (2600 m) 490*, 491*; Sukhnag (2600 m) 1212*, 1209*; Bovjan (2700 m) 349*, 651*, 1484*; Duksum (2500 m) 418*, 422*, 333*, 391*.

**Chorispora** DC.

**G. sabulosa** Camb.

Perennial; leaves pinnatifid, some deeply lobed;
flowers pink or rose; pedicels slender. July-August. Meadowlands. A.
Poshpatri (3300 m) 946*; Drass (3045 m) La8*.

*C. tenella* (Pall.,) DC.
Rough glandular annual; leaves lanceolate, shortly petioled; flowers purple. June-July. Open slopes.

C. 936*.
Panikar (3020 m) 1536*.

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*C. bungeana* Fisch. & Mey.
Perennial; radical leaves strictly rosulate; flowers pink fading to white. July-August. Dry slopes. A.
Meenamarg (3130 m) 2015*.

**Descurainia** Webb & Berth.

*D. sophia* (L.) Webb & Berth.
Erect annual, pubescent; leaves pinnatisect; flowers small, yellow or pale. April-May.
Wastelands. T3.
Sankoo-Panikar (2930 m) 1537*.

**Draba** Linn.

*D. altaica* (C.A.Mey,) Bunge
Small, stiffly ciliate; flowers white; pods ovate. July-August. Open meadows. A.
Poshpatri (3800 m) 2033*; Alipathar Lake (3800 m) 1951*, 4309*. 
**D. falconeri** (C.B.Cl.) O.E.S.
Erect, biennial, pubescent; stem simple; leaves ovate-lanceolate, toothed; flowers white, large.
July-August. Open slopes. A.
Damamsar (4000 m) 4514*, 4515*.

**D. lasiophylla** Royle
Stem sparsely leafy; pods elliptic-lanceolate; flowers small, white or pale. June-July. Meadowlands. A.
Meenamarg (3180 m) 1547*.

**D. oreades** Schrenk
Perennial; leaves densely rosulate, pubescent; flowers yellow. August-September. Open slopes. A.
Poshpatri (3300 m) 967*; Alipathar lake (3800 m) 1050*.

**D. stenocarpa** Hook.f. & Thoms.
Stem simple; radical leaves rosulate, cauline few, lanceolate, sessile; flowers pale yellow.
July-August. Open slopes. A.
Gumri (3380 m) La5*; Meenamarg (3180 m) La5*.

**Drabopsis** C.Koch

**D. verna** C.Koch
Low annual; stem simple; flowers small white; pods short, terete. May-June. Moist slopes. TS.
Zaffarkhani Nullah (2300 m) 2034*.
Erophila R.Br.

*E. verna* (L.) Besser

An erect slender annual; radical leaves rosulate; pods elliptic with spreading pedicels. April-May. Open slopes. TS.

Zaffarkhani Nullah (2300 m) 1523*, 1508*.

Euclidium R.Br.

*E. syriacum* (L.) R.Br.

Much branched annual with stout old branches; pods long, pitted. June-July. Wastelands. TS.

Sanku-Panikar (3020 m)

Erysimum Linn.

*E. altaicum* C.A.Mey.

Stem stout, angular; leaves sinuate toothed; flowers large, yellow. June-July. Open slopes. SA.

Sonamarg-Baltal (2700 m) 805*; Sarbal (2850 m) 4602*; Wangat-Naranag (2500 m) 1446*; Pir Panjal (3000 m) 4010*, 4011*.

E. hieraciifolium Linn.

Stout unbranched; stem covered by appressed hairs; leaves oblong-lanceolate, toothed; flowers smaller than *E. altaicum*. June-July. Moist situation. SA.

Pahalgam (2200 m) 1394*.

E. melicentae Dunn

Stout, pubescent; stems, leaves with appressed
hairs, lanceolate; flowers twice as long as the pedicels. July-August. Open slopes. A.
Sarbal (2850 m) La4*; Zoji La (3800 m) 1550*;
Bovjan (2700 m) 644*; Ahrabal-Kongwattan (2850 m) 2035*.

**Malcolmia** R.Br.

**M. africana** (L.) R.Br.
Stout, leafy, branched annual; leaves petioled;
pods long, narrow, linear, rough, tapering.
June-July. Dry slopes. A.
Panikar (3020 m) 1539*; Sankoo-Panikar (2930 m) 2036*, 540*; Zoji La (3430 m) 4603*, 1533*;
Fatu La (4110 m) La9*.

**Matthiola** R.Br.

**M. flavida** Boiss.
Perennial, hoary, branched; leaves petioled;
flowers large, purple. Dry slopes. June-July. A.
Saspul (2925 m) La12*.

**Rorippa** Scop.

**R. islandica** (Oed.) Borbas
Erect, branched; leaves pinnatifid; pods cylindric;
flowers yellow. June-July. Wet sandy soils. TSA.
Ferozpur Nullah (2400 m) 1234*; Arizal-Sukhnag (2500 m) 1183*; Kongwattan (2850 m) 19*.

**Sisymbrium** Linn.

**S. brassiciforme** C.A.Mey.
Tall annual, glabrous; leaves lyrate pinnatifid;
pods long, glabrous; pedicels stout. May-June. Moist situations. SA.
Drass (3045 m) 1548*, 1542*; Sonamarg (2700 m) 801*; Parakchak (3500 m) 2037*.

*S. loeselli* Linn.
Tall, annual, erect; leaves lyrate, not auricled; flowers large, yellow; pedicels slender. July-August. Moist shady slopes. SA.
Sarbal (2850 m) L13*; Kongawattan (2850 m) 17*; Verinag (2500 m) 1381*.

*S. wallichii* Hook. f. & Thoms.
Erect annual; leaves linear-lanceolate, basal pinnatifid, hairy; pods curved. June-July. Rocky crevices. A.
Drass (3045 m) L500*.

*Tauscheria* Fischer ex DC;

*T. lasiocarpa* DC.
Branched; leaves auricled with the characteristic incurved pods. June-July. Shady slopes. A.
Panikar (3020 m) 1549*; Parakhchak (3500 m) 2038*; Drass (3020 m) L 501*; Bodhkharchu (3305 m) L6*, La 502*.

*Thlaspi* Linn.

*T. arvense* Linn.
Annual, erect, glabrous; leaves obovate-oblong, toothed, cauline amplexicaule; pods much flattened, flowers white. April-May. Moist situations. TSA.
Drass (3045 m) 1545*; Dara (2270 m) 339*, 360*.

**T. cochlearioides** Hook. f. & Thoms.
Small, glabrous perennial; radical leaves long petioled, orbicular-ovate, cauline half-amplexicaule; flowers white. June-July. Shady slopes. SA.
Sonamarg (2900 m) 447*; Poshpatri (3300 m) 966*, 974*; Amarnath (4200 m) 1033*; Gadsar-Damansar (3300 m) 4516*; Arizal-Tosmaidan (2900 m) 1216*; Aphanwat (3940 m) 264*; Gulmarq (2600 m) 1114*; Zaberwan (2300 m) 1102*; Duksum (2600 m) 425*.
June-July. Shady slopes. SA.

**T. griffithianum** (Boiss.) Boiss.
Almost similar to **T. cochlearioides** except for the cauline leaves which are obovate and the flowers smaller. June-July. Shady slopes. SA.
Aphanwat (3940 m) 263*.

**T. kotschyanum** Boiss. & Hohen.
Short, glabrous, fleshy annual; leaves auricled; pods orbicular-ovobvate; flowers small, white.
May-June. Shady slopes. TS.
Zaffarkhani Nullah (2300 m) 1509*.

Torularia (Cosson) O.B.S.

**T. humilis** (C.A.Mey.) O.B.S.
Hoary, diffuse perennial; radical leaves oblong, cauline petioled; flowers pale. June-July. Open slopes. A.
Gumri (3380 m) 2039*. 
Turritis Linn.

T. glabra Linn.

Very long glabrous annual; pods long, flat.
June-July. Moist situations. SA.
Sonamarg (2800 m) 302*; Wangat- Naranag (2500 m) 1449*.

VIOLACEAE

Viola Linn.

V. biflora Linn.

Low, stemless; leaves reniform, long petioled, crenate; stipules ovate-oblong; spur very short; flowers yellow. June-August. Shady slopes. SA.
Sonamarg (3100 m) 451*; Lidderwat (3200 m) 763*; Above Dara (2500 m) 645*; Gulmarg (2700 m) 477*, 473*; Tosmaidan (2500 m) 1222*; Pir Panjal (2900 m) 7003*, 7004*.

V. patrinii DC.

Low, stemless; stolons absent; leaves oblong-ovate, long petioled, cordate, cuneate, serrate; spur cylindric, obtuse. May-June. Dense slopes. TS.
Above Zaberwan (2400 m) 1112* very long petioled, stigma distinctly 3-lobed, stipules fimbriate; Above Dara (2600 m) 383*; Ledwas (2800 m) 7006*, 677*. 
**V. serpens** Wall. ex Roxb.

Low, sparsely pubescent; leaves ovate-cordate, obtuse, crenate-serrate; stipules fimbriate. May-June. Shady slopes. TS.

Above Zaberwan (2400 m) 1111*; Ledwass (2800 m) 7007*; Gulmarg (2700 m) 236*.

**V. sylvæstris** Lam.

Low, rootstock short; leaves ovate-cordate, crenate; sepals acute; stipules fimbriate; spur saccate. May-June. Shady slopes. TS.

Shikargah (2700 m) 720*; Sonamarg (2900 m) 441*; Ferozpur Nullah (2700 m) 7008*; Above Dara (2500) 381*; Gulmarg (2700 m) 475*; Above Duksum (2700 m) 405*.

**CARYOPHYLLACEAE**

**Arenaria** Linn.

**A. festucoides** Benth.

Densely tufted perennial; leaves crowded, subulate, rigid, recurved; sepals lanceolate, base hardened; seeds flat with a narrow wing. July-August. Open slopes. A.

Drass (3045 m) 1a 174*; Apharwat (3800 m) 1034*. 
A. *foliosa* Royle
Tufted perennial; leaves crowded, linear, flat, subulate; sepals ovate-lanceolate, acuminate, strongly 3-nerved; seeds small. July-September. Open slopes. A.
Meenamarg (3180 m) 1553*, La17*; Drass (3045 m) 1559*, 1583*; Bodhkharbu (3305 m) 6091*; Fatu La La21*, La173* (4110 m); Sangam (3400 m) 1001*, 1003*; Tarsar (3500 m) 6092*; Lidderwat (3200 m) 761*.

A. *neelgherrensis* W. & A.
Annual; stem pubescent, branched; leaves elliptic-ovate; obtuse, mucronate; cymes lax. July-August. SA.
Sonamarg (2900 m) 795*; Sukhnag (2600 m) 1182*.

A. *serpyllifolia* Linn.
Annual, pubescent, branched; leaves ovate, acuminate, sessile; cymes many flowered; seeds tubercled. May-July. Moist slopes. T3.
Dara (2400 m) 356*.

Cerastium Linn.

C. *cerastioides* (L.) Britt.
Tufted perennial; leaves linear-lanceolate, sessile, acute, entire; flowers large, white. July-September. A.
Meenamarg (3180 m) 1552*; Kargil (2595 m) La16*; Aparwat (3900 m) 6090*; Tosmaidan (3200 m) 1217*; Ledwas (3300 m) 662*.
C. divuricum Fisch. ex Spreng.
Tall, glabrous; leaves large, oblong, obtuse, auricled, entire; styles 5; capsule recurved at the tip; pedicels slender. June-August. Along the streamlets. SA.
Sonamarg (2900 m) 799*; Naginbal (3400 m) 6093*.

C. fontanum Baumg. ssp. triviale (Link) Jalas
Erect, pubescent annual; leaves ovate-lanceolate, acute; sepals lanceolate, margins narrowly membranous. May-July. Shady situations. SA.
Duksum (2600 m) 396*.

Cucubalus Linn.

C. baccifer Linn.
A prostrate pubescent annual; leaves membranous, ciliate, ovate, acuminate, petioled; fruit black. June-August. SA.
Shikargah (2700 m) 704*, 717*.

Dianthus Linn.

D. anatolicus Boiss.
Small, slender, densely tufted perennial; leaves very narrow with a thick midrib; flowers rosy. June-August. Dry slopes. SA.
Drass (3100 m) 1581*, Lal9*; Panikar (3020 m) 1505*.

D. jacquemontii Edgew.
Stems tufted, many from the base; rootstock woody; leaves linear-lanceolate, coreaceous, acute; petals deeply toothed, white. May-July. Dry slopes. TS.
Pahalgam (2500 m) 1397*; Ferozpur Nullah (2600 m) 1266*.

**Gypsophila** Linn.

**G. cerastioides** D. Don  
Low, pubescent perennial; leaves ovate-spathulate; cymes lax; petals lilac. July-September. Moist shady slopes. A.  
Tarsar (3400 m) 6094*; Aru-Lidderwat (2900 m) 752*; Pir Panjal (3000 m) 1373*, 1301*.

**Lepyrodicilis** Fenzl  
**L. holosteoides** (C. A. Mey.) Fenzl ex F. & M.  
Tall, flaccid, puberulous herb; leaves linear-oblong, acuminate; cymes few flowered; sepals and petals glandular pubescent. July-August. Moist slopes. SA*  
Sankoo (2905 m) 1587*, 1565*; Drass (3045 m) 1577*, 1569*.

**Lychnia** Linn.

**L. apetala** Linn.  
Short, glandular pubescent; leaves linear-lanceolate; calyx with purple nerves; petals purple. July-August. Open slopes. SA*  
Sarbal (2300 m) 794*; Aparwat (3800 m) 3001*, 6095*; Khillanmarg (3200 m) 1080*.

**L. cashmeriana** Royle ex Benth.  
An erect rigid hoary herb; leaves broadly ovate-lanceolate, acuminate; claw of the petals wooly; carpophore densely wooly. July-August. Open slopes.
A. Mahinag (3700 m) 23*, 22*; Pir Panjal (3000 m) 1226*.

*L. coronaria* (L.) Desr.
Stem softly tomentose, laxly branched; leaves spatulate-lanceolate; petals purple. June-August. Dense slopes. T3.

Bovjan (2700 m) 679*; Ferozpur Nullah (2600 m) 1237*, 1238*.

*Myosoton* Moench

*M. aquaticum* (L.) Moench
Weak ascending annual; leaves ovate-cordate, shortly petioled; petals white. May-June. Wet situations. T3.

Above Dara (2500 m) 351*.

*Pseudostellaria* Pax

*P. himalaica* (Franch.) Pax
Rhizome slender, tuberiferous; leaves elliptic-lanceolate, petioled, entire, pedicel solitary; flowers white. May-July. Shady slopes. SA.

Sonamarg (3100 m) 452*; Bovjan (2700 m) 375*, 672*.

*Silene* Linn.

*S. conoidea* Linn.
Erect annual, glandular pubescent; cauline leaves oblong-lanceolate, acute; flowers panicled; petals pink. July-August. Moist slopes. SA.

Drass (3100 m) 1567*.
**S. moorcroftiana** Wall. ex Benth.

Erect tufted perennial, glandular pubescent; leaves linear-lanceolate; flowers usually 3; calyx tubular, contorted at the base; petals reddish brown. July-September. Dense slopes. A. Panikar (3020 m) 1571*; Drass (3100 m) 1578*; Bodhkarbu (3400 m) L503*, L13*.

**S. tenuis** Willd.

Perennial, stem many from the root, sparsely pubescent; linear-lanceolate, sessile, entire, obtuse; calyx campanulate; petals light-pink. July-August. Open slopes. A. Amarnath (4100 m) 2061*; Apharwat (4000 m) 6095*, 299*.

**S. vulgaris** (Moench) Garcke

Ascending, glaucous perennial; leaves ovate-oblong; cymes many flowered; petals white. June-August. Shady slopes. S.A. Sarbal (2900 m) 800*; Drass (3100 m) 1575*; Gumri (3800 m) L22*; Amarnath (3400 m) 2062*; Naginbal (3700 m) 6096*; Ferozpur Nullah (2600 m) 1245*; Tosmaidan (3100 m) 1202*; Kongwattan (2800 m) 21*.

**S. wahlbergella** Chowdhuri

Erect, puberulous perennial; leaves mostly radical, broadly ovate, acute, cauline few, very small; flowers solitary. June-August. Dense slopes.
Ferozpur Nullah (2600 m) 1290*.

**Spergularia** (Pers.) J. & C. Presl

*S. rubra* (L.) J. & G. Presl

Prostrate, glandular pubescent; leaves linear, opposite; stipules scarious; styles 3. June-July. Moist slopes. 3A.

Sonamarg (2900 m) 798*, 6098*; Above Gulmarg (2300 m) 260*; Gadsar (4100 m) 6097*.

**Stellaria** Linn.

*S. alsine* Grimm

Stem slender, spreading; leaves ovate, acuminate, glabrous to sparsely pubescent; cymes axillary and terminal; petals very small, white. June-August. Moist slopes. T3A.

Sonamarg (2300 m) 7000*, 797*.

*S. media* (L.) Cyr.

Weak, ascending, glabrous; leaves ovate, acuminate; cymes many flowered; sepals green; petals white.

May-August. Moist situations. T3A.

Khalsi (2945 m) La20*.

*S. monosperma* Buch.-Ham. ex D. Don

Tall, erect, glabrous above; gland tipped trichomes above; leaves large, sessile, oblong from a cordate base; flowers small; petals white.

June-August. Moist slopes. 3A.

Naginbal (3400 m) 7001*; Kongwattan (2700 m) 24*.
**HYPERICACEAE**

Hypericum Linn.

*H. perforatum* Linn.

A branched perennial; leaves oblong-ovate; sepals linear, acute; flowers yellow. May-August. Moist slopes. TA.

Sonamarg (2900 m) 791*.

*H. elodioides* Choisy

Stem simple; leaves oblong-ovate, acute, stem clasping; sepals with long gland-tipped teeth. July-September. Open slopes. SA.

Tosmaidan (3100 m) 1226*.

**MALVACEAE**

Lavatera Linn.

*L. kashmiriana* Camb.

Erect, puberulous, branched; lower leaves petioled, orbicular-cordate, upper lobed, lobes acute; corolla purplish pink. Open slopes. SA.

Baltal (3100 m) 931*; Ferozpur Nullah (2700 m) 1258*, 1257*.
LINACEAE

Linum Linn.

L. perenne Linn.

Perennial; stems many from the root, erect; leaves lanceolate, upper linear; petals blue. July-August. Open situations. SA. Drass (3045 m) La25*.

GERANIACEAE

Geranium Linn.

G. collinum Steph. ex Willd.

Branched, sparsely pubescent; leaves 5-7 lobed, upper segment 3-5 lobed; stipules small, linear-lanceolate, acute; sepals awned; flowers light-purple. Shady slopes. July-August. A. Drass (3100 m) 1582*.

G. kishtvariense R. Knuth

Resembles G. rectum but the leaves are large maple-like, sparsely glandular pubescent; flowers pink. June-August. Shady slopes. SA. Khillanmarg (3200 m) 275*.

G. pratense Linn.

Perennial, erect, branched, glandular pubescent;
leaves 6-9 partite, segments acute, incised; pedicels densely hairy; petals large, spreading.
May-July. Open slopes. TSA.
Sangam (3200 m) 931\*; sonamarg (2900 m) 813\*; Bovjan (2600 m) 1458\*.

*G. rectum* Edgew. & Hook.f.
Rootstock thick; stem slender, tall; leaves 7-lobed, acutly incised, hairs prominent on the veins on under surface; stipules lanceolate, acuminate. July-September. Moist slopes. A.
Kolhai (3400 m) 7009\*.

*G. robertianum* Linn.
Stout, branched, glandular pubescent throughout; leaves pinnatifid, deeply dissected, upper surface clothed with shining hairs; stipules ovate, acute; flowers small, pink. June-July.
Shady slopes. SA.
Shikargah (2700 m) 700*, 727*.

*G. wallichianum* D.Don ex Sweet
Tall, much branched, glandular hairy; leaves 5-lobed, segments rhomboid, acuminate; bracts large, ovate; pedicels densely silky. July-August.
Dense slopes. A.
Sangam (3200 m) 1046*; Shikargah (2700 m) 726*; Gulmarg (2900 m) 273*; Pir Panjal (3000 m) 1323*. 
**BALSAMINACEAE**

*Impatiens* Linn.

**I. brachycentra** Kar. et Kir.
Erect, slender, branched, glabrous; leaves petioled, elliptic-ovate, acuminate, crenate serrate; capsule narrow, acute; flowers pale. June-July. Moist slopes. T3A.
Gulmarg (2700 m) 261*; Bovjan (2600 m) 681*.

**I. edgworthii** Hook. f.
Erect, glabrous, branched; leaves elliptic-ovate, acuminate, long petioled; flowers large, yellow. May-June. Moist situations. T3A.
Bovjan (2700 m) 682*, 683*; Ahrabal (2600 m) 27*, 26*, 25*.

**I. glandulifera** Royle
Robust, tall, quite glabrous; leaves elliptic, acuminate, crenate-serrate; flowers large, pink. June-July. Moist slopes. SA.
Gulmarg (2700 m) 259*; Pir Panjal (2800 m) 7010*.

**I. thomsonii** Hk. f.
Erect, simple or branched, glabrous; leaves narrowly ovate, acuminate, crenate-serrate; flowers long, reddish pink. July-August. Moist slopes. A.
Drass (3100 m) 7011*.
RUTACEAE

Dictamnus Linn.

D. albus Linn.
Robust, shrubby herb, clothed with pustular glands throughout; leaflets ovate, acute, serrulate, sessile; flowers large, bluish purple. July-August. Open slopes. SA.
Sarbal (2900 m) 793*, 796*.

Peganum Linn.

P. harmala Linn.
Stout, shrubby; stems many from the base; leaf segments linear, acute; flowers white. May-August. Dry slopes. TSA.
Khalsi (2945 m) La24*.

RHAMNACEAE

Rhamnus Linn.

R. purpureus Edgew.
A tree, branches purplish with white spots; young leaves pubescent beneath, ovate-lanceolate, shortly acuminate, minutely serrulate; fruit shortly pedicelled. Open slopes. TS.
Wangat (2700 m) 1441*, 1420*.
FABACEAE

Astragalus Linn.

A. amherstianus Benth. ex Royle
Low, trailing, herbaceous perennial; leaflets 13-17 with adpressed hairs; stipules lanceolate; flowers yellow. July-August. Moist situations. SA. Upshi (3460 m) 5022*.

A. candolleanus Royle ex Benth.
Woody, short; rachises densely wooly; leaflets 17-25; heads dense. Dry slopes. SA. July-August. Drass-Kargil (3045 m) 5001*.

A. chlorostachys Lindl.
Shrubby perennial, clothed with spreading hairs; 17-21 leaflets; corolla pale green. June-July. Shady situations. TSA. Sarbal (2850 m) 604*, 4605*; Ferozpur Nullah (2500 m) 1253*, 1254*, 1236*; Wangat- Naranag (2500 m) 1447*, 1443*.

A. cicerifolius Royle ex Fisch.
Low, spinescent shrub; leaf rachises elongated; leaflets 31-41; stipules lanceolate; flowers yellow. April-June. Dry slopes, TS. Tangamarg (2150 m) 246*. 
**A. himalayanus** Kl.

Stems elongated; leaflets 21-25; calyx clothed with minute black and white hairs; flowers purple to yellow. June-August. Meadowlands. SA. Sangam (3500 m) 942*; Panikar (3020 m) 1597*; Sankoo (2930 m) 1588*; Drass (3045 m) 1598*; Sonamarg (2900 m) 821*; Lidderwat-Aru (3048 m) 754*; Gadsar (3700 m) 4517*; Pir Panjal (3000 m) 4012*, 4013*; Kongwattan-Kounsernag (2900 m) 28*.

**A. ophiocarpus** Benth. ex Baker

Stem slender, diffuse; leaflets long, emarginate; pods long, slender, sickle shaped, torulose.
June-July. Dry slopes. SA.
Saspul (2925 m) 2040*, 2041*.

**A. peduncularis** Royle ex Benth.

Tall, erect, glabrous or finely pubescent; leaflets 21-25, acute, narrowly oblong; racemes long, dense; pedicels short; flowers pale.
July-August. Shady situations. SA.
Panikar (3020 m) 1551*.

**A. rhizanthus** Royle ex Benth.

Stemless, tufted; stipules with a mat of dense silky hairs, lanceolate; leaflets 31-41; heads dense; pods densely silky, oblong, turgid.
July-August. Open slopes. SA.
Sankoo (2930 m) 1594*; Drass (3045 m) 1595*, 1596*. 
**A. subulatus** Pall.
Stem 2-3 times dichotomously forked; leaflets 9-13, linear; racemes few flowered; pods many seeded; flowers yellow. Dry slopes. SA.
Drass (3045 m) 1599*; Sankoo-Panikar (3020 m) 1562*.

**A. strictus** Grah. ex Benth.
Stem short; leaflets 17-21, oblong, obtuse, covered with adpressed white hairs; heads lax; flowers purple. July-August. Moist open slopes.
SA.
Upshi (3550 m) 5023*.

**A. zanskarensis** Benth. ex Bunge
Low with long spinescent rachises; leaflets 21-25, oblong, obtuse, silky. June-July. Dry slopes.
A.
Fotu La (4110 m) La40*, La 38*.

**Cicer** Linn.

**C. songaricum** Steph. ex DC.
Diffuse annual; stem pubescent; leaflets obovate, cuneate, deeply toothed; pods long. July-August.
Shady situations. A.
Parakhchak (3500 m) 1555*.

**Hedysarum** Linn.

**H. cachemirianum** Benth. ex Baker
Robust; leaflets large, obtuse, membranous, linear-oblong; flowers pinkish red. June-July.
Dry slopes. A.
Sonamarg (2900 m) 822*; Sangam-Amarnath (3000 m) 945*.

*Indigofera* Linn.

*I. hebepeptala* Benth. ex Baker var. hebepeptala
Shrubby; branches glabrescent; leaflets large, oblong, 5-7; racemes lax; flowers crimson-red.
Shady situations. TS.
Bovjan (2700 m) 629*, 630*.

*I. heterantha* Wall. ex Brand.
Shrubby; branches canescent; leaflets small, ob lanceolate, apiculate; racemes distinctly peduncled. May-August. Open slopes. TS.
Sangam (2800 m) 1018*; Narnag (2600 m) 1437*;
Pir Panjal (2800 m) 332*.

*Lathyrus* Linn.

*L. altaicus* Ledeb.
Erect; glabrous, perennial; leaflets 6-8, ob long; flowers few in long peduncled racemes, red.
June-July. Open slopes. A.
Sarbal (2850 m) 818*.

*L. sphaericus* Retz.
Annual; leaflets 2, narrow; flowers solitary; stipules linear, cordate; flowers reddish or yellowish. June-July. Open slopes, SA.
Drass (3404 m) 1584*; Pir Panjal (2900 m) 1333*, 4019*. 
**Lotus Linn.**

*L. corniculatus* Linn.

Herbaceous; leaflets 5, upper three remote from lower two; flowers yellow. Open slopes. TSA.

Sankoo-Panikar (2930 m) 1560*; Baltal (2600 m) 1561*; Ferozpur Nullah (2600 m) 1273*; Wangat-Naranag (2500 m) 1411*; Pir Panjal (2900 m) 1379*, 1343*, 1360*.

**Melilotus Juss.**

*M. officinalis* (L.) Desr.

Biennial; leaflets ovate-oblong, serrate; racemes dense; flowers yellow. July-August. Moist situations. SA.

Drass (3404 m) 1566*, 1576*, 1601*; Saspul (2925 m) 2044*.

**Oxytropis DC.**

*O. cachemiriana* Camb.

Stem short; leaflets 13-21, oblong-lanceolate, densely silky white; heads dense, long peduncled; calyx covered with a mat of black hairs. July-August. A. Dry slopes.

Upshi (3470 m) 5021*; Bodhkarbu (3305 m) La26*; Fotu La (4110 m) 2047*.

*O. lapponica* (Wahl.) Gay

Short stemmed; leaflets 13-23; heads dense flowered; leaflets lanceolate, acute, finely pubescent on the under surface. July-August. Open slopes. SA.
Meenamarg (3130 m) 1557*; Sarbal (2850 m) 820*.

**O. microphylla** (Pall.) DC.
Short stemmed, densely pubescent (caespitose) perennial; leaflets linear-oblong, arising from the same point; peduncle overtopping leaves; corolla purple. June-July. Dry slopes. A.
Fotu La (4110 m) 176*.

**O. thomsonii** Benth. ex Bunge
Stemless; leaves long petioled, densely pubescent, lanceolate; heads dense; bracts linear; flowers purple. July-August. Dry slopes. A.
Zoji La (3430 m) 1603*; Fotu La (4110 m) 175*; Amarnath (4000 m) 2045*; Sangam (2740 m) 999*.

**Trifolium** Linn.

**T. pratense** Linn.
Erect; stem with a pair of opposite leaves; heads rounded, dense. July-August. Moist shady situations. T3A.
Drass (3045 m) 1573*.

**Trigonella** Linn.

**T. corniculata** Linn.
Branched glabrous annual; stipules obscurely toothed; heads closely racemose; flowers yellow. June-July. Open slopes. SA.
Sangam (2700 m) 913*; Sankoo-Panikar (2930 m) 1558*; Zoji La (3430 m) 1586*; Khillanmarg-Apharwat (3700 m) 1077*; Pir Panjal (2900 m)
2 1 4

Vicia Linn.

V. tenuifolia Roth
Open slopes. SA.
Drass (3045 m) 1602*, 1564*.

ROSACEAE

Agrimonia Linn.

A. eupatoria Linn.
Erect perennial, villous; leaflets coarsely serrate, ovate-lanceolate; flowers in racemes, yellow. June-July. Shady slopes. TS.
Thajwas (3010 m) 325*; Ferozpur Nullah (2600 m) 1255*; Pir Panjal (2900 m) 1320*.

Alchemilla Linn.

A. vulgaris Linn.
Low, prostrate annual; leaves orbicular-cordate, 7-9 lobed; flowers yellow. June-August. Meadowlands. SA.
Aru (3000 m) 1320A*
Cotoneaster Linn.

*C. microphylla* Wall. ex Lindl.
A low branched shrub; leaves recurved, obovate, glossy above, villous beneath; fruit globose, violet red. July-August. Open slopes. A.
Tarsar (3300 m) 6003*, 6005*; Tosmaidan (3100 m) 1197*.

*C. nummularia* Fisch. & Mey.
A prostrate bush, branches divaricate; leaves obovate, acuminate, glabrous above, densely wooly beneath; flowers few, pale yellow.
May-July. Shady slopes. TS.
Gulmarg (2600 m) 6004*.

*Filipendula*

*F. vestita* (Wall. ex G. Don) Maxim.
Tall, shrubby herb; leaves pinnatisect, lateral leaflets small, terminal very large, tomentose beneath. May-July. Shady slopes. TS.
Ferozpur Nullah (2700 m) 1244*.

*Fragaria* Linn.

*F. nubicola* Lindl.
Low pubescent annual; leaflets 3, coarsely serrate; flowers white or yellow. April-July. Shady slopes.
TSA.
Sonamarg (2800 m) 436*; Khillanmarg (3000 m) 281*; Above Zaberwan (2200 m) 1106*; Above Yusmarg (3100 m) 6006*. 
**Geum Linn.**

**G. elatum G. Don**

A stout perennial, sparsely hairy; leaves lobed, upper lobe orbicular, irregularly toothed; flowers yellow. July-August. Open slopes. A. Sangam (3300 m) 937*; Khillanmarg (3200 m) 227*; Ledwas (3000 m) 636*; Mahadev (3500 m) 641*

Upper surface of the leaves silvery hairy; Tosmaidan (3200 m) 1215*; Kounsernag (3300 m) 30*.

**G. urbanum Linn.**

Erect, pubescent; leaves pinnatifid, lobes ovate, crenate, upper sessile; style tip hooked; flowers yellow. May-July. Shady slopes. TS. Naranag (2800 m) 1412*; Bovjan (2600 m) 680*, 631*; Ferozpur Nullah (2700 m) 1274*; Sukhnag (2600 m) 1210*; Kongwattan (2600 m) 92*.

**Potentilla Linn.**

**P. ambiguа Camb.**

Tufted; leaves glabrous to sparsely pubescent, 3-foliate, obovate, cuneate, obtusely 3-toothed; flowers large, yellow. July-August. Open slopes. A. Sangam (3400 m) 920*, 1041*; Zoji La (3600 m) 5034*.

**P. argyrophylla** Wall. ex Lehm.

Tall, erect, clothed with white silky hairs; leaves digitately 3-foliate, ovate, acute, toothed, white beneath; flowers yellow. July-
August. Open slopes. A.
Sangam (3400 m) 920*, 1041*; Zoji La (3600 m) 5034*.

**P. argyrophylla var. leucochroa** (Lindl.) Hook.f.
Smaller than *P. argyrophylla*; leaflets densely silky on both surfaces; flowers yellow. July-August. Open slopes. A.
Domel (3010 m) 1000*, 949*; Lidderwat (3200 m) 6010*; Apharwat slopes (3600 m) 1082*; Ledwas (3300 m) 668*; Damamsar (3300 m) 6011*.

**P. atrosanguinea** Lodd.
Tall; leaflets 3-foliate, white silky hairy beneath, ovate, coarsely crenate; flowers red. June-August. Open slopes. A.
Amarnath (3500 m) 6011*.

**P. cf. bannehaiensis** Camb.
Tall, densely pubescent; leaves silvery silky beneath; flowers larger than *P. leschanaultiana*. Open slopes. June-August. A.
Pir Panjal (3000 m) 1370*.

**P. bifurca** Linn.
Low, rootstock thick; stem slender; leaves pinnate, leaflets oblong-elliptic, clothed with appressed silky hairs, acute; flowers yellow. Moist shady situations. SA.
Fotu La (4110 m) 6012*; Parakhchak (3500 m) 6013*;
Sankoo (2945 m) 6014*; Drass (3045 m) 6015*; Bodhkharbu (3305 m) La30*, La 29*.

**P. curviseta** Hook.f.
Low, rootstock thick; leaves 3-foliate, long petioled, linear, cuneate, 3-4fid, thinly silky; stipules forming a narrow wing. August-September. Rocky cliffs. A.
Panchtarni (3600 m) 6018*.

**P. desertorum** Bunge
Erect, glandular pubescent; leaves digitately 5-foliate, long petioled; leaflets coarsely crenate, cauline stipules large, lanceolate; flowers yellow. June-August. Rocky cliffs. A.
Sonamarg (2900 m) 428*, 442*; Meenamarg (3044 m) 6019*.

**P. doubjoueneana** Camb.
Rootstock thick; stem low; leaflets 3-foliate, obovate, cuneate, deeply toothed; flowers large, yellow. July-August. Open slopes. A.
Sangam (3300 m) 934*.

**P. fulgens** Wall.
Low, prostrate, stoloniferous perennial; leaves pinnate, leaflets elliptic-oblong, acute, softly silky beneath, serrate; flowers large, yellow. July-August. Open slopes. A.
Bodhkharbu (3304 m) 6020*.
P. gelida C. A. Mey.
Low, silky pubescent; leaves 3-foliate, small, obovate, cuneate, deeply crenate; flowers yellow. June-August. Open slopes. A.
Sangam (3200 m) 962*, 943*; Thajwas (3110 m) 826*; Pir Panjal (2800 m) 6021*.

P. kashmirica Hook. f.
Erect, branched, clothed with spreading hairs; leaves shortly petioled, lower 5-foliate, obovate-oblong, coarsely serrate; flowers yellow. June-August. Open slopes. SA.
Pahalgam (2400 m) 1398*; Ferzpur Nullah (2700 m) 1363*; Sukhnag (2700 m) 1205*.

P. leschenaultiana Hook. f.
Tall, robust, hairs long; leaflets 5-7, obovate-elliptic, coarsely toothed; flowers yellow. June-July. Dry slopes. SA.
Sonamarg (2800 m) 827*; Sangam (3300 m) 1040*, 932*; Ferzpur Nullah (2600 m) 1269*.

P. multifida Linn.
Ascending; stems many, softly tomentose; leaves pinnate, glabrous above, white tomentose beneath, leaflets linear-oblong, acute, recurved; flowers yellow. July-August. Dry slopes. SA.
Khalsi (2945 m) 6022*, 6023*; Fotu La (4000 m) 5000*; Bodhkharbu (3304 m) La28*, 6024*; Baltal (2900 m) 828*; Sankoo (3100 m) 6025*. 
*P. nepalensis* Hook.

Low or tall erect perennial; leaves long petioled, digitately 5-foliate, obovate-oblong, serrate; flowers red. June-September. Meadowlands. SA. Yushmarg (2300 m) 6026*; Sukhnag (2700 m) 1179*; Damamsar (3600 m) 6027*; Pir Panjal (2900 m) 4052*, 4053*.

*P. cf. nivea* Linn.

Rootstock thick, dwarf, densely clothed with white tomentosum; leaflets 3, ovate, acutely serrate; petals obcordate, yellow. July-August. Open slopes. A. Damamsar (3800 m) 6028*.

*P. pteropoda* Royle

Stout, rootstock very thick; leaves mostly radical, long petioled, 5-foliate, densely silky on both sides; peduncles slender; flowers yellow. July-August. Rocky cliffs. A. Pir Panjal (3200 m) 1355*, 1357*.

*P. reptans* Linn.

Creeping; stems many from the root; leaves with appressed hairs, leaflets 5, oblanceolate, toothed; flowers yellow. May-July. Open slopes. TS. Sukhnag (2600 m) 1206*.

*P. supina* Linn.

Annual, hairy, branches spreading; leaves 3-9 foliulate, oblong, obtuse, serrate; achenes minute. June-August. Moist situations. TSA. Drass (3045 m) 6029*, 6030*.
**Prunus** Linn.

*P. padus* (Wall. ex Royle) Steud.

A tree; leaves oblong-ovate, closely serrulate, acuminate, glabrous; racemes pendulous. June-July. SA.

Sonamarg (2900 m) 446*.

*P. prostrata* Labill.

A shrub; leaves small, elliptic-ovate, serrate, glabrous above, white tomentose beneath; calyx tube cylindric. May-June. Dry slopes. TS.

Tangamarg (2500 m) 247*, 248*; Zaberwan (2200 m) 1104*.

**Rosa** Linn.

*R. macrophylla* Lindl.

Erect shrub; prickles straight; leaflets elliptic-ovate, finely serrate; sepals persistent; petals red. June-August. Shady slopes. TS.

Parakhchak (3300 m) 6031* leaves broadly ovate;

Khillanmarg (3000 m) 6030*.

**Rubus** Linn.

*R. antennifer* Hook. f.

Erect shrub, laxly pubescent; prickles straight; leaflets ovate, acuminate, doubly toothed; corymbs axillary and terminal. June-August.

Shady slopes. TS.

Pir Panjal (2700 m) 1319*.
Sibbaldia Kunze

*S. cuneata* Kunze

A cushion plant; leaves 3-5 foliate, obovate, cuneate, 3-5 fid, clothed with silky hairs; flowers yellow. June-August. Meadowlands. SA. Meenamarg (3130 m) 6033*; Damamsar (3500 m) 6032*; Tosmaidan (3010 m) 1189*, 1192*; Khillanmarg (3100 m) 286*; Ledwas (3300 m) 1476*; Pir Panjal (3000 m) 1325*; Kounsernag (3200 m) 33*.

Sorbaria A.Br.

*S. tomentosa* (Lindl.) Rehder

Tall shrub, rather glabrous; leaves pinnate, 6-9 pairs, long lanceolate, doubly serrulate, sparsely pubescent beneath; flowers white. May-July. Moist situations. SA. Dara (2400 m) 611*, 612*.

Spiraea Linn.

*S. bella* Sims

Erect shrub; leaves broadly ovate, inciso-serrate, glabrous; corymbs dense; ripe carpels exposed. May-July. Shady slopes. TS. Naranag (2700 m) 1432*.

*S. vaccinifolia* D.Don

Erect shrub, branches strict; leaves elliptic-lanceolate, obtuse, entire, minutely serrulate, glaucous beneath; corymbs dense. May-July.
Shady slopes. T3.
Ledwas (2800 m) 685*; Sukhnag (2600 m) 1204*.

CRASSULACEAE

Sedum Linn.

S. adenotrichum Wall. ex Edgew.
Low, stem glandular pubescent; leaves rosulate, spathulate; cymes lax; petals white with pink stripes. May-June. Rocky cliffs. T3A.
Dara (2500 m) 2018*.

S. crassipes Wall. ex Hook. f. & Thoms.
Stems many from a very thick rootstock; leaves ovate to linear-lanceolate, obtuse; cymes dense flowered; yellow. July-September. Open slopes. A. Amarnath (4100 m) 993*; Tarsar (3400 m) 7016*, 7017*; Aparwat (3700 m) 7012*, 7013*, 1083*, 1058*, 7018*; Alipathar lake (3800 m) 7014*; Damamsar (3800 m) 7015*; Kounsernag (4200 m) 41*; Pir Panjaital (3100 m) 1313*.

S. ewersii Ledeb.
Glabrous; leaves orbicular-obovate, sessile; flowers rose. July-September. Rocky cliffs. SA.
Sangam (3700 m) 1047*; Drogthalan (3600 m) 7020*; Kongwattan (2800 m) 38*; Mahinag (3900 m)
S. oreades (Decne.) Hamet
Low annual; leaves densely rosulate, cauline spathulate, oblong, acute; flowers solitary, yellow. August-September. A.
Alipathar Lake (4000 m) 1062*; Drogthalan (3600 m) 7025*, 7026*.

S. quadrifidum Pall.
Rootstock thick; stems many from the root; leaves linear-oblong; cymes 1-5 flowered, red. July-August. Open slopes. A.
Poshpatri (4000 m) 973*; Aparwat slopes (3600 m) 7022*; Khillanmarg (3200 m) 285*; Barga Maidan (3400 m) 7023*; Damamsar (4000 m) 7024*.

S. roseum (Linn.) Scop.
Rootstock very thick; stems stout, glaucous; leaves ovate, toothed, teeth more prominent at the top; cymes dense. June-July. Rocky cliffs. SA.
Ledwas (3100 m) 616*, 1491*, 1493*.

S. roseum (L.) Scop. var. heterodontum (Hook.f. & Thoms.) Fedtsch.
Tall; leaves ovate, inciso-dentate from a cordate base, prominently white margined; cymes dense. June-July. Rocky cliffs. A.
Pir Panjal (3000 m) 1311*.
**Sempervivella** (Edgew.) Stapf

*S. alba* (Edgew.) Stapf

Low; basal leaves rosulate, oblong-ovate, minutely pilose; sepals obtuse; flowers dull-white. Moist rocky cliffs. SA. June-July. Ledwas (3200 m) 1439*, 617*.

*S. mucronata* (Edgew.) Berger

Low fleshy herb; leaves ovate, mucronate, margin pilose; sepals glandular pubescent, lanceolate, acuminate. July-August. Rocky cliffs. A. Meenamarg (3200 m) 5033*.

**SAXIFRAGACEAE**

**Bergenia** Moench

*B. stracheyi* (Hook.f. & Thoms.) Engl.

Rootstock thick; leaves large, glabrous on both surfaces, obovate, cuneate; calyx puberulous; flowers rose. June-July. Along the glaciers. SA. Zaberwan (2400 m) 1097*; Bovjan (2900 m) 684*, 1455*; Khillanmarg (3200 m) 488*, 273*; Apharwat (3700 m) 472*. 
Saxifraga Linn.

Low, stoloniferous, stolons strongly glandular; leaves acuminate, cauline leaves with a long acumen, not congested at the base; flowers yellow. Open slopes. July-September. A. Damamsar (4100 m) 7028*; Kounsernag (4100 m) 37* differs in lacking glandular stolons, lower cauline leaves glabrous.

*S. flagellaris* Willd. ssp. *stenophylla* (Royle) Hulten
Low, stoloniferous, stolons capillary; leaves rosulate, short, evenly ciliated; flowers yellow. July-September. A. Damamsar (4100 m) 7029*; Alipathar Lake (4000 m) 7030*.

*S. Jacquemontiana* Decne.
Very low; lower leaves elliptic-oblung, upper ovate, congested; flowers sessile, large, yellow. July-August. Open slopes. A. Apharwat (4100 m) 1066*.

*S. moorcroftiana* (Ser.) Wall. ex Sternb.
Tall; stem simple, upper part glandular pubescent; radical leaves long petioled, upper sessile, amplexicaule, ovate, acute; flowers corymbose, 2-5, yellow. July-September. Moist situations. A. Tarsar (3600 m) 7034*, 7035*; Meenamarg (3200 m) 7036*; Droghthalan (3400 m) 7031*, 7032*, 7033*. 
S. sibirica Linn.
Tall, stem pubescent; radical leaves 5-7 lobed, acute or obtuse, upper cauline leaves usually simple, entire, ovate, acute; flowers white. July-September. Rocky crevices. A. Thajwas (3200 m) 7038*; Sonamarg (3000 m) 7038a*; Amarnath (4200 m) 997*; Aparawat slopes (3800 m) 7037*, 1081*; Khillanmarg (3200 m) 280*; Mahinag (3900 m) 35*, 36*.

NEW RECORD FOR INDIA

S. flagellaris Willd. ssp. flagellaris Pors.
Stolons capillary, lacking any glands; cauline leaves longer than the internodes; hypanthium flat. July-August. Open slopes. A. Alipathar Lake (4000 m) 1059*.

SPECIES NOVO

SAXIFRAGA KASHMERIANA SP. NOV. (Fig.194)
Saxifraga kasmeriana Dhar et Kachroo sp. nov. affinis Saxifraga tsangchanensis Franch. similis; habitus, inflorescentia, forma et amplitude floribus pars, dissimilis; folia basilina integris vel lobulata, flores albus, sepala omnitempore glandulis ciliata, filamentii latus et connatus ad bases, semina verrucosus.
Caulis tenuis, 3 - 5 cm alta, laxe caespitosa, pilis glandularis, folia basilina integra vel dentata, ovato - lanceolata spathulata, subglabra, brevipetiolata, basi attenuata, 5 - 8 mm longa, 2.5 - 4 mm lata; marginem
ciliata, folia caulina linearea - lanceolata brevissima petiolata, vel sessilia, 4 - 5 mm longa, 1 - 1.5 mm lata. Scapis uni - vel raris bifloris. Pedicella gracilia 3 - 8 mm longa, pilis obscure, brunneus glandularis apiceum. Sepala 5, pallida viridis, connata ad basin, obovata, apice rotundata, 2 - 2.5 mm longa, 1 - 1.5 mm lata, superficies superiore densus glandularis pubescentea, superficies inferior glabris et distineto 3 nervatis; marginum ciliata. Petala 5, alba, unguia, obovata - oblonga, 5 - nerva, 5 - 5.5 mm longa, 3 - 3.5 mm lata, apice latus, stamena aequalis calyxes, basis latus. Filamenta 1.8 - 2.3 mm longa. Carpel 2, connata ad basim, stylii 2, 0.8 - 1.2 mm longa; ovarium globosum, glabris, 2 - 2.3 mm lata; semina 20 - 29, oblonga, obscurus verrucosus ± compressus, 0.15 x 2.0 mm. Typus: Poshpatri (Kashmeriansis), alpinus pratensis, apertis clivus, 3,900 m, 3 - 8 - 1974, Uppeandra Dhar 950. In Herbario Universitatis Kashmiriensis (Srinagar) Conservatur, et K.

Stem slender, 3 - 5 cm tall, loosely tufted, glandular pubescent throughout. Radical leaves entire or sometimes lobed, ovate-lanceolate to spathulate, subglabrous, shortly petioled with an attenuate base, 5 - 8 mm long, 2.5 - 5 mm wide with ciliate margin. Cauline leaves linear-lanceolate, shortly petioled or sessile, 4 - 7 mm long, 1 - 1.5 mm broad. Scapes solitary or rarely two flowered. Pedicel slender, 3 - 8 mm long, hairy, hairs dark brown, gland tipped. Sepals 5, pale green, connate at base, obovate
FIG. 194  SAXIFRAGA KASHMERIANA  DHAR ET KACHROO
A. HABIT B. PETAL C. SEPAL  D. SEPAL (INNER FACE)  
E. STAMEN  F. SEED
with rotundate tip, 2 - 2.5 mm long, 1 - 1.2 mm broad, upper surface densely glandular pubescent, lower surface glabrous and distinctly 3 - nerved, margin ciliate. Petals 5, white, clawed, obovate - oblong, 5 nerved, 5 - 5.5 mm long, 3 - 3.5 mm broad. Stamens as long as the calyx tube with broad bases. Filaments 1.3 - 1.2 mm long. Carpels 2, connate at the base; styles 2, 0.3 - 1.2 mm long; ovary globose, glabrous, 2 - 2.3 mm wide. Seeds 20 - 29, oblong, warted, + compressed, 0.15 x 0.2 mm.

*Saxifraga kashmeriana* Dhar & Kachroo resembles the Chinese species *S. tsangchanensis* Franch. in habit, inflorescence and the size and shape of flowering parts and differs in entire and lobed radical leaves, white flowers, sepals always glandular pubescent, filaments fused at the base, seeds warted.

**GROSSULARIACEAE**

*Ribes* Linn.  
*R. glaciale* Wall.  
Robust; stem glabrous; leaves lobed, lobes ovate-cordate, crenate-serrate; berries sparsely pubescent. June-July. Open slopes.  
Lidderwat (3200 m) 7039*; Bovjan (2600 m) 690*, 686*; Ledwas (2900 m) 1488*.
R. orientale Desf.
A robust shrub, sticky glandular; leaves obscurely 3-5 lobed, rounded, crenate; bracts linear.
July-August. Open slopes. A.
Drass (3100 m) 7040*.

PARNASSIACEAE

Parnassia Linn.
P. cabulica Planch. ex Clarke
Glabrous perennial, scapigerous; leaves ovate-cordate, entire, cauline few or solitary, petals slightly fimbriate, white; style manifest.
July-August. Wet slopes. A.
Drass (3100 m) 7041*; Drogthalan (3400 m) 7042*.

ONAGRAEAE

Circaea Linn.
C. pricei Hayata
Annual; leaves ovate, glabrous to sparsely pubescent, deeply sinuate toothed, petioled; petals white or rose. May-August. Moist shady slopes. 3A.
Sonamarg (2900 m) 7044*; Baltal (2300 m) 941*;
Sukhnag (2600 m) 1211*; Khillanmarg (3200 m) 270*;
Apharwat slopes (3700 m) 1073*; Ahrabal (2700 m) 42*.

**Epilobium** Linn.

*E. angustifolium* Linn.

Tall, erect; leaves lanceolate, acuminate, entire, glabrous; flowers irregular, rose purple.
July-September. Moist slopes or Rocky cliffs. A.
Sankoo (3000 m) 7045*, 7047*, 7048*; Kolahoi (3400 m) 7046*; Sangam (3400 m) 933*.

*E. laxum* Royle

Stem 4-fariously pubescent; cauline leaves sessile, opposite, ovate-lanceolate, denticulate;
petals small, rose. July-August. Wet situations. SA.
Drass (3100 m) 7049*; Sankoo (3000 m) 7050*.

*E. minutiflorum* Hausskn.

Low; stem glabrous; leaves narrow, oblong, minutely dentate, shortly petioled;
flowers small, rose. July-August. Wet situations. SA.
Khalsi (2900 m) 7051*; Baltal (3100 m) 943*.

*E. parviflorum* Schreb.

Stem sparsely pubescent; leaves opposite, dentate, shortly petioled, mucronulate; stigma distinctly 4-cleft. July-August. Moist slopes. SA.
Khillanmarg (3200 m) 279*. 
**APIACEAE** *(nom. alt. UMBELLIFERAE)*

**Archangelica** Hoffm.

*A. officinalis* Hoffm. var. *himalaica* Clarke

Robust, aromatic shrubby herb; bracteoles as long as the flowering umbellules. June-July.

Moist forest shade. 3.

Khillanmarg (2350 m) 4501A*, 4502*.

**Bupleurum** Linn.

*B. aitchisonii* (Boiss.) Wolff

Prostrate, stem reduced; leaves linear-lanceolate, upper half amplexicaule; flowers glabrous, yellow. June-July. Dry slopes. A.

Bodhkharbu (3305 m) 5037*, 5038*.

*B. falcatum* Linn.

Erect, corymbose upwards; leaves lanceolate, broader upwards, amplexicaule, rigid, acuminate. June-July. Moist open slopes. SA.

Sarbal (2350 m) 4606*.

*B. longicaule* Wall. ex DC.

Erect, corymbose upwards; leaves narrow, linear, acute, base semi-amplexicaule; flowers yellow. June-July. Meadowlands. TSA.

Sonamarg (2655 m) 830*; Sarbal (2700 m) 835*; Lidderwat (2800 m) 747*; Ferozpur Nullah (2500 m) 1243*.
B. thomsonii Clarke

Erect; leaves broad at the base, cordate, amplexicaule; bracteoles acuminate, as long as the umbellules; flowers yellow. July-August. Open slopes. SA.

Sankoo (2930 m) 5035*; Baltal-Domel (2700 m) 915*.

B. tenue Ham. ex Don

Erect, much branched upwards; leaves strict, lanceolate, mucronate; bracteoles obtuse, much smaller than the umbellules. June-August. Open slopes. TS.

Ferozpur Nullah (2700 m) 1243A*.

Chaerophyllum Linn.

C. acuminatum Lindl.

More or less hairy; upper leaves 1-2 pinnate; petals larger than C. villosum; flowers white. July-August. Open slopes. SA.

Pir Panjal (3000 m) 4015*.

C. reflexum Lindl.

Stem much branched above, nearly glabrous; leaves finely divided; bracteoles shorter than umbellules; flowers pale. June-July. Open slopes. SA.

Droghthalan (2900 m) 4404* a dwarf specimen, branching from the root; Pir Panjal (3000 m) 1334*.
**C. villosum** Wall.

Resembling **C. reflexum** but clothed with deflexed hairs throughout, sometimes hispid below; flowers white. June-July. Shady slopes. SA.
Sonamarg (2800 m) 834*; Aru-Lidderwat (2600 m) 731*; Pir Panjal (2900 m) 1347*.

**Heracleum** Linn.

**H. candicans** Wall. ex DC.

A robust villous herb; leaves pinnate, obtusely lobed, crenate-serrate, white tomentose beneath; flowers white. June-July. Shady slopes. TSA.
Ferozpur Nullah (2500 m) 1271*, 1239*; Pir Panjal (2900 m) 4016*.

**H. canescens** Lindl.

A robust, softly hairy; leaves pinnate, pinnae acute, crenate-serrate, white tomentose beneath; flowers smaller than **H. candicans**, white. June-July. Open slopes. A.
Naginbal (3220 m) 4519*.

**Pimpinella** Linn.

**P. acuminata** C. B. Cl.

Erect biennial; some leaves 2-pinnate, acute, serrate-dentate, white beneath; bracts 5; flowers white. June-July. Shady slopes. SA.
Ferozpur Nullah (2500 m) 1270*; Apharwat (3400 m) 4502a*; Bovjan (2500 m) 1281*. 
**P.diversifolia (Wall.) DC.**

Sparingly glabrous; cauline leaves 3-partite, serrate-dentate, acuminate (not looking true

*P.diversifolia*); flowers white. Open slopes. SA.

Ferozpur Nullah (2600 m) 1231*; Pir Panjal (2900 m) 4017*.

**Pleurosporum** Hoffm.

**P.candollei (DC.) Clarke**

Thick stemmed perennial; leaves pinnate, pinnae pinnatifid; bracteoles oblong, entire, obtuse or sometimes mucronate; flowers cream coloured. July-August. Moist open slopes. A.

Amarnath (3600 m) 1022*; Apharwat (3940 m) 4308*.

**P.densiflorus (Lindl.) Benth.**

Short stemmed perennial; leaves 3-4 pinnate, pinnae linear-lanceolate; bracteoles elliptic, entire, obtuse with a prominent midrib; flowers pale yellow. July-September. A. Open slopes.

Amarnath (4200 m) 1010*; Kongwattan-Kounsarnag (3200 m) 43*.

**P.stylosum C.B.Cl.**

Erect; leaves 2-pinnate, bracteoles 8-10, lanceolate, inciso-serrate; flowers pale yellow. July-August. Moist slopes. A.

Above Lidderwat (3200 m) 734*, 1618*. 
Prangos Lindl.

P. pabularia Lindl.
Tall perennial; leaves 3-4 pinnate; fruit rough with corrugations. June-July. Open slopes.
SA.
Drass (3045 m) 5039*.

Sanicula Linn.

S. elata Ham.
Erect; leaves palmately partite, upper 3-palmate and lower 5-palmate, glabrous, serrate, mucronate; flowers pale. June-July. Moist shady slopes. SA.
Naranag (2500 m) 1416*.

Selinum Linn.

S. tenuifolium Wall. ex Clarke
Perennial, rootstock fibrous; branched; leaves pinnate; pinnules linear-lanceolate, acute; bracts 4-8; flowers white. July-August. Shady slopes. SA.
Tarsar (3963 m) 1619*; Pir Panjal (2900 m) 4013*, 4019*.

S. vaginatum C.B.Gl.
Glabrous; secondary pinnae lanceolate, lobed, serrate, leaves much larger than S. tenuifolium; flowers white. July-August. Shady slopes. A.
(Sangam (3500 m) 1009*.
**Sium Linn.**

*S. latijugum* Clarke

Glabrous; leaves pinnate, upper finely serrate; fruit elliptic. June-August. Shady slopes. A. Drass (3045 m) leaflets much broad, 7-11, upper leaflets pinnatifid; Ferozpur Nullah (2600 m) 1287*, 1286*; Naginbal (3220 m) 4511*.

**Trachydium Lindl.**

*T. roylei* Lindl.

Branches arising from a stout rootstock, decumbent; leaves 2-3 pinnatifid, long petioled, pinnae ovate-lanceolate. July-August. Open slopes. A. Sangam (3200 m) 930*; Damamsar (4000 m) 4512*.

**Vicatia DC.**

*V. coniifolia* DC.

Perennial, glabrous; leaves 2-3 pinnate, pinnae linear-lanceolate, acute; flowers purple. July-August. Shady slopes. A. Sonamarg (2800 m) 829*; Bovjan (2700 m) 628* bracteoles linear, much longer than the umbellules; Tosmaidan (3200 m) 1220*; Naginbal (3220 m) 4520*; Pir Panjal (2800 m) 1354*.
CAPRIFOLIACEAE

**Lonicera** Linn.

*L. heterophylla* Decne.
Erect branched shrub; leaves elliptic-ovate, conspicuously reticulately veined beneath; bracts linear; July-August. Open slopes. A.
Pir Panjal (3000 m) 1343*.

*L. obovata* Royle
A branched glabrous shrub; leaves obovate; bracts linear; style exserted, glabrous. Amongst junipers. A.
Naginbal (3500 m) 4513*.

*L. purpurascens* (Decne.) Walp.
A tall shrub; leaves oblong-ovate, pubescent; bracts linear-lanceolate; corolla purple. June-July. Open slopes. A.
Khillanmarg (3200 m) 459*; Bovjan (3100 m) 622*.

*L. spinosa* (Decne.) Walp.
A rigid shrub; leaves linear, margin recurved; bracts linear-oblong; style exserted. Dry slopes. July-August. A.
Bodhkhbarbu (3300 m) 7052*.

**Viburnum** Linn.

*V. cotinifolium* D. Don
A spreading shrub; leaves broadly elliptic-ovate, wooly beneath; flowers corymbose; corolla campanulate. May-July. Shady slopes. T3.
Zaberwan (2300 m) 1103*; Above Dara (2400 m) 337*. 
Valeriana Linn.

**V. dioica** Linn.
Tall, glabrous; radical leaves long petioled, ovate, obtuse, cauline pinnatifid, lateral lobes small, terminal obtuse. July-September. Moist slopes. SA.
Amarnath (4200 m) 972*; Mahinag (3600 m) 75*.

**V. dubia** Bunge
Erect, tall, sparsely pubescent; leaves pinnate, segments many, narrow, sparingly toothed, corymbs lax. June-August. Moist slopes. SA.
Sonamarg (3100 m) 860*, 861*; Sangam (3300 m) 944*.

**V. hardwickii** Wall.
Tall, glabrous; leaves pinnate, pinnules 5-7, ovate-lanceolate, acute, sparingly toothed; corymbs lax; fruit hairy. June-August. Moist slopes. SA.

**V. foetens** Decne.
A spreading shrub; leaves elliptic-oblung, acute, crenate-serrate; Cymes silky. May-July.
Shady slopes. TS.
Khillanmarg (3200 m) 457*; Ledwas (3100 m) 1479*. 

**VALERIANACEAE**
V. jatamansi Jones

Stem quite pubescent; radical leaves long petioled, ovate-cordate, upper few, smaller, sessile or subsessile, irregularly toothed; fruit sparsely toothed. May-July. Shady slopes. T3.

Dara (2400 m) 384*; Bovjan (2900 m) 1454*.

V. pyrolifolia Decne.

Rootstock thick; radical leaves long petioled, orbicular, entire, caline few, linear-lanceolate; corymbs lax; fruit pilose. June-August. Shady slopes. T3A.

Gulmarg (2800 m) 507*; Damamsar (3300 m) 7054*; Arizal (2500 m) 1175*.

V. stracheyi Clarke

Tall, stem pubescent; leaves lyrate-pinnatifid, terminal lobe rhomboid, entire; flowers in corymbs, lax; fruit pilose. June-August. Shady slopes. S3A.

Ferozpur Nullah (2700 m) 1231*; Pir Panjal (2900 m) 7055*, 1352*.

RUBIACEAE

Galium Linn.

G. aparine Linn.

A ramling scabrid annual; leaves narrowly oblong,
tapering at both ends, apiculate, sessile, 5-8 in a whorl, nerves obsolete; fruit clothed with spreading hooked bristles. May-July. Shady slopes. TSA. Mahinag (3700 m) 129*.

_G. asperuloides_ Edgew.
Decumbent, smooth, perennial; leaves 6-8 in a whorl, lanceolate, apiculate, nerves obsolete; cymes few flowered. June-July. Shady slopes. TSA. Drass (3100 m) 7056*; Gulmarg (2300 m) 483*, 604*; Bovjan (2700 m) 646*, 1452*; Naranag (2800 m) 1443*; Sukhnag (2700 m) 1136*; Duksum (2700 m) 392*, 423*.

_G. asperuloides_ Edgew. var. _hoffmeisteri_ (Kl.) Hand.-Mazz.
Leaves ovate-spathulate, short petioled, rounded at the tip. Shady slopes. June-July. TS. Arizal (2400 m) 1171*.

_G. boreale_ Linn.
Glabrous perennial; leaves sessile, 4 in a whorl, lanceolate, obtuse, margin scabrid, 3 nerved; cymes axillary and terminal. June-August. Shady slopes. SA. Sonamarg (3000 m) 840*, 839*; Baltal (2900 m) 1044*; Drass (3100 m) 7057*.

_G. serpylloides_ Royle ex Hook.f.
Rootstock very thick; stems many from the root, softly pubescent; leaves ovate, acuminate; fruit
with very long hairs. July-August. Dry slopes. SA.
Amarnath (4000 m) 7058*.

*G. verum* Linn.
Erect; stem pubescent; leaves linear, sessile, 8-10 in a whorl, margin revolute; cymes numerous, short. June-July. Moist slopes. TSA.
Drass (3100 m) La207*; Sankoo (2945 m) 7059*, 7060*, 7061*.

**ASTERACEAE** (*NOM. ALT. COMPOSITAE*)
(Arrangement of Tribes after Hooker, 1882)

Tribe Asteroideae

*Aster* Linn.

*A. diolostephioides* (DC.) Clarke
Tall, robust, villous; leaves oblong-lanceolate, sessile, entire; heads solitary; pappus red. July-August. Open slopes. A.
Tarsar (3400 m) 1630*; Mahdev (3900 m) 624*; Naginbal (3300 m) 4509*.

*A. falconeri* (Clarke) Hutch.
Erect, sparsely pubescent; leaves broadly oblong-obovate, radical spatulate, narrowed to a short petiole, upper sessile; peduncle solitary. July-August. Open slopes. A.
Sangam (3010 m) 919*.
A. *flaccidus* Bunge

Erect, densely tomentose; radical leaves obovate, oblong, spathulate, narrowing below, cauline sessile; pappus white. July-August. Open slopes.

*A.* Damamsar (4000 m) 4508*.

A. *mollissimus* (DC.) Clarke

Stem ascending, rootstock thick, stem sparsely pubescent; leaves obovate, entire, obscurely toothed; involucre scarious; pappus white or red. July-August. Rocky cliffs. SA.

*Baltal (2900 m) 345*; *Sukhnaq (2600 m) 1207*.

A. *thomsonii* Clarke

Erect, sparsely hairy, diffusely branched; leaves broadly ovate, acuminate, coarsely serrate, subsessile; pappus much shorter than the rosy ligules. August-September. Open slopes. SA.

*Kongwattan (2800 m) 46*.

*Brachyactis* Ledeb.

B. *menthodora* Benth.

Stout, tall, glandular pubescent; lower leaves petiolated, ovate-lanceolate, serrate-dentate; pappus pale brown. July-August. Open slopes. SA.

*Drass (3500 m) 5051*; *Sarbal (3000 m) 355*; *Kongwattan (2900 m) 53*.

B. *pubescens* (DC.) Aitch.

Stout erect annual; leaves obovate, toothed,
narrowed into a short petiole; heads large. July-August. SA. Open slopes. 
Tarsar (3400 m) 1631*; Panikar (3020 m) 5052*; 
Kongwattan (2600 m) 54*. 

_E. roylei_ (DC.) Wend. 
Smaller than the above two, annual, glandular pubescent; leaves obovate, crenate, narrowed below; heads solitary; ligules small. July-September. Open slopes. SA. 
Sankoo (2930 m) 5053*; Kongwattan (2600 m) 54A*. 

_Erigeron_ Linn. 

_E.alpinus_ Linn. sp. agg. 
Glabrous to sparsely pubescent, branched; leaves linear to ovate-lanceolate, semi-amplexicaule; involucre bracts linear, acuminate; pappus reddish brown. July-August. Open slopes. T3A. 
Bodhkhbarbu (3300 m) 1a180*; Panikar (3100 m) 5054*; 
Drass (3045 m) 5056*, 5057*; Damamsar (4000 m) 4526* a starved form, hispid ligules much longer than the pappus; Pir Panjal (2900 m) 4007*. 

_E.alpinus_ Linn. var. _alpinus_ Linn. 
Glabrous below, pubescent above; leaves linear-lanceolate, acuminate. July-August. Open slopes. SA. 
Baltal-Amarnath (3800 m) 935*. 

_E.alpinus_ Linn. var. _khasiana_ Clarke 
Low, pubescent, unbranched annual; radical leaves
crowded, spathulate, entire, cauline few, ovate-lanceolate, acute, sessile; ligules much longer than the blue pappus. July-August. Open slopes. A.
Apharwat (3900 m) 293*; Pir Panjal (3000 m) 4040*.

_E. multiradiatus_ Benth.

Erect, sparsely pubescent, branched, sparingly below; cauline leaves lanceolate, sessile; ligules longer than the pappus. July-August. Open slopes.

Gulmarg (2700 m) 293*; Kongwattan (2500 m) 51*.

_E. roylei_ DC.

Tall perennial, hispidly hairy; leaves ovate-lanceolate, acuminate, entire, cauline sessile; peduncles long; ligules twice as long as the pappus. July-September. Open slopes. Sa.

Lidderwat (3300 m) 1632*; Sangam (3100 m) 959*, 1005*; Pir Panjal (3000 m) 4041*.

_Psychrogeton_ Novopokr.

_P. andryaloides_ (DC.) Novopokr.

Low perennial, densely softly tomentose; radical leaves petioled, spathulate, cauline few, linear, sessile; involucre bracts linear, acute; pappus white. July-August. Dry slopes. A.

Fotu La (4110 m) La201*, La199*, La198*; Panikar (3020 m) 5058*; Drass (3045 m) La137*.

_Solidago_ Linn.

_S. virgaurea_ Linn.

Perennial, glabrous; leaves alternate, lower
petiolate, sparsely serrate, upper nearly entire, sessile; heads in cymes; ligules yellow. July-September. Open slopes. 3A.

Tarsar (3400 m) 1633*; Sangam (3200 m) 1004*, 933*; Ahrabal (2500 m) 45*.

Tribe Inuloideae

**Anaphalis DC.**

*A. contorta* (D. Don) Hook. f.

Stems many from the root, branched usually at the base; leaves narrow, revolute, wooly beneath. August-September. Open slopes. A.

Barga Maidan (3200 m) 4409*, 4410*.

*A. nepalensis* (Spreng.) Hand.-Mazz.

Dwarf or tall, softly villous; leaves ovate-lanceolate, lower spatulate; involucral bracts lanceolate. July-August. Open slopes. A.

Sangam (3200 m) 1023*, 917*; Tarsar (3400 m) 1634*; Sarbal (2300 m) 856*; Thajwas (3010 m) 5059* the mucro of the leaf develops at the later stage into an involucre-like structure; Sankoo (2945 m) 5060*, 5061*; Ledwas (3140 m) 671*; Ferozpur Nullah (2700 m) 1283*; Khillanmarg (3200 m) 474*; Apharwat (3800 m) 239* leaves laxly villous; Tosmaidan (3000 m) 1219*; Naginbal (3100 m) 4411*; Barga Maidan (3300 m) 4412*, 4413*; Mahinag (3400 m) 63*. 
**A. royleana DC.**

Stems many from the base, wooly; leaves wooly beneath, linear-lanceolate, obtuse; corymb rounded. July-August. Open slopes. A.

Sarbal (3010 m) 843*, 852*; Drass (3400 m) 5063*; Sankoo (3042 m) 5064* densely leafy; Lidderwat (3400 m) 1635* the leaves are much broader but resemble in the recurved margin, 1367* some of the leaves are obscurely toothed; Ferozpur Nallah (2700 m) 1232*; Pir Panjal (3000 m) 4042*, 4044*; Kongwattan (3200 m) 64*, 65*, 62*.

**A. royleana DC. var. concolor Hook.f.**

Leaves white on both surfaces, apiculate. July-August. Open slopes. A.

Pir Panjal (3000 m) 4043*.

**A. timmua D. Don**

Tall, robust; leaves broadly ovate-elliptic, acute, sessile to subsessile, densely clothed with cinnamon wool beneath. August-September. A.

Kounsernag (3600 m) 61*, 58*.

**DUBIUS**

**A. busua (Buch.-Ham.) Hand.-Mazz.**

Tall, much branched, wooly; leaves lanceolate, flat or recurved at the base, single veined. July-August. Open slopes. SA.

Sarbal (2900 m) 852*. 

A. royleana DC.
Filago Linn.

F. pyramidata Linn.
Wooly, branched from the base; leaves oblong-ovate, lanceolate; clusters of leafy bracts surrounding the heads. July-September. Dry slopes. T3A.
Kongwattendn (2900 m) 66*.

Gnaphalium Linn.

G. stewartii Clarke
Short stemmed, cottony; leaves linear, obtuse; heads brown on leafy spikes; flowers few. July-August. Moist open slopes. A.
Meenamarg (3180 m) 5065*; Gulmarg (2700 m) 603*;
Khillanmarg (3600 m) 4317*, 303*, 292*; Tosmaidan (2900 m) 1195*; Mahinag (3500 m) 69*.

G. thomsonii Hook.f.
Rather long stemmed, cottony; leaves linear-lanceolate, wooly beneath, slender, leaves covering the heads. July-August. Open slopes. A.
Amarnath (4000 m) 1011*; Sarbal (2900 m) 347*;
Pir Panjal (3000 m) 4045*, 4046*.

Inula Linn.

I. grandiflora Willd.
Robust hirsute perennial; leaves elliptic-oblong, sessile; heads large, ligules bright yellow.
July-August. Wet situations. SA.
Gulmarg (2700 m) 4313*.
I. obtusifolia Kerner
Rigid, erect; stems many from a woody rootstock;
leaves scabrid beneath, ovate-oblong, acute,
Drass (3045 m) 5067*; Sankoo (3200 m) 5068*.

I. rhizocephala Schrenk var. rhizocephaloides (Clarke) Kit.
Stemless; leaves all radical, rosulate, ovate-
spathulate, obtuse, sessile; achenes glabrous.
July-August. Meadowlands. A.
Drass (3045 m) 5066*; Sankoo (2930 m) 5069*.

I. royleana DC.
Stout perennial; stem pubescent; leaves glandular
pubescent, cauline with long winged petiole;
heads large, yellow. July-September. Meadowlands. A.
Baltal (2900 m) 349*, 937*; Khillanmarg (3200 m)
1055*; Pir Panjal (3000 m) 4047*, 4048*, 4049*.

Leontopodium R.Br.

L. leontopodium (DC.) Hand.-Mazz.
Tufted perennial, wooly; leaves linear-ovate-
lanceolate, wooly beneath; heads in clusters
covered by leafy bracts, quite variable. July-
September. Open slopes. A.
Sangam (3600 m) 916*, 914*; Meenamarg (3180 m)
Lal82*; Sankoo (2940 m) 5070*; Aphanwat (3900 m)
297*; Ledwas (3140 m) 1451*; Bovjan (3100 m)
639*, 653*; Mahinag (3600 m) 63*, 67*. 
Tribe *Anthemideae*

*Achillea* Linn.

*A. millefolium* Linn.

Sparsely hairy perennial; leaves 3 pinnatisect, segments linear-lanceolate; heads corymbose, white with brown scarious involucral bracts. July-September. Open slopes. T3A.

Khillanmarg (3000 m) 302*; Arizal (2500 m) 1178*; Mahinag (3200 m) 71*.

*Artemisia* Linn.

*A. absinthium* Linn.

Pubescent perennial; stem angular; leaves 2-3 pinnatifid, segments linear, obtuse; heads hemispheric in secund racemes. July-August. Dry slopes. T3A.

Drass (3045 m) 5036*.

*A. martima* Linn.

Rootstock woody; stem branched; leaves cottony, 2-pinnatisect, segments linear-lanceolate; heads homogamous; flowers all fertile. July-August. Dry slopes. 3A.

Saspul (2925 m) La203*.

*A. roxburghiana* Wall. ex Besser

Erect, robust; leaves ovate-oblong, 2-pinnatifid, rachis winged, segments oblong, acute, tomentose beneath; 10-11 flowered in compound panicles.
July-August. Open slopes. 3A.
Pir Panjal (2900 m) 4050*, 4006*.

_A. persica_ Linn.
Tall, erect, hoary; leaves tomentose, decompoundly pinnatisect, segments linear; heads in racemes, heterogamous. July-August. Dry slopes. 3A.
Khalsi (2945 m) La195*, La194*.

_A. scoparia_ Waldst. & Kit.
Perennial, hoary; leaves petioled, broadly ovate, 1-3 pinnatisect; involucral bracts shining; heads small. July-August. Dry slopes. A.
Sankoo (2930 m) 5071*.

_A. cf. dracunculus_ Linn.
Pir Panjal (2500 m) 1371*.

_Chrysanthemum_ Linn.

_C. griffithii_ Clarke
Shrubby, branched from the base, viscid; radical leaves petioled, cauline sessile, 1-2 pinnatifid, segments pubescent, linear, acute; ligules large, pale. July-August. Dry slopes. A.
Drass (3045 m) La189*.

_C. pyrethroides_ (Kar. & Kir.) B.Fedtsch.
Dwarf, densely wooly perennial; cauline leaves
2-3 pinnatisect; peduncles long, slender, 1-2 leaved; involucral bracts ovate, acute, scarious.
July-August, Dry slopes. A.
Fotu La (4110 m) La224*; Bodhkharbu (3300 m) La131*.

**Tanacetum** Linn.

* *artemisioides* Sch.
Twiggy hoary perennial; stems many from the base, branched upwards, sparsely leafy; leaves 1-2 pinnatisect, lobes linear, obtuse; corymb dense; heads yellow. Dry situations. A.
Upshi (3550 m) 5029*; Drass (3045 m) 5072*, 5073*.

* *longifolium* Wall. ex DC.
Silky villous, height variable; leaves mainly radical, lanceolate, 2-pinnatisect, segments subfiliform, 1-3 leaves on the peduncle; corymb yellow. August-September. Moist slopes. A.
Amarnath (4000 m) 1039*, 990*; Apharwat (3900 m) 1065*, 300*; Barga Maidan (3500 m) 4415*; Mahinag (3400 m) 70*.

Tribe Senecionideae

**Cremanthodium** Benth.

* *decaisnei* Clarke
Low, weak, glabrous; radical leaves reniform, crenate, petiole flat; ligules bright yellow, acute. August-September. Open slopes. A.
Apharwat (3900 m) 1061*.
**Doronicum** Linn.

*D. roylei* DC.

Erect, leafy, sparsely pubescent; leaves ovate, sinuate toothed, cordate, amplexicaule; corymbs lax; ligules yellow. August-September. Shady slopes. 3A.

Sarbal (2900 m) 851*; Khilanmarg (3200 m) 294*.

**Senecio** Linn.

*S. chrysanthemoides* DC.

Stem erect, branched, glabrous below, pubescent above; leaves variable, ovate-oblong to lyrate-pinnatifid, irregularly crenate; corymbs much branched; ligules yellow. July-August. Shady slopes. 3A.

Sonamarg (2800 m) 859*; Sankoo (2943 m) 5074*; Drass (3045 m) 5075*; Amarnath (3800 m) 968*; Meenamarg (3180 m) La133*; Gulmarg (2700 m) 306*; Pir Panjal (2900 m) 1330*; Ahrabal (2600 m) 49*, 50*.

*S. chrysanthemoides* DC. var. *sisymbriiformis* (DC.) Hook.f.

Leaves all lyrate pinnatifid, upper lobe large, ovate, toothed; corymb hemispherical; heads pubescent. July-August. Open slopes. A.

Thajwas (3010 m) 5076*; Gulmarg (2700 m) 303*.

*S. jacquemontianus* (Decne.) Benth. ex Hook.f.

Robust, tall, glabrous; leaves ovate-cordate, long petioled, coarsely toothed; corymbs broadly
campanulate. July-August. Shady slopes. A.

Sarbal (2900 m) 346*, 5078*.

S. kraschenninikovii Schischkin

Dwarf, glabrous annual, branches terete; leaves
pinnatifid, lobes linear-lanceolate, acute,
divaricate; heads small. July-August. SA.
Dry situations.
Khalsi (2945 m) La202*; Sankoo (2930 m) 5078* ;
Kongwattan (2800 m) 47*, 48*.

Tribe Cynaroideae

Arctium Linn.

A. lappa Linn.

Tall, coarse, erect; leaves petioled, ovate-
cordate, irregularly sinuate, glabrate and greyish
white beneath; bracts hooked. July-August. Open
slopes. TS.
Sankoo (3010 m) 5079*, 5030*.

Carduus Linn.

C. edelbergii Rech.f.

A tall stout thistle; leaves pinnatifid; wings
TS.
Sangam (3010 m) 986*.

Centaurea Linn.

C. depressa M. Bieb.
Erect, branched; stem cottony; leaves sparsely pubescent, lower petioled, pinnatifid, upper sessile, irregularly toothed, lanceolate, acuminate; bracts scarious; heads pale. August-September. Open slopes. A.
Khalsi (3000 m) 5031*, 5032*.

*Cirsium* Hook.f. & Thoms.

*C. falconeri* (Hook.f.) Petrak
Tall, robust; stem villous; leaves spinescent, cauline large, broadly ovate; heads large, cream coloured, densely wooly. July-August. Meadowlands. A.
Khilanmarg (3200 m) 5033*.

*Jurinea* Cass.

*J. ceratocarpa* Benth.
Erect, stems many from the root; branching sometimes divaricate, glabrous to sparsely pubescent; leaves long petioled, pinnatifid. July-August. Open slopes. A.
Sonamarg (3000 m) 5034*, 5037*; Drass (3045 m) 5035*, 5039*; Zoji La (3400 m) 5036*; Amarnath (3700 m) 5038*; Sankoo (3010 m) 992*.

*J. ceratocarpa* Benth. var. *depressa* Clarke ex Hook.f.
Thick stemless perennial; leaves long, pinnatifid-partite, lobes ovate-obtuse, wooly beneath; heads stout, subsessile. Open slopes. A.
Upshi (3470 m) 5025*; Sankoo (2930 m) 5090*. 
**Saussurea DC.**

*Saussurea jacea* (Klotzsch) Clarke

Stem simple, rigid; leaves scabrid on both surfaces, simple, ovate, upper lanceolate, acuminate; heads solitary; involucre bracts appressed hard, margin purple. August-September.

Open slopes. A.

Bodhkarbu (3305 m) 5091*; Parakhchak (3500 m) 5092*.

*Saussurea laoosa* (Decne.) Sch.

Tall, robust, simple, pubescent; leaves large triangular, irregularly toothed, glabrate above and pubescent beneath; heads hard; involucral bracts many. July-August. Moist slopes. A.

Pir Panjal (3010 m) 1356*.

**Tribe Mutisiaceae**

**Ainsliaea DC.**

*Ainsliaea aptera* DC.

Erect strict perennial; leaves orbicular to ovate, cordate, sinuate toothed, mucronate, densely villous beneath; spikes lax flowered.


Bovjan (2600 m) 655*; Duksun (2700 m) 410*, 386*.

**Gerbera Gronov.**

*Gerbera nepalensis* Sch.

Low perennial; leaves lyrate-pinnatifid, ovate-
acute, petiole winged, glabrous above, densely wooly beneath; spikes lax flowered; bracts filiform. August-September. Open slopes. A.
Khilanmarg (3200 m) 1076*.

Tribe Cichoriaceae

**Crepis Linn.**

*C. flexuosa* (DC.) Benth. ex Hook.f.

Glabrous annual, dichotomously branched; leaves long petioled, obovate, spatulate, radical sinuate toothed, lobes acute, cauline linear to ovate; heads slender. July-August. Gravelly soil. SA.
Sankoo-Panikar (3200 m) 5092*.

*C. kashmirica* Babcock

Hispid, erect, glandular above; lower leaves ovate-oblong, rather entire, cauline few; involucral bracts in many whorls. July-August. Moist open slopes. A.
Apharwat (3800 m) 291*.

*C. multicaulis* Ledeb. ssp. *conjecta* (Regel) Babcock

Stem hirsute; leaves ovate-lanceolate or lyrate-pinnatifid, long petioled; heads cylindric; outer involucral bracts minute; achenes not beaked, longer than the pappus. July-August. Open slopes. SA.
Sarbal
Sarbal (2300 m) Lal92*, Lal91*; Zoji La (3500 m) 5093*; Sonamarg (2900 m) 853*; Drass (3045 m) 5094*.

Hieracium Linn.

H. umbellatum Linn.
Erect, hirsute perennial; leaves mostly cauline, ovate-lanceolate, acute, entire, irregularly toothed, cordate-amplexicaule; heads bright yellow. August-September. Open slopes. 3A.

Lidderwat (3200 m) 1638*; Tarsar (3500 m) 5094*.

H. cf. virosum Pall.
Sparsely pubescent, stout, erect; leaves sessile or shortly petioled, ovate-oblong, toothed; heads in umbellate corymbs; outer involucral bracts spreading. July-August. Open slopes. 3A.

Sarbal (3010 m) 857*.

H. vulgatum Fries
Erect perennial, densely villous; radical leaves broadly ovate, lower part sinuate toothed; achenes black, pappus as long. July-August. Open slopes. 3A.

Ferozpur Nullah (2800 m) 1279*; Pir Panjal (2900 m) 1317*.

Koelpinia Pall.

K. linearis Pall.
Low, weak branched annual; leaves linear-lanceolate, long, incurved. June-August. Dry slopes. TSA.

Fotu La (4110 m) Lal79*; Bodhkarbu (3305 m) 5094*. 

Koelpinia Pall.

K. linearis Pall.
Low, weak branched annual; leaves linear-lanceolate, long, incurved. June-August. Dry slopes. TSA.
Lactuca Linn.

L. brunoniana (Wall. ex DC.) Clarke
Erect perennial; lower leaves long petioled, cordate, coarsly toothed; achenes compressed; pappus brittle. July-August. Shady slopes. T3. Sankoo (2940 m) 5095*; Ahrabal (2600 m) 57*.

L. decipiens (Hook. & Thoms.) Clarke
Erect branched perennial; lower leaves hastate-cordate, upper lobe coarsly toothed, petiole winged; achenes strongly ribbed; pappus deciduous. July-September. Shady slopes. TSA. Lidderwat (2900 m) 1639*; Ahrabal (2700 m) 60*.

L. dissecta D.Don
Glabrous annual; stem branched; radical leaves various, lyrate-pinnatifid, long petioled, sparsely dissected, cauline amlexicaule; heads few flowered. July-September. Moist humus rich soil. TSA. Sukhnag (2600 m) 1184*; Drogthalan (2800 m) 1184A*.

L. dolichophylla Kitamura
Tall perennial, almost glabrous; leaves long, linear-lanceolate, sessile; heads small, peduncled. July-August. Open slopes. SA. Amarnath (3600 m) 1037*.

L. laevigata (Wall. ex DC.) Clarke
Low, ascending perennial; radical leaves crowded,
lyrate-pinnatifid, sparsely pubescent, upper ovate-oblong to lanceolate, cordate-amplexicaule; achenes flat, lanceolate, beak prominent, pappus silky white. July-August. Moist slopes. A. Sangam (Usmarg side) (3200 m) 4600*m a starved form; Mahinag (3400 m) 90*, 91*.

*L. lessertiana* (Wall. ex DC.) Clarke ssp. *dentata* Stebb.
Low villous perennial, branched from the base; radical leaves crowded, lyrate pinnatifid, dentate; ligules blue; achenes elliptic or oblanceolate, strongly ribbed. July-September. Moist slopes. A. Amarnath (3400 m) 947*; Sangam (3300 m) 975*.

*L. lessertiana* (Wall. ex DC.) Clarke ssp. *lyrata* Stebb.
Tall perennial; stem terete; lower leaves lyrate, upper oblong-ovate, nearly entire; achenes black with a pale beak; pappus brittle, deciduous. July-August. Moist slopes. A. Sankoo (3200 m) 5096*.

*L. tartarica* (Linn.) C.A. Mey. var. *tibetica* Hook.f. erect, glabrous, branched; leaves coriaceous; radical sinuate toothed, cauline entire or lobed; achenes narrowly oblong, strongly ribbed. July-August. Open slopes. SA. Khalsi (2945 m) La197*, La196*; Sankoo (3100 m) 5097*. 
**Lapsana** Linn.

*L. communis* Linn.
Annual, hispid, corymbosely branched; lower cauline leaves sinuate toothed, uppermost linear-lanceolate, entire; heads small; achenes pale, pappus absent. July-August. Moist slopes. TS.
Ferozpur Nullah (2600 m) 1278*.

**Picris** Linn.

*P. hieracioides* Linn.
Erect, hispid, corymbosely branched; radical leaves sinuate toothed, cauline cordate, semi-amplexicaule; achenes shortly beaked; pappus deciduous. July-September. Open slopes. 3A.
Drass (3045 m) 5099*; Kongwattan (2800 m) 5098*.

**Scorzonera** Linn.

*S. virgata* DC.
Erect, branched, glabrous perennial; leaves long, linear, recurved; achenes linear, ribbed, pappus feathery. July-September. Dry slopes. 3A.
Drass (3045 m) 6000*, 6001*; Sarbal (2900 m) 842*.

**Taraxacum** Hall.

*T. officinale* Wigg. sp. agg.
Low, scapigerous; radical leaves crowded, lyrate-pinnatifid, divaricate, sinuate toothed; scape various. May-September. Open slopes and Meadowlands. T3A.
Fotu La (4110 m) La200*; Sonamarg (2800 m) 437*; Duksum (2500 m) 390*. 
Tragopogon Linn.

*T. dubius* Scop.
Tall, perennial, glabrous, branched; leaves with a broad sheathing base; achenes long, beak long, mucronate. June-August. Open slopes. TS.
Drass (3045 m) 6002*.

Youngia

*Y. tenuifolia* (Willd.) Babc. & Stebb.
Rect perennial, quite glabrous; stems many from the root; leaves long petioled, pinnatifid, lobes linear, acute; achenes compressed, ribbed, light brown, short beaked, pappus scabrid, deciduous. July-September. Open slopes or rocky cliffs. A.
Sarbal (2900 m) 854*; Bodhkharbu (3305 m) L1186*.

**CAMPANULACEAE**

Asyneuma (Hook. & Thoms.) Bornm.

*A. thomsonii* (Hook. & Thoms.) Bornm.
Tall glabrous annual; cauline leaves petioled, ovate-lanceolate, acuminate, dentate; flowers laxly panicled, blue. May-June. Moist slopes. TS.
Bovjan (2300 m) 1435*, 1436*; Ledwas (3100 m) 1474*; Ferozpur Nullah (2600 m) 1272*; Wangat (2600 m) 1429*. 
Campanula Linn.

C. aristata Wall.
Erect annual, stem simple, glabrous; radical leaves ovate-lanceolate, cauline linear, sessile; flowers solitary, blue. July-August. Meadowlands.

A.
Apharwat top (4200 m) 7070*, 310*, 1085*.

C. cashmeriana Royle
Stem branched, villous; leaves oblong, sessile, tomentose on both sides; flowers blue. July-August. Rocky cliffs. SA.

Sangam (3200 m) 936*; Tarsar (3500 m) 7071*; Ahrabal (2700 m) 72*, 73*.

C. cashmeriana Royle var. evolvulacea (DC.) Clarke
A weak form of C. cashmeriana; leaves lanceolate; calyx not widened at the base. July-August. Rocky cliffs. SA.

Ferozpur Nullah (2800 m) 1285*.

C. colorata Wall. ex Roxb.
Tall, densely pubescent; leaves ovate-lanceolate, dentate, softly pilose on both sides; flowers dull purple. June-August. Dense slopes. TS.

Ferozpur Nullah (2600 m) 1264*.

C. colorata Wall. ex Roxb. var. tibetica Hook. & Thoms.
A branched herb; leaves ovate, dentate, subglabrous; calyx teeth lanceolate, overlapping. Drass (3100 m) La204*; Sonamarg (2900 m) 830*. 
**G. latifolia** Linn.
Tall; radical leaves long petioled, ovate-lanceolate; flowers large, purple. June-July. Shady slopes. TS.
Sarbal (3100 m) 7072*; Ferozpur Nullah (2600 m) 1288*.

**Codonopsis** Wall.

**C. ovata** Benth.
Rootstock thick; leaves ovate, hairy; peduncles long; calyx lobes elliptic-oblong; flowers terminal, sky blue. July-August. Shady slopes. A.
Bodhikharbu (3300 m) La206*; Baltal (2900 m) 965*, 1034*, 838*; Sankoo (2945 m) 7075*; Gadsar (4000 m) 7073*; Apharwat (3900 m) 7074*, 311*, 1079*; Pir Panjal (2900 m) 7069*.

**C. rotundifolia** Benth.
Stem twining; leaves glabrous, broadly ovate, crenate; flowers axillary, blue. July-August. Open slopes. A.
Pir Panjal (3000 m) 7076*, 7077*, 7073*; Kongwattan (3100 m) 74*.

**ERICACEAE**

**Gaultheria** Linn.

**G. trichophylla** Royle
Very low; stem prostrate; leaves elliptic-oblong,
crenulate, margin with brown hairs; corolla campanulate; fruit blue black. July-September. Open slopes. A.

Barga Maidan (4000 m) 8035*, 8034*.

**Rhododendron** Linn.

*R*. *campanulatum* D. Don

A large shrub; leaves elliptic, obtuse, cinnamo-neus tomentose beneath; corolla campanulate, pink. June-July. Open slopes. A.

Apharwat (3900 m) 455*, 3036*; Ledwas (3400 m) 620*, 619*, 1460*.

*R*. *hymoanthium* Balf.

A shrub; leaves elliptic, obtuse, scabrid, brown tomentose beneath; corolla yellow. June-July. Open slopes. A.

Ledwas (3400 m) 667*, 638*; Apharwat (3700 m) 3033*, 470*, 476*.

**Primulaceae**

**Androsace** Linn.

*A*. *aizoon* Duby var. *himalaica* Knuth

Perennial; leaves densely rosulate, sessile, cartilagenous, cuspidate; scape very long; flowers red. July-August. Dry slopes. A.

Sarbal (3200 m) 874*; Zoji La (3900 m) 7079*; Baltal (3300 m) 1013*.
A. foliosa Decne. ex Duby

A pubescent perennial; leaves elliptic-ovate, long petioled; scape slender, bracts linear; flowers rose-purple. July-August. Shady slopes.

Pir Panjal (2800 m) 1353*, 1336*.

A. mucronifolia Watt

Densely tufted perennial; stolons 0; leaves small, ciliate; scapes short, umbels glandular pubescent; flowers rose-purple. Open slopes. August-September.

Amaranath (4200 m) 980*, 1020*.

A. primuloides Duby

Silky villous perennial; leaves large, ovate-spathulate, narrowed into a petiole; scapes slender; flowers rose-purple. July-August. Open slopes. A.

Domel (3400 m) 1002*, 925*; Bodhkarbu (3300 m) 212*; Fotu La (4110 m) 208*; Apharwat slopes (4000 m) 7080*, 7081*, 468*; Mahadev (4100 m) 664*; Pir Panjal (3000 m) 1314*.

A. rotundifolia Hardw.

Glandular pubescent perennial; lobes of leaves rounded or acute; calyx lobes much larger than the corolla, acutely toothed. June-July. Dry slopes. T5.

Ferozpur Nullah (2600 m) 1232*; Tangamarg (2700 m) 1407*; Dara (2400 m) 678*.
A. *rotundifolia* Hardw. var. *glandulosa* Hook.f.
Glandular pubescent; leaves lobed, lobes rounded; corolla larger than the calyx lobes, calyx teeth entire. June-July. Open slopes. Ts.
Sonamarg (2900 m) 873*, 445*; Zoji La (3500 m) 7082*.

A. *semperivoides* Jacq. ex Duby
Small stoloniferous; leaves densely rosulate, ciliate; scape solitary; calyx lobes obovate; flowers rose. July-August. Open slopes. A.
Apharwat (3900 m) 7083*, 602*, 287*; Damamsar (4100 m) 4510*; Ledwas (3300 m) 640*; Tosmaidan (3100 m) 1218*.

Primula Linn.

P. *denticulata* Sm.
Leaves obovate-spathulate, minutely toothed; calyx teeth acute; corolla lobes obcordate, purple. May-July. Shady slopes. 3A.
Gumri (3900 m) 210*; Zaffarkhnai Nallah (2400 m) 1519* leaves entire; Gulmarg (2700 m) 235*, 1412*, 234*; Ledwas (3200 m) 632*, 1469*, 1472*, 1471*; Bovjan (2900 m) 660*; Apharwat (3700 m) 463*.

P. *elliptica* Boyle
Erect perennial; leaves elliptic-ovate, sharply toothed; scape long, 3-flowered, bracts almost equalling the pedicels; flowers purple. July-August. Open slopes. A.
Amarnath (4200 m) 928*, 971*; Apharwat slopes (3900 m) 1069*, 295*.

**P. macrophylla** D.Don

Leaves oblanceolate, spathulate, white mealy beneath; flowers in 1-2 whorls, calyx teeth linear, rounded at the tip; flowers pale or purple. June-August. Moist open slopes. A.

Apharwat (3900 m) 492*, 467*, 466*; Ledwas (3300 m) 637*, 625*; Damamsar (4100 m) 7034*.

**P. minutissima** Jacq. ex Duby

Very small, densely tufted perennial; leaves spathulate-lanceolate; flowers large, light purple. July-August. Open slopes. A.

Poshpatri (3900 m) 996*; Apharwat slopes (3300 m) 1064*.

**P. moorcroftiana** Wall. ex Klatt

Leaves long, lanceolate, obscurely sinuate or entire; calyx linear, acuminate; corolla purple. June-July. Moist open slopes. A.

Ledwas (3300 m) 661*.

**P. rosea** Royle

Leaves dense, oblong-obovate, acute, crenulate; bracts linear-lanceolate; corolla rose-red. May-June. Wet situations. A.

Gumri (3900 m) 510*; Thajwas (3100 m) 430*;
Gulmarg (2700 m) 1115*, 257*, 507*, 506*, 233*;
Sangam (Yusmarg side) (3500 m) 7085*. 
OLEACEAE

Jasminum Linn.

J. humile Linn.
An erect glabrous shrub; leaflets ovate, acute to acuminate; bracts minute; cymes 10-20 flowered; flowers yellow. June-July. Open slopes. Ts.
Ferozpur Nullah (2700 m) 1262*; Above Yusmarg (2500 m) 1350*.

Syringa Linn.

S. emodi Wall. ex Royle
A large shrub; leaves ovate, acute, white beneath; panicles dense; corolla purple. June-August.
Open slopes. 3A.
Bovjan (2800 m) 615*; Pir Panjal (3000 m) 1324*.

GENTIANACEAE

Gentiana Linn.

G. aurea Decne.
Erect annual; stem simple or branched, 4-angular; leaves elliptic-ovate; corolla lobes mucronate, blue. July-August. Moist slopes. A.
Sankoo (3000 m) 7086*, 7087*, 7088*.

G. carinata Griseb.
Low annual; leaves crowded, ovate, acute, margin scarious; corolla fimbriate, blue. May-July.
Moist open meadowlands. SA.

Gulmarg (2700 m) 1118*; Khillanmarg (3400 m) 497*; Damamsar (3800 m) 7091*; Tosmaidan (3100 m) 1200*.

**G. carinata** Griseb. var. **intermedia** Clarke

Resembles **G. carinata** but here the leaves are strictly acute and straight; corolla totally lacking fimbrae. May-July. Moist open meadowlands. SA.

Tosmaidan (2900 m) 1221*.

**G. cachemirica** Decne.

Stem simple, many from the root; leaves obovate-oblong; flowers solitary, sessile, blue. July-September. Rocky crevices. A.

Kounsernag (4100 m) 81*, 79*, 77*, 78*.

**G. leucomelaena** Maxim.

Low, prostrate, branches decumbent; leaves elliptic-lanceolate, acuminate, margin scarious; corolla fimbriate, pale-blue. July-August.

Along the streams. A.

Panikar (3500 m) 7092*; Sankoo (3100 m) 7093*.

**G. marginata** (G. Don) Griseb.

Low; leaves crowded, ovate, acute, falcate; corolla without fimbrae. June-July. Open meadowlands. SA.

Amarnath (4200 m) 969*; Sonamarg (3000 m) 431*; Meenamarg (3080 m) 7095*; Ledwas (2900 m) 1456*. 
G. moorcroftiana Wall. ex G. Don
Erect, branched; leaves oblong, obtuse; corolla funnel-shaped, fimbriae absent, blue. July-August. Moist slopes. A.
Sankoo (3200 m) 7096*; Amarnath (4200 m) 923*, 970*, 7098*.

G. pedunculata Royle ex G. Don
Erect, branched; leaves oblong-ovate; pedicels long, slender; corolla tube elliptic, dark blue at the tip. July-September. Open slopes. A.
Tarsar (3500 m) 8000*; Upshi (3500 m) 5031*; Amarnath (4200 m) 8001*; Kolahoi (3700 m) 8004*; Apharwat slopes (3900 m) 8002*; Alipathar lake (4020 m) 8003*; Mahinag (4000 m) 76*.

G. strachevi (Clarke) Kitamura
Erect, branched; leaves broadly ovate-lanceolate, obtuse; calyx 4-keeled; corolla with 4 large glands near the base, cream coloured. July-August. Along the streams. A.
Sankoo (3000 m) 8005*, 8006*, 8007*; Amarnath (4200 m) 8008*.

G. stricta Klotzsch
Erect; leaves oblong; calyx tube funnel shaped; corolla tube fimbriate, glands obscure. July-August. Along the streams. A.
Sankoo (3000 m) 8009*, 1589*, 1590*; Amarnath (4200 m) 1028*; Sangam (3600 m) 922*. 
**G. vensuta** Wall. ex Griseb.

Low, stemless annual; leaves elliptic-ovate, obtuse; flowers solitary, corolla tubular, blue. July-September. Open slopes. A.

Apharwat slopes (4000 m) 8011*, 8012*.

**Lomatogonium** A. Br.

**L. carinthiacum** (Wulf.) A. Br.

Erect, stem branched from the base; leaves elliptic-ovate; sepals acute; corolla lobes with fimbrae at the base, bluish purple. August-September. Open slopes. A.

Sankoo (2945 m) 1593*; Barga Maidan (4100 m) 8013*, 8015*; Gagrahil (3600 m) 8014*, 8016*; Mahinag (3900 m) 85*, 87*; Kounsernag (4200 m) 86*.

**L. rotatum** (Linn.) Fries ex Nym.

Stems many from the root; radical leaves spatulate-lanceolate, cauline opposite, elliptic-oblong; sepals unequal; fimbrae in corolla lobes absent. August-September. Open slopes. A.

Apharwat slopes (3800 m) 8017*, 8018*.

**Jaeschkea** Kurz

**J. canaliculata** (Royle) Knobl.

Erect; leaves ovate-lanceolate, obtuse; panicked, sepals acute; flowers bluish purple. August-September. Shady slopes. A.

Amarnath (4200 m) 8019*; Sankoo (3000 m) 1591*;
Apharwat (3900 m) 1090*; Pir Panjal (3000 m) 3020*.

*Swertia* Linn.

*S. cordata* (D. Don) Clarke
Erect, branched; stem 4-lineolate; leaves oblong, cordate, obtuse; corolla white with purplish nerves, styles free. July-September. Shady slopes. 3A.

Aru-Lidderwat (3200 m) 3028*, 3029*; Sonamarg (2900 m) 3024*; Pir Panjal (3000 m) 3025*, 3026*; Kongwattan (2900 m) 84*.

*S. petiolata* D. Don
Tall; lower cauline leaves long petioled, upper sessile, ovate-lanceolate; corolla with glandular depressions at the base, fimbriate, dull-blue. June-July. Wet situations. 3A.

Baltal (2900 m) 940*; Meenamarg (3100 m) 3030*; Sonamarg (3100 m) 902*, 8031*; Khillanmarg (3200 m) 315*, 316*; Apharwat (3700 m) 325*; Kongwattan (3100 m) 80*, 83*.

*S. thomsonii* Clarke
Erect; lower cauline leaves long petioled, upper sessile; glands near the base of corolla lobes obscure. July-August. Wet situations. 3A.

Sankoo (3000 m) 3032*.
POLEMONIACEAE

Polemonium Linn.

P. coeruleum Linn.
Erect; stem sparsely pubescent; leaflets ovate-lanceolate, acute; corolla blue. June-August.
Shady slopes. SA.
Sonamarg (2900 m) 1027*, 841*; Gulmarg (2800 m) 314*, 454*; Ferozpur Nullah (2700 m) 1256*.

BORAGINACEAE

Anchusa Linn.

A. ovata Lehm.
Erect, branched, densely clothed with trichomes; leaves broadly ovate; nutlets beaked, tuberculate between the wrinkles; flowers white. Dry slopes.
SA.
Bodhkhbarbu (3305 m) 226*; Sonamarg (3000 m) 438*.

Arnebia Forsk.

A. benthamii (Wall. ex G. Don) I. M. J.
Erect, robust with thick rootstock; stem densely covered with trichomes; basal leaves lanceolate; inflorescence a cylindrical thyrs; flowers dull grey. June-July. Open slopes. A.
Pir Panjal (2900 m) 1363*, 1377*, 4020*.
A. euchroma (Royle) I. M. J.
Erect perennial, caespitose; leaves lanceolate, acute, attenuate; flowers purple. July-August. Open slopes. A.
Sangam (3400 m) 1006*; Zoji La (3400 m) La216*.

Cynoglossum Linn.

C. thomsonii (Clarke) I. M. J.
Erect perennial; leaves long, lanceolate, petioled, upper sessile, greyish green and lustrous beneath, hairy; flowers bluish purple. June-August. Open slopes. SA.
Meenamarg (3180 m) La227*, La225*, La228*.

C. nervosum Benth. ex Clarke var. petiolatum (Hook.) Kazmi
Erect, branched; leaves lanceolate, lower long petioled; flowers infundibuliform, blue. June-July. Moist situations. SA.
Bovjan (2700 m) 647*.

C. wallichii G. Don var. glochidiatum (Wall. ex Benth.) Kazmi
Erect biennial; stem striate; basal leaves short petioled, upper sessile, hairs arising from prominent tubercle bases; flowers bluish purple. May-July. Shady slopes. T3A.
Drass (2800 m) 5041*; Sonamarg (2800 m) 877*.

C. wallichii G. Don var wallichii
Similar to C. wallichii var. glochidiatum except that the keel is not conspicuous and marginal
appendages of the nutlets are many. Shady situations. 3A.
Sonamarg (2900 m) 376*.

_Eritrichium_ Schrad.

_E. canum_ (Benth.) Kitm.
Erect perennial; leaves greyish white, narrowly lanceolate, acute, short petioled, attenuate; flowers blue. June-August. Rocky cliffs. A.

Sarbal (2800 m) 378*.

_E.fruticosum_ Klotzsch
Erect or ascending; stems many from the base; leaves lanceolate, upper sessile, lower short petioled; flowers light blue. Open slopes. A.

Sangam (3600 m) 951*.

_E.nanum_ (Vill.) Schrad. _ssp. villosum_ (Ledeb.) Brand Perennial, densely caespitose; stem simple; rosette of leaves at the base; inflorescence short; flowers blue. June-August. Open slopes. A.

Pir Panjal (3000 m) 1372*.

_Hackelia_ Opiz

_H. stewartii_ I.M.J.
Perennial, erect; leaves broadly lanceolate, acuminate, petiolar to subsessile; flowers blue. Shady situations. June-August. 3A.
Sonamarg (2900 m) 375*.

_H. macrophylla_ (Brand) I.M.J.
Perennial; leaves orbicular, acuminate; flowers
white. July-August. Amongst junipers. 3A.
Naginbal (2900 m) 375*.

**H. uncinata** (Benth.) C.E. C. Fischer
Perennial, erect; leaves very broad in the middle, ovate, acute; nutlets narrowed towards the apex; flowers blue. June-July. Shady situations. 3A.
Bovjan (3220 m) 4521*.

**Lepechiniella** M. Pop.

**L. microcarpa** (Boiss.) Riedl
Perennial; many stems from the base; lower leaves petioled, lanceolate, covered with patent hairs; flowers blue. May-June. Dry slopes. T3.
Dara (2255 m) 336*.

**Lindelofia** H. Lehm.

**L. longiflora** (Benth.) Baill
Erect perennial; stem simple; leaves ovate-lanceolate, lower petioled; flowers deep blue. July-August. A.
Pir Panjal (2900 m) 4003*, 4009*.

**L. longiflora** (Benth.) Baill var. *falconeri* (Clarke) Brand
Shorter form of *L. longiflora*. Leaves densely pubescent, oblong-lanceolate, acute; flowers blue. June-August. A.
Tarsar (3962 m) 4021*; Pir Panjal (2900 m) 1383*.

**Myosotis** Linn.

**M. micrantha** Pall.
Erect biennial; leaves ovate-lanceolate, obtuse;
nutlets shiny, brownish black; flowers light blue. June-August. Ts.
Sonamarg (2800 m) 1042*; Bovjan (2700 m) 643*;
Gulmarg (2600 m) 322*, 307*.

**Onosma** Linn.

**O. hispidum** Wall. ex G.Don
Erect perennial with a thick rootstock, covered by densely bristly trichomes; flowers cream coloured. June-August. Open slopes. Ts.
Drass (3045 m) La215*, La214*; Dara (2300 m) 377*.

**Pseudomertensia** Riedl

**P. moltkioides** (Royle ex Benth.) Kazmi var. moltkioides
Short slender perennial, densely leafy at the base, cauline leaves few, sessile; flowers infundibuliform, blue. July-August. Open slopes. A.
Apharwat (3900 m) 4503A*.

**P. moltkioides** var. primuloides (Decne.) Kazmi
The corolla tube much longer; anthers exceeding the bases of the faucal appendages; flowers blue. Open slopes. A.
Apharwat slopes (3800 m) 1063*.

**P. nemerosa** (DC.) Stewart & Kazmi
Perennial with slender branches; leaves long petioled, clasping at the base, ovate, acuminate; inflorescence lax; flowers bluish purple. May-July. Shady slopes. 3A.
Duksum (2500 m) 412*, 393*. 
P. parviflora (Decne.) Riedl

Low perennial; stamens exserted; leaves linear-lanceolate, acute; flowers creamy. June-July. Shady slopes. TS.

Above Zaberwan (2000 m) 1099*; Gulmarg (2700 m) 254*; Tangamarg (2150 m) 1124*.

Solenanthus Ledeb.

S. circinatus Ledeb.

Robust perennial; stem terete; leaves cordate, amplexicaule, ovate-lanceolate; stamens exserted; flowers dull yellow. June-July. Open slopes. SA.

Ledwas (3140 m) 1470*.

CONVOLVULACEAE (including CUSCUTACEAE)

Cuscuta Linn.

C. approximata Bab.

Flowers in sessile globose heads, sepals ovate, obtuse, stigmas as long as the styles. July-August. A.

Drass (3100 m) 3039*.

C. reflexa Roxb.

Flowers in racemes, bracts small, fleshy; styles very short, capsules fleshy. June-August. TSA.

Pir Panjal (2600 m) 3040*; Mahinag (3600 m) 93*.
**Convolvulus** Linn.

**C.arvensis** Linn.
Stem twining; leaves ovate-cordate, hastate; sepals elliptic, obtuse, corolla purple. May-August.
Dense slopes. TSA.
Drass (3100 m) 8041*, 3042*.

**Solanaceae**

**Atropa** Linn.

**A.acuminata** Royle
A glabrous herb; leaves large, petioled, ovate, acuminate; corolla pale yellow. June-July. Shady slopes. TS.
Gulmarg (2700 m) 3039*.

**Hyoscyamus** Linn.

**H.pusillus** Linn.
A pubescent herb; leaves petioled, ovate, sinuate toothed, calyx teeth mucronate. June-July. Dry slopes. A.
Bodhkharbu (3300 m) 224*.

**Physochlaina** G.Don; **P.praealta** (D.Don) Hook.f.
Erect, pubescent; leaves ovate-oblong, sinuate; corymbs pubescent, viscid; corolla funnel-shaped, yellow, style and stamens exserted. July-August. Moist slopes. A.
Bodhkharbu (3300 m) 3033*.
**SCROPHULARIACEAE**

*Euphrasia* Linn.

**E. aristulata** Penn.

Annual, sparsely pubescent; leaves ovate, cordate, aristate; flowers pale-pink. June-August. SA.
Open slopes.
Sonamarg (2300 m) 337*.

*Lagotis* Gaertn.

**L. cashmeriana** (Royle) Rufr.

Perennial, fleshy; leaves oblong-ovate, crenate, petioled; stigma exserted; flowers blue. July-August. Wet situations. A.
Apharwat slopes (3800 m) 453*; Damamsar (4000 m) 4523*; Ledwas-Mahdev (3200 m) 626*.

*Lancea* Hook. f. & Thoms.

**L. tibetica** Hook. f. & Thoms.

Small, glabrous; leaves rosulate, acute; flowers sunk amongst the leaves, blue. July-August.
Moist situations. A.
Bodhkhurbu (3305 m) La221*.

*Pedicularis* Linn.

**P. bicornuta** Kl.

Stout perennial; stem simple; leaves pinnatifid, lobed to the middle; flowers large, yellow.
July-August. Open slopes. A.
Sheshnag (3658 m) 977*; Apharwat (3900 m) 326*, 1057*; Ledwas (3300 m) 635*. 

**P. elephantoides** Benth.

Stout; stem one or more from a thick rootstock; radical leaves petioled, pinnate; upper lip of the corolla sickle-shaped; flowers yellowish-pink. July-August. Open slopes. A.

Pir Panjal (3000 m) 4025*, 4026*.

**P. hookeriana** Wall.

Erect, quite glabrous; stems many; leaves pinnate, pinnae serrate-dentate; corolla tube very long; flowers pink-rose. July-August. Moist situations. A.

Thajwas (3010 m) 1051A*.

**P. longiflora** Rudolph ssp. **tubiformis** (Kl.) Penn.

Low, sparsely pubescent; leaves pinnatifid; corolla tube longest in the family; flowers yellow. Wet situations. July-August. A.

Upshi (3470 m) 5018*.

**P. pectinata** Wall. ex Benth.

Tall, stout, erect, many stems from the root; leaves pinnatifid, cauline in whorls; flowers rose-pink. Moist situations. June-August. SA.

Sarbal (2850 m) 383*, 339*, 337*; Ferozpur Nullah (2600 m) 1247*; Pir Panjal (3000 m) 4027*, 4028*.

**P. pectinata** ssp. **bipinnatifida** Penn.

Smaller than the typical **P. pectinata**; leaves bipinnatifid. July-August. Open slopes. A.

Khillanmarg-Apharwat (2400 m) 318*.
**P. punctata** Decne.

Stems many from the root, sparsely hairy; leaves pinnatifid-sect; flowers axillary and terminal, rose-pink, July–August. Moist slopes. SA.

Sheshnag (3650 m) 978*, 1021*; Tarar (3300 m) 1628*; Sarbal (2850 m) 890*; Near Amarnath (4000 m) 987*; Ferozpur Nullah (2600 m) 1250*; Apharwat (3900 m) 319*; Kongwattan (3400 m) 95*.

**P. purpurea** Penn.

Many stems arising from the root, 4-fariously pubescent; leaves pubescent throughout; flowers yellowish pink. July–August. Open slopes. A.

Amarnath (4000 m) 3191*, 5047*; Apharwat slopes (3900 m) 1086*.

**P. pyramidata** Royle

Almost similar to *P. pectinata* but the stem is 4-fariously hairy; spikes very long; flowers rose. July–August. Open slopes. SA.

Pir Panjal (3000 m) 4029*.

**P. rhinanthoides** Screnk ex Fisch. ssp. *labellata* (Jacq.) Prain

Low form of *P. bicornuta*; leaves pinnatifid-sect, long petioled, serrate-sentate; flowers large, yellow. August–September. Open slopes. A.

Tarsar (3900 m) 1616*; Alipathar Lake (3800 m) 4316*.
**P. roylei** Maxim.

Erect; stem 4-fariously hairy; cauline leaves petioled; spike pilose, more prominent on the calyx margin; flowers rose. August-September. Open slopes. A.

Kongwattan-Kounsernag (3400 m) 96*.

**P. versicolor** Wahlb.

Low, hirsute above; leaves pinnatifid, lobes ovate, serrate-dentate; flowers lemon yellow with a purple tip. July-August. Open slopes. A.

Amarnath (4000 m) 5043*; Apharwat (3900 m) 296*; Damamsar (4010 m) 4524*.

**Picrorhiza** Royle

**P. kurrooa** Royle ex Benth.

Low perennial, rootstock thick; leaves simple, ovate, serrate-dentate, acute; stamens very long, exserted. June-July. Open slopes. A.

Mahdev (3900 m) 623*.

**Scrophularia** Linn.

**S. decomposita** Royle ex Benth.

Tall, robust, glabrous perennial; leaves 2-pinnatisect, segments unequal; cymes lax, capsule globose, pointed. June-July. Open slopes. SA.

Drass (3000 m) 5003*; Sangam (3200 m) 961*; Lidderwat-Kolohai (3300 m) 1629*; Pir Panjal (2900 m) 1310*. 
S. decomposita var. latifolia (Benth.) Penn.
Tall, sparsely pubescent perennial; leaves ovate, acute, petioled, coarsely toothed; inflorescence a dichasial cyme; flowers greenish, June-July.
Open slopes. 3A.
Ferozpur Nullah (2700 m) 1265*.

NEW RECORD FOR KASHMIR

S. robusta Penn.
Tall, robust, semi-aquatic perennial; leaves large, oblong, ovate, acute; flowers pinkish yellow.
Verinag (2400 m) 1390*.

Verbascum Linn.

V. thapsus Linn.
Tall, erect, wooly; leaves oblanceolate, entire; spike dense; flowers yellow. May-August. Open slopes. TSA.
Kongwattan (3500 m) 94*.

Veronica Linn.

V. biloba Linn.
Low annual, pubescent, diffusely branched; leaves ovate-lanceolate; fruiting calyx spreading overshadowing the capsule in length. May-June. Moist situations. TSA.
Sonamarg (2900 m) 391*; Zaffarkhani Nallah (2400 m) 1511*; Meenamarg (3130 m) 5049* a low form of V. biloba; sepals acte, pubescent.
*V. cachemirica* Gandoger

Low, pubescent annual; leaves sessile, oblong-ovate, toothed; stamens exserted; petals acute, blue. Moist situations. June-July. A.

Sangam (3400 m) 946*.

*V. hirta* Penn.

Densely pubescent, low; stem simple; leaves ovate, obtuse, sessile; flowers terminal; flowers light blue. June-July. Moist situations. A.

Baltal (3300 m) 924*; Apharwat (3900 m) 288*.

*V. lanosa* Royle ex Benth.

Stem densely hairy, many from a thick rootstock; leaves ovate, acute, serrate; racemes lax; flowers blue. July-August. Rocky cliffs. A.

Pir Panjal (3000 m) 4030*, 4031*, 4032*, 4307*.

*V. melissifolia* Desf. ex Poir.

Stems ascending, branched, pubescent; leaves sessile, ovate-cordate, crenate-serrate; racemes axillary. June-July. Moist situations. SA.

Dara (2400 m) 656*; Khillanmarg (3100 m) 320*, 317*; Naginbal (3220 m) 4525*; Duksum (2700 m) 404*.

*V. perousilla* Boiss.

Low, glabrous, annual; leaves sessile, ovate, obtuse, entire; flowers white. May-June. Moist situations. SA.

Pahalgam (2200 m) 5050*.
V. salina Schur
Annual, tall, glabrous; leaves sessile, ovate, entire; bracts small, linear. July-August. Moist situations. A.
Parakhchak (3100 m) 2016*.

V. secunda Penn.
Almost similar to V. salina except for the smaller flowers and the larger leaves. July-August. Moist situations. A.
Parakhchak (3400 m) 2017*.

V. serpyllifolia Linn.
Glabrous, branched from the base; leaves oblong, entire, sessile; flowers white or pink. Moist places. May-July. SA.
Sonamarg (2900 m) 435*; Meenamarg (3200 m) 219*; lower leaves minutely crenate; Dara (2400 m) 343A*; Zaffarkhani Nullah (2300 m) 1513*; Arizal (2600 m) 1189*, 1187*.

V. verna Linn.
Very low annual, slender; densely leafy; flowers blue. June-July. Meadowlands. SA.
Pahalgam (2300 m) 5046*.

Wulfenia Jacq.

W. amherstiana Wall. ex Benth.
Semiglabrous perennial; leaves spatulate, coarsely crenate; petals blue, styles exserted. July-August. Rocky cliffs. A.
Pir Panjal (3000 m) 1333*, 4034*, 4035*, 4036*. 
PLUMBAGINACEAE

Acantholimon Boiss.

*A.lycopodioides* (Girard) Boiss.

Densely tufted prickly shrub; leaves linear-lanceolate, needle pointed; petals rose. July-August.

Dry slopes. A.

Fotu La (4110 m) La177*, La178*

PLANTAGINACEAE

Plantago Linn.

*P.depressa* Willd.

Perennial, glabrous; leaves lanceolate, shortly petioled; scape grooved, spike slender, July-August. Meadowlands. SA.

Upshi (3500 m) 5014*; Bodhkharbu (3300 m) 5007*;

Wangat (2600 m) 1435*; Tosmaidan (3100 m) 1193*.

*P.himalaica* Pilger

Perennial, glabrous; leaves ovate-lanceolate, petioled; scape stout, spike cylindric. June-July.

Meadowlands. SA.

Upshi (3500 m) 5010*; Sonamarg (2900 m) 900*;

Drass (3100 m) 3043*.

LAMIACEAE (nom. alt. LABIATAE)

Calamintha Moench

*C.vulgaris* (Linn.) Druce

Erect hairy herb; whorls dense flowered; leaves ovate; flowers purple. June-August. Open slopes. T3A.

Sonamarg (2900 m) 692*; Ahrabal (2500 m) 97*. 

Dracocephalum Linn.

D. nutans Linn.

Ascending; lower leaves petioled, upper sessile, ovate, serrate; upper lip of calyx large, acuminate; flowers bluish purple. June-August. Open slopes. SA.
Wangat (2500 m) 1440*; Sheshnag (3658 m) 960*, 960A*; Sonamarg (2900 m) 835*, 832*.

Elsholtzia Willd.

E. ciliata (Thunb.) Hylander

Erect herb, semi-glabrous; leaves long petioled, coarsely serrate; spikes long, pubescent; flowers purple. June-August. Moist situations. SA.
Sonamarg (3000 m) 381*, 1620*; Aru (2800 m) 1620A*.

Lamium Linn.

L. album Linn.

Perennial, glabrous; leaves petioled, cordate, serrate; flowers white. May-August. Shady slopes. T3A.
Dara (2225 m) 350*, 354*; Gulmarg (2600 m) 480*; Ferozpur Nullah (2500 m) 1260*; Kongwattan (2600 m) 110*.

Leonurus Linn.

L. cardiaca Linn.

Erect stout herb; leaves pinnatifid, serrate, long petioled; flowers densely villous; flowers white. Moist situations. SA.
Sonamarg (2700 m) 834*; Kongwattan (3500 m) 102*.
**Marrubium** Linn.

*M. vulgare* Linn.

Robust perennial wooly herb; leaves petioled, ovate, crenate; whorls axillary; flowers white. May-June.

Dry slopes. TS.

Dara (2225 m) 614*.

**Mentha** Linn.

*M. longifolia* (Linn.) Huds. var. *royleana* Benth.

Strong scented, uniformly tomentose; leaves ovate-lanceolate, serrate; spikes stout; flowers pink. June-August. Open slopes. TS.

Kongwattan-Kounsernag (3700 m) 103*.

**Nepeta** Linn.

*N. erecta* (Benth.) Benth.

Tall, erect, finely pubescent; leaves ovate, petioled, serrate; flowers blue. June-July. Open slopes. SA.

Gulmarg (2600 m) 323*.

*N. floccosa* Benth.

Stems from the root; leaves orbicular, cordate; flowers with white wool; flowers pink. July-August.

Open slopes. A.

Khalsi (2945 m) La33*.

*N. govaniana* (Benth.) Benth.

Tall, erect, aromatic, finely pubescent; leaves long petioled, ovate, crenate-dentate; cymes lax, long peduncled; flowers yellow. June-August.
Amonst the bushes. SA.
Khillanmarg (2950 m) 4310*, 4311*; Sukhnag (2600 m) 1214*, 1213*; Ferozpur Nullah (2500 m) 1249*;
Above Bovjan (2785 m) 696*; Pir Panjal (2900 m) 4022*; Kongwattan (2600 m) 113*, 114*.

*N. glutinosa* Benth.
Erect, scented, glandular pubescent; leaves ovate, cordate, inciso-serrate; whorls lax; flowers blue.
June-August. Open slopes. SA.
Bodhkharbu (3305 m) La223*; Drass (3045 m) La218*.

*N. laevigata* (D.Don) Hand.-Mazz.
Erect, branched, hoary; leaves ovate, petiolate, coarsely crenate; flowers pale blue. July-September.
Open slopes. TSA.
Kongwattan (2600 m) 111*, 107*, 105*.

*N. linearis* Royle ex Benth.
Erect, branched; leaves sessile, linear-lanceolate, acute, entire; spike usually oblong; flowers pale.
June-August. Open slopes. SA.
Sonamarg (2900 m) 380*; Amarnath (3900 m) 5042*;
Bovjan (2700 m) 1453*; Dara (2225 m) 363*; Ferozpur Nullah (2500 m) 1259*.

*N. raphanorhiza* Benth.
Stem ascending, branched, villous; leaves small, petioled, broadly ovate, toothed; spikes short; flowers purplish blue. April-June. Moist places. Ts.
Zaberwan (2200 m) 1107*. 
Origanum Tourn.

\textbf{O. vulgare} Linn.

Erect, sparsely villous; leaves broadly ovate, entire; bracts ovate; flowers blue purple. July-September. Moist situations. TSA.
Kongwattan-Kounsernag (2300 m) 108*, 109*.

Perovskia Karel.

\textbf{P. abrotanoides} Karel.

Erect, branched, strongly scented, clothed with white stellate scurf; leaves linear-oblong, pinnatisect; flowers pink. June-August. Dry slopes.
A.
Saspul (3315 m) La32*, La219*.

Phlomis Linn.

\textbf{P. bracteosa} Royle ex Benth.

Stout, erect, tomentose; leaves petioled, ovate, obtuse, crenate; whorls dense flowered; flowers purple. June-July. Moist situations. SA.
Sangam (2700 m) 979*; Ledwas (3300 m) 627*, 658*.

\textbf{P. spectabilis} Falc. ex Benth.

Large, stout, hoary; leaves stellately tomentose beneath, ovate-cordate, obscurely crenate; flowers rose-purple. June-August. Open slopes. T3.
Verinag (2400 m) 1366*.

Prunella Linn.

\textbf{P. vulgaris} Linn.

Low perennial; leaves petioled, ovate-oblong, entire; whorls in dense heads; flowers purple. July-August.
Moist pastures. SA.
Sonamarg (2900 m) 892*; Gulmarg (2600 m) 503*;
Ferozpur Nullah (2600 m) 1275* leaves toothed and
softly tomentose.

**Salvia Linn.**

*Salvia hians* Royle ex Benth.
Tall, robust, viscidly hairy; leaves long petioled,
ovate-cordate, toothed; flowers blue. July-August.
Open slopes. SA.
Sangam- Amarnath (3500 m) 5043*; Sarbal (3200 m)
886*; Naginbal (3220 m) 4522*.

**Scutellaria Linn.**

*Scutellaria prostrata* Jacq. ex Benth.
Dwarf, prostrate, much branched; leaves ovate,
small, petioled, toothed; flowers yellow, tipped
with violet. June-July. Dry slopes. SA.
Sarbal (2700 m) 1347*; Pir Panjal (3000 m) 4023*.

**Stachys Linn.**

*Stachys sericea* Wall. ex Benth.
Tall, erect, densely villous; leaves shortly petioled,
oblance-ovate, acute, crenate; whorls axillary;
flowers dull-pink. June-August. Dry slopes. SA.
Wangat (2500 m) 1413*; Lidderwat (3200 m) 1625*;
Tarsar (3600 m) 1625*; Mahinag (3400 m) 99*, 100*.

*Stachys tibetica* Vatke
Erect, semi-glabrous, branched; leaves ovate, entire,
shortly petioled; flowers pink. July-August. Open
slopes. A.
Bodhkarbu (3305 m) 5044*.

**Thymus** Linn.

Slender, much branched, aromatic, branches prostrate; leaves ovate-oblong; flowers purple. May-August.

Gumri (3380 m) 5045*; Panchtarni (3300 m) 929*; Wangat (2500 m) 1433*; Bovjan (3300 m) 459*;
Khillanmarg (3400 m) 1071*; Ferozpur Nullah (2500 m) 1433*; Pir Panjal (3000 m) 1362* flowers white.

**CHENOPODIACEAE**

**Chenopodium** Linn.

*C. album* Linn.
Erect; stem angled; leaves lanceolate, acute, entire, upper narrower; clusters in compact spikes. June-August. Open situations. T3A.

Kongwattan (2900 m) 3045*.

*C. botrys* Linn.
An aromatic glandular pubescent branched herb; leaves ovate-oblong, sinuate toothed; racemes long, terminal. June-July. Open slopes. 3A.

Sangam (3700 m) 1045*.
POLYGONACEAE

Fagopyrum Gaertn.

F. cymosum (Trev.) Meissn.
Tall, puberulous; leaves triangular, obtuse; flowers in axillary and terminal cymes; perianth white. June-July. Moist shady situations. SA. Sangam (3300 m) 1025*.

F. esculentum Moench
Tall, glabrous; leaves triangular, cordate, acute; nuts much longer than the perianth. June-July. Moist shady situations. SA. Drass (3305 m) 6034*; Khalsi (3200 m) 6049*.

Oxystria (Linn.) Hill

O. digyna (Linn.) Hill
Rootstock stout; leaves all radical, long petioled, cordate, reniform; fruit orbicular, cordate. June-July. Moist slopes. SA.
Sonamarg (2900 m) 899*; Domel (3200 m) 914*; Sangam (3300 m) 1024*; Thajwas (3100 m) 6050*; Naranag (2800 m) 1436*; Apharwat (3300 m) 6051*; Kongwattan (3000 m) 123*, 122*, 121*.

Polygonum Linn.

P. affine D. Don
Densely tufted perennial; leaves shortly petioled, linear-lanceolate, crenulate, acute, glaucous beneath; peduncles erect; flowers brown. July-August. Open slopes. A.
**P. alpinum** All.
Tall, shrubby herb; stem glabrous; leaves linear-lanceolate, petioled, acuminate, finely pubescent beneath; flowers small, white. June-August. Moist slopes. 3A.
Sarbal (3100 m) 894*, 6057*; Ferozpur Nullah (2700 m) 1242*; Naginbal (3200 m) 6056*; Arizal (2500 m) 1173*.

**P. amplexicaule** D.Don
Densely tufted erect perennial; leaves large, long petioled, upper amplexicaule, ovate, cordate, crenulate, acuminate; flowers pink. June-August. Moist slopes. 3A.
Lidderwat (3100 m) 6058*; Khillanmarg (3200 m) 1072*; Apharwat (3500 m) 330*; Ferozpur Nullah (2700 m) 1240*; Kongwattan (2800 m) 116*, 115*; Pir Panjal (2900 m) 1218*, 6059*.

**P. amplexicaule** D.Don var. *speciosa* Hook.f.
Flowers larger, deep purplish-red. July-August. Shady slopes. A.
Amarnath (4100 m) 952*; Drogthalan (3500 m) 6060*; Pir Panjal (2900 m) 1223*, 6061*.

**P. arenastrum** Boreau
Habit like **P. aviculare** but the nuts are exserted; flowers white. June-August. Dry slopes. 3A.
Drogthalan (3500 m) 6062*.

**P. aviculare** Linn.
Glabrous, much branched pubescent annual; leaves elliptic-oblong, subsessile, entire; flowers axillary, pink. July-August. Dry slopes. 3A.
Drass (3045 m) 6040*; Tarsar (3300 m) 6063*; 
Drogthalan (3100 m) 6064*.

**P. convolvulus** Linn.
Annual, twining, glabrous; leaves sagitate, cordate; 
flowers axillary and terminal; perianth green. 
June-July. Dry slopes. TSA.
Drass (3045 m) 6044*.

**P. deliculatum** Meissn.
Low slender annual, glabrous; leaves elliptic-ovate, subsessile; flowers minute, white. July-August. Moist slopes. A.
Miroo-Latoo (3570 m) 5024*; Apharwat slopes (3500 m) 6065*.

**P. filicaule** Wall. ex Meissn.
Slender annual; leaves sparsely pubescent, petioled, ovate, obtuse; flowers in axillary and terminal sessile clusters, perianth white. July-August. Wet situations. A.
Thajwas (3100 m) 6067*; Barga Maidan (3600 m) 6048*; 
Drogthalan (3400 m) 6066*; Khillanmarg (3200 m) 1033*, 1063*.

**P. glaciale** (Meissn.) Hook.f.
Dwarf slender annual; leaves broadly ovate, obtuse, 
long petioled; heads small, sessile, white. July-September. Moist situations. A.
Tarsar (3400 m) 6068*.
P. heigei Royle ex Babl.

Robust, branched, puberulous; leaves obovate, obtuse, margin recurved; cymes dense flowered; flowers white. July-August. Shady slopes. A.
Sankoo (2940 m) 6041*, 6069*.

P. lapathifolium Linn.

Annual, erect; leaves shortly petioled, elliptic-lanceolate, glandular beneath; racemes dense flowered; perianth pink. July-August. Wet situations. SA.
Drass (3305 m) 6038*; Upshi (3300 m) 5011*.

P. nepalense Meissn.

Erect, glabrous annual; leaves ovate, obtuse, petiole winged; heads with a large involucral leaf. July-August. Open slopes. SA.

P. nummularifolium Meissn.

Dwarf annual; nodes hairy; leaves orbicular, sparsely ciliate, clusters many flowered, pedicelled. July-August. Open slopes. A.
Khillanmarg (3100 m) 6076*.

P. paronychoides C.A. Mey. ex Hohen.

Densely tufted, ascending, scabrid; leaves linear, mucro recurved; stipules large, hyaline. July-September. Dry slopes. A.
Drass (3045 m) 6043*, 6077*.

P. polystachyum Meissn. var. glabra Meissn.

Tall, herbaceous perennial; leaves large, quite
glabrous, oblong-lanceolate, petioled, sub-hastate, acuminate; flowers in panicles, pale. July-August. Moist slopes. A.

Tarsar (3400 m) 6078*; Kolohai (3600 m) 6079*.

*P*. polystachyum Meissn. var. pubescens Meissn.
Pir Panjal (3000 m) 6030*.

*P*. rotboellioides Jaub. & Spach
Annual, stems many from the root, glabrous, ascending; leaves linear, acute; stipules hyaline, fimbriate; flowers white. July-August. Dry slopes. A.
Panikar (3200 m) 6031*; Drass (3100 m) 6032*; Sonamarg (3100 m) 895*.

*P*. rumicifolium Royle ex Babe.
Tall, robust; leaves petioled, broadly ovate, obtuse, puberulous; panicles dense flowered. July-August. Moist slopes. A.
Parakchak (3300 m) 6035*, 6036*; Damamsar (3300 m) 6034*.

*P*. tortuosum D. Don
A low shrub, dichotomously branched; leaves sessile, coriaceous, obovate; panicles dense flowered, pink. July-August. Moist slopes. A.
Sankoo (3100 m) 6047*; Bodhkharbu (3300 m) 6084*.

*P*. vaccinifolium Wall. ex Meissn.
Robust; stem simple; leaves elliptic-ovate, entire,
subsessile; racemes dense; flowers pink. July-August. Moist slopes. A.
Drass (3045 m) 6039*.

**P. viviparum** Linn.
Stem erect, simple; leaves linear-lanceolate, entire, acute; spikes solitary; flowers pink. July-August. Open slopes. A.
Sankoo (2930 m) 6037*; Amarnath (4000 m) 935*, 1035*, 998*; Bodhkharbu (3304 m) 6036*; Apharwat (3300 m) 6035*.

**NEW RECORD FOR INDIA**

**P. emodi** Meissn.
Low, tufted, woody, glabrous perennial; leaves all radical, dense, linear-lanceolate, strict; peduncles straight. August-September. Moist slopes. A.
Upshi (3400 m) 3470*.

**Rheum** Linn.

**R. webbianum** Royle
Stout, erect; leaves large, orbicular, cordate, long petioled; flowers yellow. July-August. Moist slopes. A.
Thajwas (3100 m) 1056A*.

**Rumex** Linn.

**R. acetosa** Linn.
Tall, erect robust perennial; radical leaves long petioled, oblong, acute, hastate; cauline sessile, amplexicaule, acute; nuts pedicelled. July-August. Moist slopes. Ti3A.
Drass (3045 m) 6087*; Sarbal (2900 m) 896*, 898*; Pir Panjal (2900 m) 6088*.

*R. nepalensis* Sprang.
Tall perennial; radical leaves oblong-ovate, petioled, upper sessile; winged valves toothed. June-July. Moist slopes. T3A.
Bovjan (2600 m) 695*; Dara (2400 m) 370*.

*R. patientia* Linn. var. *tibetica* (Rech.f.) Rech.f.
Erect, robust; stem terete; leaves linear-lanceolate, entire, petioled; flowers dense, valves obcordate-hastate, pedicelled. July-August. Wet situations. A.
Drass (3045 m) 6089*.

**THYMELÆACEAE**

*Daphne* Linn.

*D. oleoides* Schreb.
A small branched shrub; leaves alternate, sessile, coriaceous; flowers cream cloured. May-June. Open slopes. T3.
Dara (2300 m) 366*.

**ELAEAGNÆACEAE**

*Hippophae* Linn.

*H. rhamnoides* Linn.
A spinescent shrub with rigid branches; twigs silvery; leaves linear-oblong, clothed with silvery scales beneath; fruit oblong, orange. June-August. Open slopes. A.
Panikar (3200 m) 8046*.
**EUPHORBIACEAE**

*Euphorbia* Linn.

**E. cornigera** Boiss.

Resembles *E. pilosa* but here the leaves are finely serrulate and the capsules with distinct conical warts. June-July. Open meadow. A.

Thajwas (3200 m) 8047*.

**E. thomsoniana** Boiss.

Erect, glabrous; stem simple; leaves elliptic-ovate, obtuse or acute; involucres campanulate; capsule shortly stipitate. June-July. Open slopes. A.

Drass (3100 m) 5006*.

**E. tibetica** Boiss.

Stems many from the base; suberect; cauline leaves linear-oblong, toothed; involucres axillary; capsule smooth. June-July. Open slopes. A.

Bodhkharbu (3300 m) 5004*.

**E. pilosa** Linn.

Erect, branched; stem pubescent above; leaves sessile, oblong, obtuse, sometimes tomentose beneath; capsule smooth or warted. June-July. Meadowlands. SA.

Sangam (3400 m) 1043*; Tarsar (3500 m) 8048*; Bovjan (2700 m) 693*; Kongwattan (3200 m) 124*.

**E. wallichii** Hook.f.

Tall perennial; stem pubescent above; leaves sessile, obovate, obtuse; involucres hemispheric, capsule smooth. June-August. Meadowlands. SA.

Naginbal (3500 m) 8049*; Khillanmarg (3200 m) 471*.
URTICACEAE

Parietaria Tournef.

P. debilis Forst.
A diffuse annual; leaves long petioled, elliptic-ovate, obtuse; bracts linear; fruit ovoid. June-July. Moist rocky shades. 3A.
Sonamarg (2900 m) 901*; Above Verinag (2400 m) 1344*.

BETULACEAE

Betula Tourn.

B. utilis D. Don
A tree, bark peeling in white flakes; leaves alternate, pubescent when young, ovate, acuminate, irregularly serrate. Found almost throughout alpine mountainous slopes of Kashmir.

SALICACEAE

Salix Linn.

S. alba Linn.
A tree, leaves narrow, lanceolate, acuminate, silky beneath; catkins dense flowered, female yellow, ciliate. May-July. T3A.
Sankoo (3100 m) 8050*.

S. denticulata N. J. Anderss.
A small tree; leaves elliptic-ovate, acute, serrulate, glaucous, reticulate beneath; catkins long, sightly drooping. June-July. Open slopes. 3A.
Poshpatri (3900 m) 957*; Khillanmarg (3300 m) 305*; Pir Panjal (3000 m) 1358*.
**Iris Linn.**

*I. hookeriana* Foster

Low; leaves linear, pale green; flower head solitary; perianth purplish-blue; capsule oblong. June-July. Open slopes or Meadowlands. 3A.

Sarbal (2900 m) 8051*; Bovjan (2800 m) 642*, 1490*; Khillanmarg (3300 m) 601*; Tosmaidan (3100 m) 1199*.

**Allium Linn.**

*A. atropurpureum* Hook. & Thoms.

Bulbs globose, coats papery; leaves 4-6, broadly linear, flat; umbels dense; tepals rose. May-June. Open slopes. T3.

Above Harwan (2500 m) 8057*.

*A. consanguineum* Knuth

Bulbs cylindrical, outer coat coriaceous, striate;
leaves 3-5, linear, flattened; umbels dense; tepals yellow; filaments exserted. May-June. Open slopes. T3.
Above Harwan (2500 m) 3055*.

*A. humile* Knuth

Bulbs cylindrical, coats reticulate, fibrous; leaves 4-6, linear, obtuse; flowers lax; tepals white, lanceolate. July-August. Open slopes. A.
Alipathar Lake (4013 m) 3054*.

*A. thomsonii* Baker

Bulbs cylindrical, outer coats coriaceous, brown; leaves 5-6, broadly linear-lanceolate, obtuse; tepals bright rose or pink. July-August. Rocky cliffs. A.
Sangam (3700 m) 994*.

*A. victoralis* Linn.

Bulb cylindrical, coats reticulate, fibrous; leaves petiolate, broadly lanceolate. Open slopes. May-June. A.
Amarnath (3900 m) 8056*.

*Colchicum* Linn.

*C. luteum* Baker

Corm ovoid; leaves large, oblanceolate; flowers linear-oblong, perianth golden yellow. April-May. Meadowlands. SA.
Gulmarg (2700 m) 249*; Tangamarg (2400 m) 1402*. 
**Fritillaria** Linn.

**F. roylei** Hook.

Tall; leaves opposite, linear-lanceolate, acuminate; flowers few or solitary, nodding, broadly campanulate, greenish yellow. May-July. Amongst the boulders. A.

Apharwat slopes (3700 m) 8052*; Gadsar (3700 m) 8053*.

**Gagea** Salisb.

**G. dschungarica** Regel

Small, bulbiferous herb; radical leaves linear-lanceolate, cauline similar but smaller; flowers in dichotmous cymes, pale yellow. May-June. Open slopes. T3.

Sonamarg (2800 m) 446*; Tangamarg (2400 m) 1401*.

**G. elegans** Wall. ex Royle

Radical leaves long, lanceolate, cauline similar; flowers solitary, yellow. May-June. Open slopes. T3.

Gulmarg (2600 m) 251*.

**Lloydia** Salisb.

**L. serotina** (Linn.) Reichenb.

Slender, bulbous herb; leaves filiform; perianth infundibuliform, white, purple at the base. July-August. Rocky cliffs. A.

Bovjan (2700 m) 607*; Pir Panjal (3000 m) 1364*.
Polygonatum Tourn.

_P. multiflorum_ (Linn.) All.
Tall, stem terete; leaves alternate, oblong, sessile; peduncles 2-3 flowered; perianth small, white. April-May. Shady slopes. **T5.** Above Zaberwan (2300 m) 1100*.

_P. verticillatum_ All.
Stem tall; leaves sessile, whorled, linear-lanceolate, circinate at the tip; peduncles 2-3 flowered; berries light-brown. June-July. Rocky cliffs. **SA.** Lidderwat-Kolahai (3400 m) 1617*.

Trillium Linn.

_T. govanianum_ Wall. ex Royle
Stem simple, erect, base sheathed; leaves 3, whorled; flowers solitary, perianth persistent; berry fleshy. May-June. Shady slopes. **SA.** Sonamarg (2300 m) 427*; Gulmarg (2700 m) 253*, 494*; Ledwas (3100 m) 1468*; Bovjan (2500 m) 650*; Wangat-Naranag (2700 m) 1418*; above Duksum (2700 m) 406*.

ARACEAE

Arisaema Mart.

_A. jacquemontii_ Blume
Tuber globose; leaflets 5-7, elliptic-ovate,
Tosmaidan (2900 m) 1188*; Khillanmarg (3400 m) 329*; Pir Panjal (2900 m) 1327*.

_A. wallichianum_ Hook.f.
rect; leaf solitary, leaflets 3, rhombic-orbicular, shortly petioled, filiferous, spathe striped with dark-purple veins. June-July. Moist rocky crevices. SA.

Gulmarg (2700 m) 600*, 499*, 493*.