

K. M. PUROHIT* & G. PANIGRAHI*: **A note on *Agrimonia nepalensis* complex (Rosaceae)**

K. M. पुरोहित*・G. पानिग्राहि*: キンミズヒキ群について

D. Don (1825) based *Agrimonia nepalensis* D. Don on *Hamilton s.n.* from Nepal and described it as "foliolis ovatis serratis utrinque cauleque erecto villosimis; impari stipitato racemis rectis tenuifloris, bracteis, trifidis calyce brevioribus, laciniis calycinis lanceolatis acutis carinatis". While J. D. Hooker (1878) reduced it as a synonym of the European *A. eupatoria* L., O. Kuntze (1891) treated it as a distinct variety of the latter. Nakai (1933) considered *A. nepalensis* D. Don nearer to *A. pilosa* Ledeb. (from the U.S.S.R.) than to *A. eupatoria* L., recognized two varieties within *A. pilosa* Ledeb. and distinguished them as follows.

- 1a. Lower leaves almost entirely persistent; flowers 8-10 mm in diameter; fruits 4-5 mm broad, bristles 3-4 mm long, generally equaling to or exceeding the sepal.....*A. eupatoria* L.
- 1b. Lower leaves generally withered at the time of flowering; flowers 4-8 mm in diameter (very rarely 9-10 mm); fruits 3-4 mm broad, bristles 2-3 mm long, generally shorter than or equaling to sepal.....*A. pilosa* Ledeb.
- 2a. Terminal leaflets with 3-10 (generally 4-7) teeth on each side, hairs 1-2 mm long on the primary veins beneath..... var. *pilosa*
- 2b. Terminal leaflets with 7-15 (generally 9-11) teeth on each side.
- 3a. Leaflets villose with spreading hairs beneath.....
..... var. *nepalensis* (D. Don) Nakai
- 3b. Leaflets adpressedly pilose beneath.....var. *japonica* (Miq.) Nakai

Hara in Hara & Kurosawa (1968) supported Nakai's (*l.c.*) treatment in principle that *A. pilosa* Ledeb. (4x=28), *A. nepalensis* D. Don (8x=56) and *A. viscidula* Bunge var. *japonica* Miq. (8x=56) are genetically related, and that intermediate forms between var. *nepalensis* and var. *japonica* occur in Nepal, western Himalayas and Japan. He (*l.c.*) raised *A. pilosa* Ledeb. var. *japonica*

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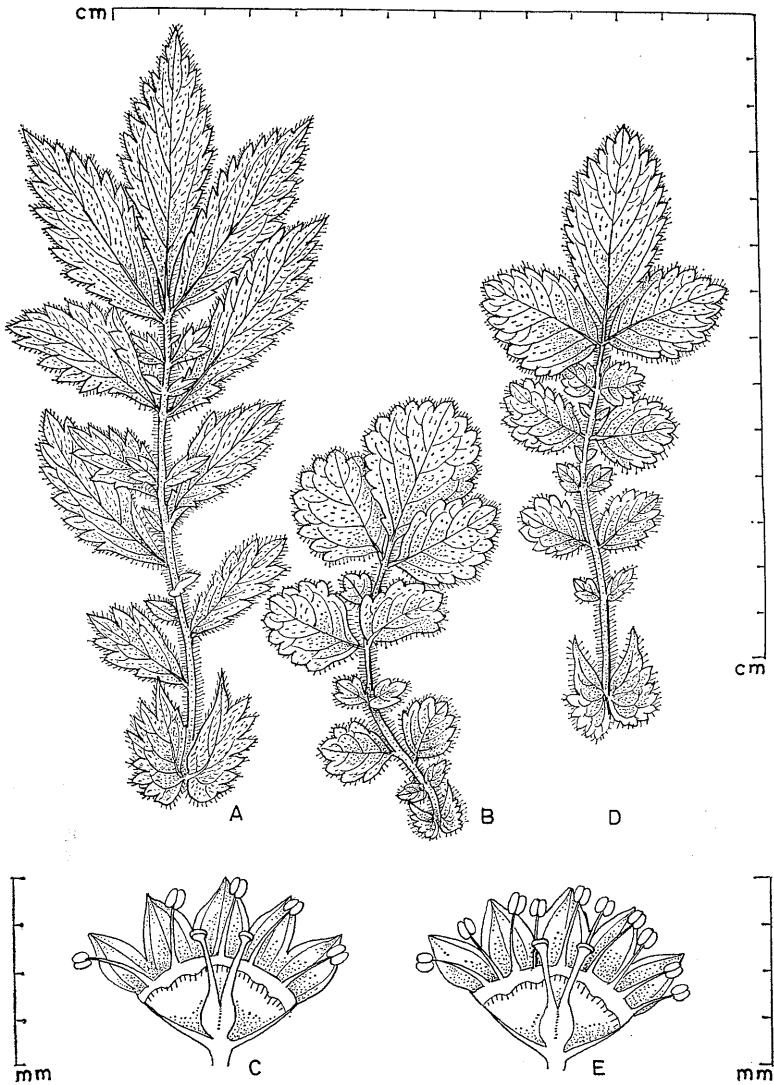


Fig. 1. *Agrimonia pilosa* ssp. *japonica*. A. var. *japonica*. B & C. var. *zeylanica*. D & E. var. *nepalensis*.

(Miq.) Nakai to the rank of a subspecies, *A. pilosa* Ledeb. subsp. *japonica* (Miq.) Hara and recognized two varieties under this subspecies viz. var. *japonica* and var. *nepalensis* (D. Don) Nakai.

Although J.D. Hooker (1878) validated *Agrimonia zeylanica* Moon (1824), nomen nudum, from Ceylon with a description, he was sceptical about its taxonomic status. Such scepticism was strengthened when Hara & Kurosawa (1968) observed, "*Agrimonia zeylanica* Moon from Ceylon may also be conspecific with *A. nepalensis* D. Don and at least some of the specimens from W. China and E. Bengal referred to *A. zeylanica* by Handel-Mazzetti (1933), seem to be identical with *A. nepalensis*".

Our study of the two authentic specimens of *A. zeylanica* from Ceylon deposited in CAL vis-a-vis those of *A. nepalensis* from Nepal and India reveal no such significant differences as to recognize both the taxa as specifically distinct. However, *A. zeylanica* differs from *A. nepalensis* in having \pm orbicular leaflets, lower leaves deciduous upto about 1/4th the stem and in having invariably 5 stamens, whereas the populations of *A. nepalensis* in the Himalayas possess ovate to roundish leaflets, leafy at base and stamens 5-10 per flower. We, therefore, reduce *A. zeylanica* Moon ex Hook. f. as another variety of subsp. *japonica* (Miq.) Hara and segregate and identify a number of specimens from the Himalayas with var. *japonica* (Miq.) Nakai and var. *zeylanica* (Hook. f.) comb. nov., stat. nov. The following key summarizes the diagnostic differences between three varieties.

- 1a. Lower leaves deciduous upto \pm 1/4th the stem; leaflets \pm orbicular, stamens invariably 5. var. *zeylanica*
- 1b. Lower leaves withering or persistent; leaflets of various shapes, not orbicular; stamens 5-15.
 - 2a. Stems densely hirsute with spreading long and short hairs; leaflets ovate or elliptic, often roundish at apex, velutinous and glandular on both surfaces; bracts pubescent; petals elliptic. var. *nepalensis*
 - 2b. Stems variable in hairiness, often densely hirsute with spreading long hairs, but sometimes almost glabrous except the upper part; leaflets rhombic oblong to rhombic ovate, often acute at apex, hirsute especially on veins beneath and copiously white or yellowish glandular-dotted beneath; bracts glabrescent; petals obovate. var. *japonica*

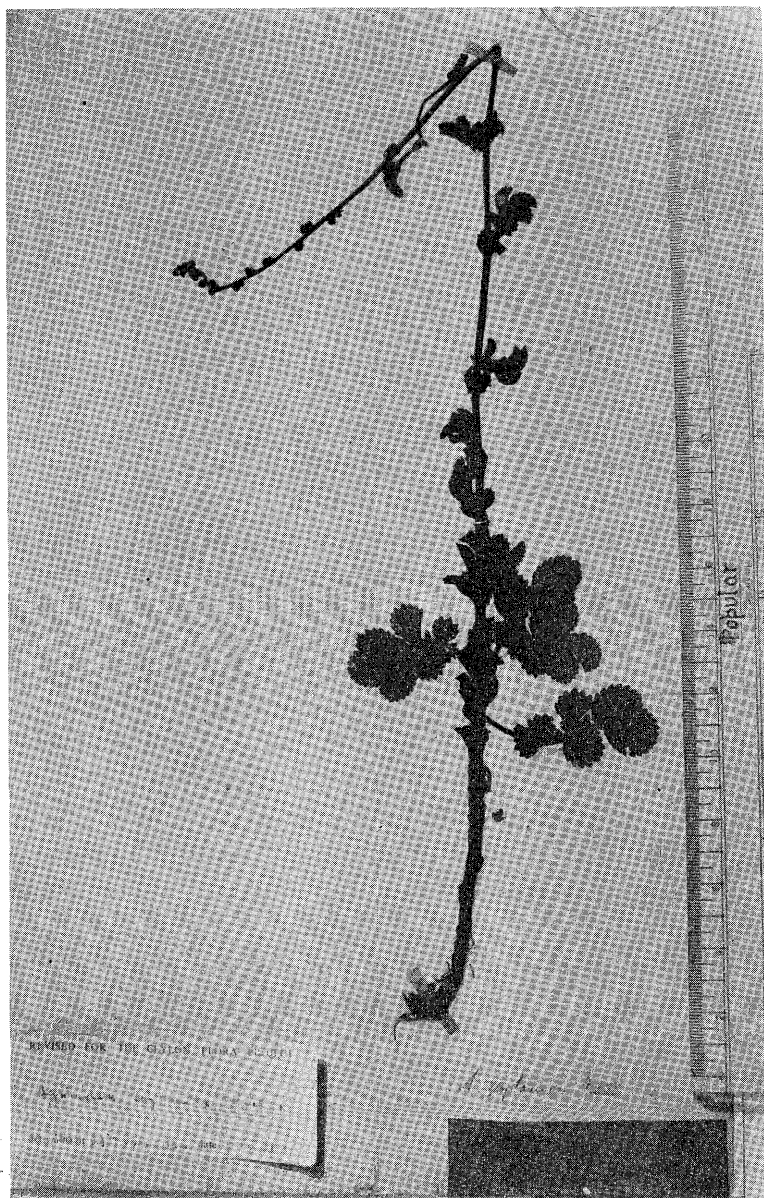


Fig. 2. *Agrimonia pilosa* ssp. *japonica* var. *zeylanica*. Blackpool, 15 Apr. 59 (CAL).

The correct names of the Indian taxa (recognized under *A. pilosa* Ledeb. subsp. *japonica*) with their synonymy, range of distribution and representative specimens are as follows:

Agrimonia pilosa Ledeb. subsp. **japonica** (Miq.) Hara in Journ. Jap. Bot. 43: 398 (1968).

A. viscidula Bunge var. *japonica* Miq., Ann. Mus. Lugd.-Bat. 3: 38 (1867). Type: Japan, Nagasaki, Oldham 225 (?U).

A. lanata Wall. ex Wallroth in Beitr. Bot. 1: 54, t. 1, f. 9 (1842). Type: Nepal, 1821, Wallich 709 (P, see Nakai, 1933).

A. eupatoria sensu J.D. Hooker, Fl. Brit. India 2: 361 (1878). p. p.; non L. (1753).

var. **japonica** (Fig. 1A)

A. viscidula Bunge var. *japonica* Miquel, l.c. Type: as given above.

A. pilosa Ledeb. var. *japonica* (Miq.) Nakai in Bot. Mag. Tokyo 47: 245 (1933).

Distribution. India (Jammu & Kashmir, Himachal Pradesh, Uttar Pradesh), Indo-China, China, Taiwan, Ussuri, Korea, Saghalin, S. Kuriles and Japan. A new record for India.

Representative specimens. Jammu & Kashmir: Dalnati, 1830 m, 11 Aug. 1885, G. M. Giles 268 (CAL, DD); Bach Pass, 2745 m, 19 Aug. 1968, B. M. Wadhwa & J.N. Vohra 482 (CAL). Himachal Pradesh: Kothi-Rahla Road, 2500 m, 3 Aug. 1962, N.P. Singh 23060 (CAL, BSD); Sangla, 8 Aug. 1973, K.P. Janardhanan 52566 (CAL, BSD); North Simla, 1830 m, 15 Aug. 1877, J. S. Gamble 4732 B (CAL). Uttar Pradesh: Tehri-Garhwal, Magra, 1700 m, 21 Jul. 1964, U.C. Bhattacharyya 31176 (CAL); Naini Tal, 2287 m, R. Strachey & J.E. Winterbottom 213 (CAL).

var. **nepalensis** (D. Don) Nakai in Bot. Mag. Tokyo. 47: 247 (1933); Hara & Ohashi in Hara, Fl. East. Himal. 1: 118 (1966); Hara in Hara & Williams, Enum. Fl. Pl. Nepal 2: 133 (1979). (Fig. 1D, E)

A. nepalensis D. Don, Prodr. Fl. Nepal. 229. Feb. (1825); Seringe in DC. Prodr. 2: 587. Nov. (1825). Type: Nepal, Buchanan-Hamilton *s.n.* (not in BM, ? P, see Nakai, 1933).

A. eupatoria L. γ . *nepalensis* (D. Don) O. Kuntze, Rev. Gen. Pl. 1: 214 (1891).

Distribution. India (Jammu & Kashmir, Himachal Pradesh, Uttar Pradesh,

West Bengal, Sikkim, Meghalaya, Nagaland, Arunachal Pradesh), Nepal, Bhutan, Pakistan, S. Tibet, Burma, Indo-China, China, Japan, Manchuria and Korea.

Representative specimens. Jammu & Kashmir: Jayu, 1830 m, 17 Aug. 1962, B.M. Wadhwa & J.N. Vohra 448 (CAL); Banihal tunnel, 25 June 1955, Kaul & party 23348 (LWG). Himachal Pradesh: Pangi, Mrs. Douie 26 (CAL); Chamba, Bindrabani, 2600 m, 17 Jul. 1964, N.C. Nair 32515 (BSD). Uttar Pradesh: Garhwal, way to Trisula, 1800 m, 14 June 1971, B.D. Naithani 44227 (BSD); Kumaon, Dafia top, 2500 m, 5 Aug. 1972, C.M. Arora 49608 (CAL, BSD); Almora dist., north face of Dhaulchhina hill, 1830-1982 m, 24 Sept. 1950, D.D. Awasthi 1334 (DD, LWG). West Bengal: Darjeeling, observatory hill, 2226 m, Sept. 1975, J.S. Gamble 1108 B (DD) & 1108 C (CAL); Sureil, 20 Aug. 1914, sine lect 40685 (BSIS); Mungpo, 3500 m, 18 Jul. 1885, G. A. Gammie 1053 (DJ*). Sikkim: Gassing to Ratong River, 3 Oct. 1862, T. Anderson 504 (CAL, DD); Yaksun, 1769 m, 30 June 1892, G. A. Gammie 227 (CAL). Meghalaya: Mairang to Nongkhlow, 15 June 1958, G. Panigrahi 16161 (ASSAM, CAL); Shillong peak, 24 Aug. 1958, R. S. Rao 14029 (ASSAM, CAL); Khasi Hills, between Shillong & the Khukhon river, ± 1677 m, 13 June 1911, I.H. Burkill & S.C. Banerjee (CAL); Shillong, 1616 m, 28 Jul. 1885, C.B. Clarke 38356 C (CAL). Nagaland: Dzulak valley, 2440 m, Sept. 1939, N.L. Bor's collector s.n. (DD); Naga Hills, Sirohu, 1830 m, 10 Jul. 1948, S.K. Mukherjee 3190 (CAL). Arunachal Pradesh: Kameng dist., Solari forest, 2000 m, 15 Sept. 1964, J. Joseph 39988 (ASSAM, CAL).

var. **zeylanica** (Moon ex J.D. Hooker) K.M. Purohit & G. Panigrahi, comb. nov., stat. nov. (Fig. 1B, C; Fig. 2)

Agrimonia zeylanica Moon [Cat. pl. Ceyl.: 37 (1824)] ex J.D. Hooker, Fl. Brit. India 2: 362 (1878); Trimen, Handb. Fl. Ceylon 2: 141 (1894) (reprint ed., 1974); Handel-Mazzetti, Symb. Sin. 7: 523 (1933). Type: "Ceylon, Central province, at an elevation of 5-7000 ft" (Thwaites C.P. 2769) (K).

A. eupatoria sensu Wight, Ic. pl. Ind. Or. 1: t. 224 (1839) and Thwaites, Enum. Pl. Zeylan. 102 (1859); non L. (1753).

Distribution. India (Sikkim, Meghalaya) and Sri Lanka.

Specimens examined. India. Sikkim: Sureil, 1555 m, 16 Oct. 1908, W.W. Smith 523 (CAL). Nagaland: Kohima, Japu Hills, 24 Oct. 1925, s.n. Bal 579 (BSIS, CAL). Srilanka. Ceylon, 1830 m, sine lect s.n. (CAL-labelled *Agrimonia*

* abbreviated here for the herbarium of the Lloyd Botanic Garden, Darjeeling.

zeylanica Moon); Blackpool, 15 Apr. 59, sine lect s. n. (CAL). (Fig. 2)

Summary

The taxonomic affinities between *Agrimonia pilosa* Ledeb., *A. nepalensis* D. Don and *A. zeylanica* Moon ex J.D. Hooker are recognized. While *A. pilosa* Ledeb. subsp. *pilosa* is restricted to USSR and central China, *A. pilosa* subsp. *japonica* (Miq.) Hara comprises three varieties having Indian distribution: var. *nepalensis* (D. Don) Nakai, var. *japonica* and var. *zeylanica* (Moon ex J. D. Hooker) K. M. Purohit & G. Panigrahi, comb. nov., stat. nov. Keys to the recognition of taxa are provided, specimens examined are cited, and the range of distribution is indicated.

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Agrimonia zeylanica Moon ex J.D. Hooker を, *A. pilosa* Ledeb. ssp. *japonica* (Miq.) Hara の一変種と認めて学名の組み換えを行うとともに, 本亜種内の vars. *japonica*, *zeylanica*, *nepalensis* 三変種の Key を示し, インド産標本の再検討を行った。