April, 1983


Taxonomic Studies in the Compositae of Thailand 2*

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小山博滋：タイ国産キク科植物の分類学的研究 2

Tribe Astereae

As the tribe Astereae was noted by Grau (1977) to have a predominantly extratropical distribution, there occur only 10 genera with 16 species in Thailand, though the total number of this tribe is 135 genera with 2500 species. Eight of the ten genera are represented in our area by only one species. The rest two genera, Conyza and Aster, comprise 5 and 3 species respectively.

Key to the genera of Thai Astereae.

1. Marginal flowers in one or several series, usually with evident ligule..............2
2. Marginal flowers in numerous series, filiform, tubular with short, narrow, inconspicuous ligule or non.................................................................4
3. Heads of three types of floret, tubular, filiform and ligulate..............I Erigeron
4. Heads of two types of floret, tubular and ligulate..............................3
5. Pappus short, less than 1.0 mm long...........................................II Katimeris
6. Pappus long, more than 3.0 mm long...........................................III Aster
7. Marginal flowers with ligule.........................................................IV Myriactis
8. Marginal flowers filiform or with short ligule................................5
9. Pappus usually wanting......................................................................6
10. Pappus copious..................................................................................8
11. Achenes with a terminal, toothed or bristle ring..............................V Grangea
12. Achenes without a terminal appendage..........................................7
13. Achenes obovoid, compressed, with a thickened margin..................VI Dichrocephala
14. Achenes obtuse, cylindric, without a thickened margin......................VII Cyathocline
15. Marginal flowers without corolla.................................................VIII Thepis
16. Marginal flowers with corolla.........................................................9
17. Climbing herb....................................................................................9
18. Erect herb.........................................................................................X Conyza

* Continued from this Acta 32: 56-67 (1981). This study was supported in part by the Ministry of Education, Japan, through a grant in aid of Overseas Scientific Research program No. 57041073.
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The genus Erigeron has been considered to be closely related on the one hand to Aster and on the other to Conyza ( Cronquist, 1943). By the absence of an intermediate species from our area, however, it is easily distinguished from the other two.


*Erigeron asteroides* Roxb., Fl. Ind. III: 432 (1832); Kerr, Fl. Siam. Enum. II-3: 253 (1836), non Link (1822).

Habitat: on banks of Me Kong, alt. 100 m.

Although Kerr has noted that this species occurs in Taiwan, we have no specimen collected from Taiwan.

Specimen examined. E Ubon Ratchathani: Chanauman (*Kerr s. n. 1924-II-2 BK*).

Distribution: Ceylon, northern India (*Kanai et al. 5380 KYO*) and Thailand.


Only one species occurs in Thailand, though about 14 species are distributed in further north regions of Eastern Asia. Although Grierson (1964) considered this genus to be equal to Boltonia which occurs mainly in North America, we can find the differences between them as follows:

Achenes strongly compressed, 2-nerved, evidently to obscurely wing-margined, with two to four long pappi as well as short pappi or non; involucral bracts membranaceous, with discernible costa and slightly papillate but not ciliate at margin...... *Boltonia*

Achenes compressed, obscurely 2-nerved, obscurely to inconspicuously ribbed-margined, with unequal pappi, mostly short; involucral bracts herbaceous, with obscurely median costa and ciliate at margin.............................................................. *Kalimeris*

Considering the affinities of taxonomic characters, *Kalimeris* seems to be closely related to a particular group of Asiatic *Aster*, that is, *A. ageratoides* complex as pointed out by Kitamura (1969). The hybrids between *Kalimeris indica* and *Aster ageratoides* subsp. *ovatus* have been cytologically examined by Shindo (1964, ’67). *Kalimeris* should be treated as a separate genus from *Boltonia*.


Habitat: on gravelly ground in light forest or edge of farm, alt. 1200–1400 m.

Specimens examined. N Chiang Mai: Doi Pui (*T-9428 KYO*). NE Phetchabun: Phu Miang (*T-11662 KYO*).
Distribution: northern India, Burma, Thailand, Indo-China, South and Middle China, Taiwan, Ryukyu, southern Korea, Kyushu and Shikoku.


Aster is the largest genus in this tribe and contains about 230 species mostly occurred in Northern Hemisphere. 137 species are recognized by Hu (1958) in China, but only three species are distributed in northern part of Thailand. They are distinguished as follows.

1. Plants non glandular; heads small, 15 mm across in bloom, involucral bracts herbaceous, obtuse ..................................... A. ageratoides subsp. alato-petiolata
2. Plants glandular; heads large, 20 mm across in bloom, involucral bracts herbaceous, acuminate ..................................................... 2
3. Leaf auriculate at base; achenes sparsely hairy.......................... A. auriculatus
4. Leaf not auriculate at base; achenes densely hairy.................... A. vestitus


Habitat: on grassy slope near the rocky ridge, alt. 1800–2100 m.

Specimens examined. N Chiang Mai: Doi Chiang Dao (Hosseus 406 MO; KERR 659I BK; Hennipman 3289 C; SMITINAND & Andsor 7299 BKF, TNS; T-4146 AAU, C, KYO; T-9942, 15225, -21120, -21136 KYO).

Distribution: Nepal, Sikkim, Bhutan, Assam, Burma, South and Middle China, Vietnam, Laos and Thailand.


Habitat: on open grassy ground, alt. 1200 m.

Specimens examined. NE Loei: Kao Krading (KERR 8712 BK).

Distribution: Sikang, Yunnan (Henry 94454 AS; McLAREN 30F KYO; Soochow 151 US; Rock 9038 US), Kweichow and Thailand.


Habitat: The habitat with altitude is not recorded on the sheet of Thai specimen, but "open situations on the margins of thickets on the mountains, alt. 11,000 ft." is on that of Chinese one, Forrest 20641.

Specimens examined. N Chiang Mai: Doi Chiang Dao (Par 375 BK).

Distribution: Himalayas, Burma, Tibet, Szechwan (Forrest 20641 US), Yunnan (Rock 6183 US) and Thailand.

IV Myriactis Less. in Linnaea 6: 127 (1831); KITAM., Comp. Jap. I: 386 (1937);

Myriactis is a genus distributed in South Asia, Malesia and New Guinea (Gabrer, 1966). About 12 species are known, but only one species occurs in Thailand.


Habitat: on burnt slope in open place at mountain ridge, alt. 1800–2100 m.

Specimens examined. N Chiang Mai: Doi Inthanon, Mae Pau (Beusekom & Phengkla 2401 BKF, C, KYO); Doi Pha Hom Pok, NW of Fang (T-9657 BKF, KYO, TNS).

Distribution: from Caucasus to Java through Southeast Asia.


Six species are said to be known from tropical Africa and Asia, but we have only one species in Thailand.


Habitat: on dried up ditch, rice field and clearings by roadside, alt. 5–350 m.


Distribution: tropical Africa and southern East Asia.


13 species are distributed in southern and tropical Africa, Madagascar, Southeast Asia and Australia, but only one species occurs in Thailand.


Habitat: on limestone or clayey soil, open grassy land or slope in light hill evergreen or mixed deciduous forest, alt. 400–2500 m.
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This is a weedy species which grows in abundant in rural roadside or trails in mountainous area less than 1000 m, but sometimes up to the summit along roadside where the cultivated fields have been used. The small heads have numerous florets; marginal florets are white and disk florets are pale yellow, though Hooker f. described all flowers to be yellow.

Specimens examined. N Chiang Mai: Doi Chiang Dao (Bunchuoi 83 BKF, TNS; T-20891 KYO); Doi Suthep (Sørensen et al. 2579, 3430 C); Doi Pui (T-9505 BKF, GH, KYO, TNS; T-18998 KYO); Doi Pha Hom Pok (Sørensen et al. 1632, 1644, 1717 G; T-9663 KYO, TNS); Fang (Sørensen et al. 1496 C); Doi Chang (T-20174, -20302, -20566, -20584 KYO); Doi Inthanon (Kerr 6321 BK; T-18839, -18846, -18858 KYO); Bo Luang Tableland (T-19186, -19260 KYO). Chiang Rai: Pong, Phu Langka (Smitinand 1725 BKF, TNS). Lamphun: Ban Khun Tan to Doi Khun Tan (T-9137 KYO); Doi Khun Tan (T-9286 KYO). Tak: Ban Musee (Fito 7636 C). NE Phetchabun: Phu Miang (T-11661 BKF, KYO); Lom Kao, Ban Paek (Smitinand 2554 BKF, TNS). C Saraburi: Khao Yai National Park (T-18134 KYO). SW Kanchanaburi: Huai Bankao (Beusekom et al. 3568 BKF, C, KYO, MO). Ratchaburi: Prachup Kao Luang (Kerr 10856 BK).

Distribution: tropical and subtropical Asia and Africa.


This genus is noted by Grau (1977) to contain 4 species in Ethiopia and southern Asia. In Thailand, only one species occurs in the northern part of the country.


Habitat: gregarious on a sandstone rock along or in stream, alt. 200–960 m.

Specimens examined. N Chiang Mai: Me Awn (Kerr 4698 BK); Pa Mon-Sop Aep (Ogawa & Yoda OCUBE 111-10 KYO); Bo Luang (Hansen et al. 11032 BKF, C); Hot (Koyama et al. 15532 KYO). Lampang: Ngao, Mae Huat (Smitinand 4410 BKF, TNS, US). Mae Hongson: Pang Mapha (Hansen & Smitinand 12740 BKF, C, KYO). Phrae: Phrae—Mac Tak (Beusekom et al. 4703 BKF, C, KYO, MO); Mac Tak (Sørensen et al. 1894 C). NE Udon Thani: Pu Wieng, Kawknten (Kerr 20015 BK).

Distribution: Kumaan (Thoson s. n. GH), Punjab (Stewart 19849 GH; Ashraf et al. s. n. 1975-I-9 GH; Kool, 8274 GH; Chandhuri s. n. 1997-III GH; Wilson 3827 GH), Nepal (Stainton et al. 8790 GH; Harag et al. 6306239, -140 KYO; Nakao s. n. 1953-IV-3 KYO; Fujinura 531 KYO), E-India, Bihar (Kaney et al. 5404 KYO), Bengal (Jenkins s. n. AAU), Banda, Kahajar (Bell 210 GH), Burma (Kanai 6401001 TNS; Mc Lelland s. n. 1869 GH; Dickson 1022, 7176, 7261 GH), Yunnan (Tsai 51796, 52650, 55251 GH, KUN; Forrest 5549 GH; Wang 73015, 80819 GH, KUN; Makire s. n. 1921-X-10 GH), Kweichow (Cavalere 3314 TNS), Vietnam, Tonkin (Pielot 2076 GH) and Thailand.

VIII Thespis DC. in Gull., Arch. Bot. II: 517 (1833); Clarke, Comp. Ind. 65 (1876); Gagnep. in Lecomte, Fl. de l'Indo-chine III: 571 (1924); Hu in Quart. Journ. Taiwan Mus. 22: 12 (1969).

Gagnepain (1924) has recognized 4 species in this genus, though two of them, Thespis divaricata and T. erecta, were considered by Clarke (1876) to be one species. An examination of the specimens reveals that the use of these names has been based on extremes of a
single, highly variable taxon. These extreme types have been often observed in such a weedy species as *Dichrocephala integrifolia*, *Eclipta prostrata* and so on. The specimens collected from both Laos and Vietnam are here identified as *T. divaricata*, though some of them were identified by Kitamura (1982) as *T. erecta*.


   Habitat: on open ground, alt. 200 m.

   Specimen examined. NE Udon Thani: Nawngkai, Chaiyaburi (Kerr 21324 BK).
   Distribution: N. India, Assam, Burma, Yunnan (Wang 77007 KUN), Thailand, Cambodia, Laos (Piletot 4674 NY) and Vietnam, Tonkin (Balansa 3094, 3095, 3096 P).


More than ten species are known from Africa and Asia. The number of species is said to be about 10 by Grau (1977) and about 18 by Koster (1966). One widespread species occurs in Thailand, though monographic work is necessary for this genus.


   Habitat: on grassy slope in old clearings of hill evergreen forest or light forest, alt. 350–1200 m.

   Specimens examined. N Chiang Mai: Chiang Mai (Sukkri 59 BKF, TNS); Doi Suthep (Sørensen et al. 3017 C); Muang Khu, S of Peak (Ogawa et al. OCUBE 217–19 KYO); Doi Chiang Dao (Swarnakoset 1095 C); Fang (Sørensen et al. 7941 C); Mae Klang Luang (Vidal et al. 6193 P). Lampang: Che Savn (Kerr 4761 BK). Tak: Huai Krasa (Hansen & Smithinand 12991 AAU, BKF, C, KYO). NE Phetchabun.
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Lomkao, Namnao (Nilphonit 17 BKF, TNS; Smitinand 2653 BKF, TNS, US); Phu Miang (T-11775 BKF, KYO, TNS). E Chaiyaphum: Nam Phrom (Beuskom et al. 4433 BKF, C, KYO, MO). Nakhon Rat chassisa: Khao Yai National Park (T-16447 KYO); Kao Lom, Korat (Put 3557 BK).

Distribution: tropical Africa and Asia.


About 50 species are known in tropical and subtropical regions. The five species occur in Thailand and are distinguished by the following characters.

1. Corolla of marginal flowers nearly equal as long as pappi..........................2
2. Corolla of marginal flowers very short, about half as long as pappi....................3
2. Leaves lanceolate, more than 10 mm wide, generally coarsely few-toothed; involucre about 4 mm long..........................C. sumatrensis
2. Leaves from narrowly linear, less than 5 mm wide, to spathulate-ovobate; entire or toothed, rarely pinnatifid; involucre about 2 mm long...................C. stricta
3. Leaves lanceolate narrowed at both ends, entire or serrate..........................C. leucantha
3. Leaves obovate-spathulate; leaf bases on petioles usually amplexicaul ..........4
4. Leaves obtusely lobed; achenes glandular..........................C. semipinnatifida
4. Leaves serrate or crenate; achenes nearly glabrous..........................C. japonica


Habitat: on limestone, sandy dump or gravelly clayey soil in hill evergreen forest, bamboo thicket, open pine or secondary oak-pine forest with pine plantation or open forest with Tectona and Dipterocarpus, alt. 0–1900 m.

This species has been considered to be a native of South America (e.g., Kitamura, 1969; Grierson, 1980). Preliminary examination of specimens at hand reveals that South American specimen, Cabrera et al. 26219, is distinguished by the glabrate habit of whole plant from the Asian ones, though further study will be necessary to elucidate the variation of the character.


Distribution: tropical and subtropical Asia and Australia.

Habitat: cultivated area.

In this species, we can recognize two varieties: one is characterized by having linear lanceolate leaves with entire or toothed margin and the other by having pinnatifid leaves with one to four pairs of lobes.

**Var. stricta**

Specimen examined. N  Mae Hongson: Doi Bitcha, near Ban Pasui (Tungana 58134 TI).

Distribution: eastern Africa, northern India, southern China and Thailand.


Habitat: on grassy slope or ridge in mossy forest, alt. 1350-2150 m.

Specimens examined. N  Chiang Mai: Doi Inthanon (T-2591 BKF, KYO); Mae Pau, Doi Inthanon (Beusekom & Phungklai 2405 C, KYO).

Distribution: Nepal, Sikkim, Yunnan and Thailand.


Habitat: on grassy mountain slope in tropical rain forest and hill or mossy light evergreen forest, alt. 600-2350 m.

Specimens examined. N  Chiang Mai: Doi Suthep (Hosseus 306 MO); Doi Pui (T-3231 BKF, KYO); Doi Inthanon (Larsen & Larsen 34394 AAV; T-18845 KYO; Garrett 1022 BKF); Om Koi (Hansen et al. 10799 BKF; T-19243 KYO); Doi Chang (T-20166, -20671 KYO); Fang (Sadakorn 432 BK). NE Locis: Phu Krading (T-22610 KYO). E Chaiyaphum: Nam Phrom (Beusekom et al. 4423 BKF, C, KYO). G Nakho Nayok: Khao Yai National Park (T-19717 KYO).

Distribution: India, Southeast Asia and Australia.


Habitat: on the banks of rivers.

Specimens examined. NE Nakho Phanom: Tat Phanom (Kerr 21407 BK). E Ubon Ratcathani: Chananun (Kerr 8385 BK).

Distribution: Assam, Burma and Thailand.


Habitat: on poor sandy soil or clayey soil in degenerated hill evergreen forest or at...
edge of rice field, along the road in dry sunny place of mountain slope, alt. 1300–2550 m.

Plants of Japan are usually covered by dense soft hairs, but those of Thailand are subglabrous as noted by Hooker f. (1881) on the Sikkim plants.

Specimens examined. N Chiang Mai: Doi Suthep (Sukkari 67 BK, TNS); Doi Pui (Beukekom & Phengkai 1294 AAU, BKF, C, KYO); Doi Inthanon (T-18887, T-18906 KYO); Doi Chang (T-20176 KYO); Doi Chiang Dao (Kerr 6630 BK). NE Petchabun: Phu Miang (T-11430 KYO). Udon Thani: Chaiyaburi, Nongkai (Kerr 20703 BK).

Distribution: from Afghanistan through Himalayas and Southeast Asia.

References


抄録

Joysev, K. A. & A. E. Friday (ed.): Problems of Phylogenetic Reconstruction. 442 頁, Academic Press, 1982. $64.50

システム学では、断片的に得られる情報そのものの証拠をなすことも重要なことであるが、それと同時に、それらの情報から系统進化のみちずじをどのように再構築するかが大きな問題である。1980年春に、動物学、植物学、古生物学などの研究者が100名程度で、イギリス、系統の追究に関する問題点について、この書の表題どおりのシンポジウムが開かれた。そのうち、方法論等に関する部分はリンネ協会の動物学誌にまとめて掲載されたが、この書で11編の論文がまとめられた。そのうちには、A. J. Cain の相同性と収斂、C. Patterson の形態学的形質と相関、R. A. Crowson の系統解明におけるコンピューターと創造、A. J. Charig の生物学における系統学：主要学派の比較、などの章に混じって、A. D. J. Meeuse の分類学の系統的方法についての生態学的観点、C. R. Hill と R. R. Crane の被子植物の起源と系統樹などを動物学を踏かれて論議した著者も加えられている。事実についての報告をまとめたもののないが、系统学における可能性と限界について第一線の研究者が注意深く考察した経過が示されており、この種の研究にたずさわる者が立ち停って思案をする貴重なきっかけを与えるものである。