Taxonomic Studies in the Compositae of Thailand 10*.

*Vernonia* Schreb. Sect. *Decaneurum* (DC.) Oliver

HIROSHIGE KOYAMA

Department of Botany, National Science Museum, 3-23-1
Hyakunin-cho, Shinjuku-ku, Tokyo 169

Abstract "Vernonia" sect. *Decaneurum* in Thailand is taxonomically examined. Four species of woody climbers and 2 species of shrubby herbs are recognized in the section. They are *Vernonia andersonii*, *V. eberhardii*, *V. garretiana*, *V. scandens*, *V. divergens* and *V. saligna*.

(Received April 2, 1993; Accepted April 28, 1993)

Key words: Compositae, taxonomy, Thailand, *Vernonia* sect. *Decaneurum*.

*Vernonia* Schreb. is a genus of about 1000 species distributed widely in the tropics worldwide. The Old World species of *Vernonia* differ from the New World species in chromosome numbers (Jones, 1979). According to my preliminary observations, most species in Thailand have 2n=18 chromosomes or polyploids derived from the base number X=9. There are several sections proposed in Old World *Vernonia*, but their definition is unclear. By the features of the achenes and pappus already pointed out by Koster (1935), the woody climbers and some shrubby herbs of *Vernonia* can be considered to be members of Sect. *Decaneurum* DC.

According to Kerr's (1936) enumeration of Thai *Vernonia*, six species of woody climbers and two species of shrubby herbs were recorded. In the course of my field surveys in Thailand, I encountered numerous populations of woody climbers in Kanchanaburi province and of shrubby herbs in Chiang Mai and other provinces, and have obtained good samples to study the variation of each species. As already published (Koyama, 1984), hairs in *Vernonia* are all multicellular and I-type. A detailed observation of the leaf hairs reveals that the size of the leaf hairs is a diagnostic for the species. Leaves, which were considered by Kerr (1936) to be characteristic of a species, were observed to have a rather wider variation than the hairs. As a result, 4 species of woody climbers and two of shrubby herbs, as listed below, are recognized in Thailand.

Recently I have had a chance to see herbarium specimens in the Harvard University Herbaria (A), U. S. A., in the Museum of Natural History at Copenhagen (C), Denmark, at Leiden (L), Netherlands, at Paris (P), France and at Stockholm (S), Sweden. Several type specimens in addition to general collections from Southeast Asia were observed and were very helpful in obtain the definition of each species. Before going further, I wish to express my hearty thanks to the directors and the curators of the herbaria mentioned for their kind aid during my visit, and also to give my sincere gratitude to Dr. David E. Boufford for his linguistic corrections.

Enumeration of species

A. Woody climbers.

B. Leaves with hairs and glands on lower surface.

C. Hairs 1–2 mm long, patent on lower surface of leaf. ................................................. 1. Vernonia andersonii

D. Involucres ca. 6 mm high, bracts in 4 series, glabrate on back, margins ciliate.

.............................................................................................................................. 2. Vernonia eberhardtii

D. Involucres ca. 10 mm high, bracts in 5 series, cobwebby hairy throughout. ... 3. Vernonia garretiana

B. Leaves without hairs and glands on lower surface. ................................................. 4. Vernonia scandens

A. Erect herbs or shrubs.

B. Leaves rhombic, elliptic-ovate or lanceolate, serrate, 6–13 cm long, 3–6 cm wide; involucral bracts in 3 series, 5 mm high. ................................................................. 5. Vernonia diversgens

B. Leaves elliptic-oblong or oblanceolate, 10–15 cm long, 2–4 cm wide; involucral bracts in 5 series, 8 mm high. ................................................................. 6. Vernonia saligna

1. Vernonia andersonii C. B. Clarke

Comp. Ind.: 27 (1876); Gagnep. in Lecomte, Fl. de l’Indo-chine 3: 467 (1924).


Habitat: in mixed deciduous forests with oak or mixed evergreen forests and in evergreen forests along streams, 100–900 m.

Woody climbers to 3 m tall; lower stems more than 2 cm in diameter. Leaves petiolate, lower surface covered with fine, straight hairs and glands, nerves finely reticulate, ovate to narrowly elliptic, 10–18 cm long, 4–8 cm wide, acute or short acuminate, entire or somewhat mucronate toothed, petiolar hairy, to ca. 1 cm long. Involucre campanulate, 7–9 mm high, bracts in 5 series, imbricate, fulvous hairy, outer bracts narrowly triangular, inner bracts lanceolate, acute, margin fulvous hairy. Flowers December to April, in loose axillary and terminal panicles, ca. 20 per head; corolla with stipitate glands on lower tube, sessile glands mostly on lobes; receptacle deciduous rather densely fulvous hairy; achenes 3–4.5 mm long, deeply 10-ribbed, hairy, glandular; pappus uniseriate, reddish brown to brownish, inner bristles 12 mm long, outer bristles absent.


C Saraburi: Muak Lek (Marcan 1844 BK).


Notes: This species is allied to Vernonia gratiosa Hance, which is characterized by having curled hairs on the lower leaf surface, and to Vernonia cumingiana Benth., which has glabrous
achenes and straight hairs that are thicker than those of *V. andersonii*. Specimens examined of *V. gratiosa* and *V. cumingiana* are cited in the Appendix, because the species are absent from Thailand.

2. **Vernonia eberhardtii** Gagnep.


**Vernonia craibiana** Kerr in Kew Bull. 1935: 328 (1935), syn. nov.

Habitat: On bamboos or trees at edges of evergreen forests and in evergreen forests rich in bamboo and on limestone hills, 500–800 m alt.

Woody climbers, to 3–5 m tall on bamboos or trees. Leaves petiolate, lower surface with very short appressed hairs ca. 0.1 mm long, nerves finely reticulate, ovate to narrowly elliptic, 8–21 cm long, 3–9 cm wide, acute or short tailed, entire or somewhat mucronate toothed, petiole finely hairy, to ca. 0.8 cm long. Involucre campanulate, 6 mm high, bracts in 4 series, imbricate, glabrous, outer bracts narrowly triangular, inner bracts lanceolate, acute, margins fulvous hairy. Flowers November to January, in loose axillary and terminal panicles, ca. 8 per head; corolla lilac, glabrous; receptacle deciduous fulvous hairy; achene ca. 2 mm long, 10-ribbed, hairy; pappus biseriate, reddish brown to brownish, inner bristles 8 mm long, outer bristles few, short, easily caducous.


Distr.: Tonkin (*Eberhardt* 4230 P-type; 1–1888 *Balansa* 3079 P), Thailand, Cambodia (*Poilane* 390 P) and Annan (*Poilane* 2716, 4812 P).

3. **Vernonia garrettiana** Craib

Habitat: On slopes of hills in mixed deciduous (pine-dipterocarp) forests, 400–800 m.

Lower stems erect, to 1.2 m tall, upper stems and branches lianous. Leaves petiolate, elliptic, 24 cm long, 13 cm wide, lower surface with appressed, somewhat curved fine hairs, 0.2 mm long, and glands, nerves reticulate, ovate to narrowly elliptic, 15–24 cm long, 6–13 cm wide, acute or short acuminate, entire or somewhat mucronate toothed, petiole hairy, to ca. 8 cm long. Involucre campanulate, 9–10 mm high, bracts in 5 series, imbricate, glabrous, outer bracts narrowly triangular, inner bracts lanceolate, acute, fulvous hairy on margin. Flowers December to January, ca. 20 per head; corolla with stipitate glands and sessile glands throughout; receptacle fimbriate pilose; achene 3.5 mm long, 10-ribbed, densely hairy; pappus biseriate, yellowish brown to brownish, inner bristles 12 mm long, outer bristles short, caducous.

Specimens examined. N Chiang Mai: Doi Inthanon (12–1969 *Beusekom & Phengklai*...

Distr.: South Burma (Kalama Range: Martaban Hills, 1–1921 J. F. Rock 755 US) and Thailand.

4. Vernonia scandens DC.
Habitat: Along streams in mixed forests, 900 m.
Climbers, branches slender. Leaves petiolate, glabrous or finely hairy, nerves reticulate, ovate to narrowly elliptic, 5–8 cm long, 3–3.5 cm wide, acute, entire, petiole glabrous or hairy, to ca. 0.5 cm long. Involucre campanulate, 6–7 mm high, bracts in 4 series, imbricate, glabrous, outer bracts narrowly triangular, inner bracts lanceolate, acute, glabrous. Flowers white or pinkish, December to January, in loose axillary and terminal panicles, ca. 10 per head; corolla with few stipitate glands at middle of tube; receptacle glabrous or with deciduous fulvous hairs; achenes 3 mm long, glabrous, 10-ribbed; pappus biseriate, reddish brown to brownish, inner bristles 12 mm long, outer bristles short, caducous.
Distr.: Sikkim (Hooker A), Assam (Hooker & Thomson NY, S, US), Burma (Kingdon-Ward 18316 A, NY), Yunnan (Rock 2494 A; C. Wang 79593, 80179, 80311, 80835 A) and Thailand.

5. Vernonia divergens (DC.) Edgew.
Habitat: Clearings in deciduous forests, evergreen forests on hills and in pine-oak and dipterocarp forests, 400–1600 m.
Herbs, undershrubs and shrubs, stout, erect, 1–3 m tall, pubescent, tomentose or scabrid. Leaves petiolate, rhombic, elliptic-ovate or lanceolate, serrate, 6–13 cm long, 3–6 cm wide, varying considerably in texture, both surfaces with long crisped hairs and glands; nerves spreading, reticulate on lower surface; petiole to 0.5 cm long. Heads about 0.7 cm across, usually densely arranged in much branched panicles or rounded corymbs, peduncle very short; involucre tubular-campanulate, 5 mm high; bracts in 3 series, imbricate, tips green, nearly glabrous, tip with crisped hairs, oblong, obtuse, outermost bracts ovate. Flowers December to February, tubular, 8–12 per head; corolla glabrous, glands few; receptacle alveolate, somewhat pilose. Pappus biseriate or uniseriate, whitish or reddish, inner bristles scabrid, 18 mm long, outer bristles few or absent. Achenes ellipsoid, 2.2 mm long, 10-ribbed, glabrous, glands few.
August 1993  Koyama: Taxonomy of Thai Compositae 33


Distr.: India or. (Perotet 567 P; Hefen 188 A, KYO, S, TNS; R. F. Hohenacker 1342, 1344 P), Burma (Lace 2732 KYO), Yunnan (Henry 12707 MO, NY), Tonkin (12-1887 B. Balansa 3016 P; 2-1936 M. Poilane 25182, 4-1936 M. Poilane 25475, 12-1937 M. Poilane 26927 P; Alleizette L), Laos (9-12-1917 Mieville 37228, 37266 P; 5-1936 M. Poilane 26277 P), Cambodia (1-1928 M. Poilane 14521 P) and Thailand.

7. Vernoniasaligna DC.

Habitat: Calcareous soils and grassy slopes in deciduous forests mixed with bamboos and in open evergreen forests on hills, 600-1500 m.

Herbs, undershrubs or shrubs, very variable, 1-2 m tall; much branched, glabrous or slightly scabrid. Leaves sessile or short petiolate, elliptic-oblong or oblanceolate, acuminate, coarsely serrate, rather rigid, often a little scabrid on both surfaces. Heads ca. 10 mm across, many in terminal branched, rounded corymb; involucre tubular-campanulate, ca. 8 mm high; bracts in 5 series, imbricate, acute, nearly glabrous, outer bracts oblong, inner bracts oblanceolate. Flowers December to February, 6-12 per head, corolla white, lobes bluish; receptacle fimbriate pubescent. Achenes 3 mm long, 10-ribbed, glabrous, glands few. Pappus uniseriate, white or reddish, inner bristles 8 mm long, outer bristles absent.


Distr.: Sikkim (Hooker A, NY, S), Assam (Griffith AUA, S; Kihara & Nakao KYO), Burma (Vernay & Cutting 165 NY), Yunnan (Henry 9841, 12714A MO, NY; Tsai 51365, 55069, 56690 A), Kweitchow (Esquirol 6337 P), Tonkin (Poilane 26796, 26949, 27105 P), Laos (Mieville 37145 P) and Thailand.
Appendix

Vernonia gratiosa Hance

Habitat: Thickets.

 Woody climbers, to 3 m tall; hairs curled on lower leaf surface; flowers white, fragrant.


Vernonia cunningiana Benth.

Habitat: in mossy forests.

 Woody climbers, to 4 m tall; hairs on lower leaf surface straight, thick; florets ca. 20 per head; achenes glabrous.


References


小山博滋：タイ国産キク科植物の分類学的研究 10. ショウジョウハグマ属デカニュウルム節
ショウジョウハグマ属は全世界の熱帯から亜熱帯に広く分布するキク科植物である。日本では琉球列島にヒラサキムカシヨモギ、別名ヤンバルヒゴタイが顔をだすぐらいであるが、世界にはおよそ1000種あるとされている。多くの熱帯産の植物群と同様で、属全体のモノグラフはまだ出されていない。これまでに報告された染色体数によると（まだ調査されていない種の数が多い）、新世界の群はX=10を基本とし、旧世界の群はX=9を基本としているようである。私が調べたタイ国産8種でもX=9を基本とするものであった。数度にわたる植物調査によって、かなりこの属の標本を集積してきてが、およそ25あるとされる種の実体は未だによくつかめていない。ここではそのうち比較的実体のよく把握された群としてデカニュウルム節をとりあげた。果実に明瞭な10稜があり、冠毛が内側1列かまたは外側の冠毛が容易に脱落すること、総苞片の先端が鈍頭であることなどが主な特徴である。6種のうち4種は藤本で、2種は大型の草本である。藤本ではよい標本が多数得られ、葉形変異にかなり幅のあることがわかる一方、葉裏の毛が種のよい指標となることが判明した。そこで、葉形が種の特徴になるとして記載された2種（Kerr, 1936）を既存の種と同じとみなし。（〒169 東京都新宿区百人町2–23–1 国立科学博物館植物研究部第一研究室）