

NOTES ON TAIWAN CUCURBITACEAE⁽¹⁾HO-YIH LIU⁽²⁾

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Abstract: A short revision is given of the family Cucurbitaceae in Taiwan. In all 13 species are recognized, in addition to 6 introduced ones. Of each species the synonymy is given, as well as comments on the distribution, variability and collections examined.

In Volume Three of the Flora of Taiwan, nineteen species of wild Cucurbitaceae were reported (Hsiao, 1977). The treatment was based mainly on a revision of the Japanese Cucurbitaceae by Kitamura (1943), and no attempt was made to compare the species from Taiwan with those from tropical Asia, especially tropical China and Indochina. It is known that the greater part of Taiwan belongs to the Indo-Chinese (continental south-east Asia) floristic region (Takhtajan, 1969), and that comparisons are better made with materials from that region. In addition, many new collections have been obtained recently, and a number of taxa have been found new to Taiwan. These additions and changes for the Cucurbitaceae of the Flora of Taiwan are as follows:

1. *Actinostemma tenerum* Griffith, Pl. Cantor.: 25, t. 3. 1837; Chakrav., Rec. Bot. Surv. India 17: 180. 1959; Keraudren, Fl. Cambo. Laos Viet. 15: 20. 1975. (合子草)

Actinostemma lobatum Maxim. in Franch. & Sav., Enum. Pl. Jap. 1: 115. 1875; Hsiao, Fl. Taiwan 3: 801. 1977.

Distributed in India, Indochina, Japan, Southern China and Taiwan.

2. *Mukia maderaspatana* (L.) Roem., Fam. Syn. Mon. 2: 47. 1846; C. Jeffrey, Hooker's Icon. Pl. 37: 5, t. 3662. 1969; Keraudren, Fl. Cambo. Laos Viet. 15: 60. 1975; Walker, Fl. Okinawa S. Ryukyu: 1002. 1976. (倒吊金鐘)

Melothria maderaspatana (L.) Cong. in DC., Monogr. Phan. 3: 623. 1881. Hsiao, Fl. Taiwan 3: 807. 1977.

Based on seed and stamen morphology, Jeffrey (1962) divided *Melothria* into four genera: *Melothria* L., *Mukia* Arn., *Solena* Lour., and *Zehneria* Endl. Following his taxonomic change, the species of *Melothria* in the Flora of Taiwan are placed in *Mukia*, *Solena*, and *Zehneria*. All these genera have three stamens. In *Zehneria*, the stamens are two-thecal. In *Mukia* and *Solena*, two stamens are two-thecal and the remaining stamen is one-thecal. *Mukia* has straight anther-thecae and verrucose seeds, whereas *Solena* has oblique, curved anther-thecae and smooth seeds.

Mukia maderaspatana is distributed in Africa, India, Indochina, Malesia, Australia, Ryukyu, Southern China and Taiwan.

3. *Sicyos angulatus* L., Sp. Pl.: 1013. 1753; Cogn. in D.C., Monogr. Phan. 3: 872. 1881. (刺果瓜)

This newly recorded, naturalized species is native in North America, and introduced

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elsewhere. This species differs from other Taiwan Cucurbitaceae by having densely prickly fruit.

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4. *Solena heterophylla* Lour., Fl. Cochinch.: 514. 1790; Hutch., Gen. Fl. Pl. 2: 393. 1967; Keraudren, Fl. Cambo. Laos Viet. 15: 63. 1975. (變葉馬駝兒)

Melothria heterophylla (Lour.) Cogn. in D. C., Monogr. Phan. 3: 618. 1881; Hsiao, Fl. Taiwan 3: 805. 1977.

Distributed in India, Indochina, Malesia, Australia, Southern China and Taiwan.

5. *Thladiantha longifolia* Cogn. ex Oliver, Hooker's Icon. Pl. 23: t. 2222. 1892. (斑花青牛膽)
Thladiantha punctata Hayata, J. Coll. Sci. Univ. Tokyo 30: 119. 1911; Hsiao, Fl. Taiwan 3: 811. 1977.

Many disjunct distribution have been reported for species of *Thladiantha* (Jeffrey, 1962), and this taxon provides another example. *Thladiantha longifolia* and *T. nudifolia* Hemsl. have the same distribution. Both species are distributed in Taiwan and the Yangtze River Valley.

Materials of *Thladiantha longifolia* show minor variations in the number of staminate flowers per inflorescence: e. g., 1-9 in collections from Taiwan, and 3-12 in collections from the Yangtze River Valley.

6. *Trichosanthes cucumeroides* (Ser.) Maxim. ex Franch. & Sav., Enum. Pl. Jap. 1: 172. 1875; Hsiao, Fl. Taiwan 3: 813. 1977. (師古草)

Trichosanthes cucumeroides var. *stenocarpa* Honda, Bot. Mag. Tokyo 54: 223. 1941; Hsiao, Fl. Taiwan 3: 814. 1977.

Trichosanthes cucumeroides var. *stenocarpa* was reported as having longer fruit, and a different form of leaf apex and leaf texture when compared with *T. cucumeroides* var. *cucumeroides* (Kitamura, 1943; Chuang, 1966; Hsiao, 1977). However, none of these characters show a discontinuous character state, and therefore the recognition of this variety does not seem to be warranted.

There are, however, two recognizable varieties in Taiwan: *Trichosanthes cucumeroides* var. *cucumeroides* which has lobed leaves, five inner vascular bundles in the stem, and tricolporate pollen grains; whereas *T. cucumeroides* var. *formosana* (Hayata) Kitamura has entire-margined leaves, four inner vascular bundles in the stem, and triporate pollen grains.

Trichosanthes cucumeroides var. *cucumeroides* is distributed in Japan, Southern China and Taiwan. *Trichosanthes cucumeroides* var. *formosana* is endemic to Taiwan.

7. *Trichosanthes laceribracteata* Hayata, J. Coll. Sci. Univ. Yokyo 30: 117. 1911. (槭葉括樓)

Trichosanthes bracteata auct. non (Lam.) Voigt: Hsiao, Fl. Taiwan 3: 813. 1977.

Trichosanthes sinopunctata Yueh & Cheng, Acta Phytotax. Sin. 12: 437. 1974.

The present species was misidentified as *Trichosanthes bracteata* (Lam.) Voigt (= *T. tricuspidata* Lour.) in the past (e. g., Kitamura, 1943; Chuang, 1966; Hsiao, 1977). Yueh & Cheng (1974) recognized this misapplication and provided a name, *T. sinopunctata*. However, an earlier name *T. laceribracteata* is available and has priority.

The differences between *Trichosanthes laceribracteata* and *T. tricuspidata* are as follows: *Trichosanthes laceribracteata* has deeply lobed leaves, the young fruit is green with many round white spots, and the seeds are brown and smooth; whereas *T. tricuspidata* has shallowly lobed leaves, yellowish-green young fruit without white spots, and grey and verrucose seeds.

(3) All specimens cited in this paper are on deposit at TAI.

Trichosanthes laceribracteata is distributed in Japan, Ryukyu, Southern China and Taiwan.

8. *Trichosanthes ovigera* Bl., Bijdr.: 934. 1826; Chakrav., Rec. Bot. Surv. India 17: 51. 1959; Back. & Bakh. f., Fl. Java 1: 303. 1963; Keraudren, Fl. Cambo. Laos Viet. 15: 85. 1975. (喜馬拉雅栝樓)

Trichosanthes himalensis Clarke in Hook. f., Fl. Brit. Ind. 2: 608. 1879; Huang, Fl. Taiwan 6: 98. 1979.

Trichosanthes okamotoi Kitamura, J. Jap. Bot. 19: 40. 1943.

This species is characterized by having ten white stripes on young green fruit, drum-shaped seeds, and deeply lobed leaves.

Distributed in India, Indochina, Malesia, Southern China and Taiwan.

PINGTUNG: Kaoshu, Y. Jeng 271.

9. *Trichosanthes tricuspida* Lour., Fl. Cochinch.: 589. 1790; Keraudren, Fl. Cambo. Laos Viet. 15: 81. 1975. (蘭嶼栝樓)

Trichosanthes quinquangulata A. Gray, U. S. Expl. Exped., Phan.: 645. 1854; Hsiao, Fl. Taiwan 3: 815. 1977.

The tendrils of this species are 2- to 7-fid, and the most commonly seen number of branches on the tendrils of this species in Taiwan are four and five.

Distributed in India, Indochina, Malesia, Australia, Southern China and Taiwan.

10. *Zehneria indica* (Lour.) Keraudren, Fl. Cambo. Laos Viet. 15: 52. 1975. (老鼠冬瓜)

This species was first reported in Taiwan by Chuang (1966) as *Melothria indica* Lour., but was unintentionally omitted in the Flora of Taiwan.

Distributed in India, Indochina, Southern China and Taiwan.

TAIPEI: Fushan, Liu 2075. NANTOU: Kuantaohsi, Wu & Hsieh 1496; Sun Moon Lake, Kudo & Sasaki s. n. in 1929.

11. *Zehneria liukuensis* (Nakai) C. Jeffrey ex Walker, J. Jap. Bot. 46: 72. 1971; Walker, Fl. Okinawa S. Ryukyu: 1002. 1976. (蘭嶼馬咬兒)

Previous reports of *Melothria mucronata* (Bl.) Cogn. (= *Zehneria mucronata* (Bl.) Miq.) from Lanyu Island (Hsiao, 1977; Hsu, 1982) are incorrect and plants so named may be referred to *Zehneria liukuensis* which was reported as an endemic species in Ryukyu Islands. *Zehneria liukuensis* has larger vegetative and reproductive parts than *Z. mucronata*: the fruit being 15-30 mm by 8-10 mm long, and the seeds 5 mm by 3-4 mm long.

Distributed in Ryukyu Islands and Taiwan (Lanyu Island).

TAITUNG: Lanyu Island, Chang 6133, Chang 6164, Honda s. n. in 1943, Hosokawa s. n. in 1943.

12. *Zehneria maysorensis* (Wight & Arn.) Arn., J. Bot. (Hooker) 3: 275. 1841; C. Jeffrey, Kew Bull. 15: 366, 1962; Keraudren, Fl. Cambo. Laos Viet. 15: 51. 1975. (鈕子瓜)

Zehneria maysorensis, *Z. mucronata*, and *Z. scabra* (Linn. f.) Sond. were taxonomically confused in the past (Jeffrey, 1962.) *Melothria perpusilla* (Bl.) Cogn. (= *Z. scabra*) which was reported in Taiwan and listed as an insufficiently known species in the Flora of Taiwan (Hsiao, 1977) may be better referred to the present species.

Distributed in tropical Africa, India, Indochina, Malesia, Southern China and Taiwan.

PINGTUNG: Pingting, Matuda s. n. in 1915.

13. *Zehneria mucronata* (Bl.) Miq., Fl. Ind. Bat. 1: 656. 1855; C. Jeffrey, Kew Bull. 15: 367. 1962. (黑果馬咬兒)

Melothria mucronata (Bl.) Cogn. in D. C., Monogr. Phan. 3: 608. 1881; Hsiao, Fl. Taiwan 3: 807. 1977.

Distributed in Polynesia, Australia, Malesia and Taiwan.

Melothria formosana Hayata has been a confused species in the past. No specimen in TAI and TAIF fits the description provided by Chuang (1966) and Hsiao (1977), and the author suspects that a confusion may have resulted from mixing specimens of *Zehneria indica*, *Z. maysorensis*, and *Z. mucronata*.

In Volume Six of the Flora of Taiwan, Huang (1979) added several species which are in cultivation only. Three names have been changed nomenclaturally and three more names need to be added.

1. *Citrullus lanatus* (Thunb.) Matsumura & Nakai, Cat. Sem. Hort. Bot. Univ. Tokyo 1920: 38. 1920; Hara, Taxon 18: 347. 1969. (西瓜)
Citrullus vulgaris Schrader ex Ecklon & Zeyher, Enum. Pl. Afr. Austral.: 279. 1836, Fl. Taiwan 6: 97. 1979.
 2. *Cucumis callosus* (Rottl.) Cogn. in Engler, Pflanzenreich IV. 275 II (Heft 88): 129. 1924. (小黄瓜)
Cucumis trigonus Roxb., Hort. Beng.:70. 1814; Huang, Fl. Taiwan 6: 97. 1979.
 3. *Cucurbita ficifolia* Bouche, Verh. Ver. Beford. Gartenb. Peruss. 12: 205. 1837. (黑子南瓜)
 4. *Cucurbita pepo* L., Sp. Pl.: 1012. 1753. (西洋南瓜)
 5. *Lagenaria siceraria* (Molina) Standley, Publ. Field Columbia Mus., Bot. Ser. 3: 435. 1930; Huang, Fl. Taiwan 6: 97. 1979. (葫蘆)
Lagenaria leucantha Rusby, Mem. Torr. Bot. Club 6: 43. 1896; Huang, Fl. Taiwan 6: 97. 1979.
- See Hara's (1948) paper for the nomenclature of varieties cultivated in Taiwan.
6. *Trichosacthes cucumerina* L., Sp. Pl.: 1432. 1753. (蛇瓜)

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論臺灣的瓜科植物

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摘 要

在臺灣植物誌第三冊中，曾記錄十九種野生的瓜科植物。這主要是依據日本人 Kitamura (1943) 的論文編纂成的，並沒有進一步與中國南部及中南半島等熱帶亞洲的種類互相比照。就植物地理區系而言，臺灣的種類與上述地域相當密切，因此與來自該區的材料相比對是相當必要的。另外最近數年內增加了許多新採集的標本，其中有些種類對臺灣而言是屬於新的。這些新填加的及修訂的在本文中均有詳細的記載與說明。