

NOTES ON THE FLORA OF TAIWAN (10)

Acalypha brachystachya Hornem. and its related species (Euphorbiaceae)⁽¹⁾

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Abstract: *Acalypha brachystachya* Hornem. is reported in Taiwan for the first time. This species characterized by the very short axillary spike enclosed the male flowers at the upper portion and the female flowers at the lower portion with deeply 3-fided bracts. A comparison of the newly recorded species with *A. australis*, *A. indica*, *A. minima* and *A. matudai* is given. *A. indica* is reconfirmed in Taiwan and *A. minima* is treated as its variety.

INTRODUCTION

Acalypha brachystachya Hornem., a herbaceous plant of the southern part of Taiwan, inhabits the forest floor at altitude of 1120 m high, is reported in Taiwan for the first time. It occurs in Tropical Africa, India, China, Taiwan and Java.

In Taiwan *Acalypha* can roughly be separated into two groups by the position of female and male flowers in the same spike or different spike. *A. brachystachya* belongs to the group which female and male flowers are in the same spike. So do *A. australis*, *A. minima* and *A. matudai* (Keng, 1955; Hsieh, 1977). According to the literature, *A. indica*, also belonging to this group, was first reported in Taiwan by Henry (1896). Matsumura and Hayata (1906) adopted Henry's treatment but excluded it in Hayata's *Iconum Plantarum Formosanarum*. While Pax and Hoffmann (1924) monographically revised *Acalypha*, they cited Playfair's specimen, collected from Formosa, under *A. indica*. Such treatment was not cited by Keng (1955) and Hsieh (1977). The comparison of the main characters is given in Table 1. A simple key abstracted from the table is also given.

From the Table 1, *A. minima* is different from *A. indica* by long hair versus short hair, and smaller leaf and spike. When more materials are studied, the length of leaf and spike should be continuous between *A. minima* and *A. indica*. Since the hair condition is different, we propose to transfer *A. minima* as a variety of *A. indica*.

All the specimens examined in this paper are deposited in TAI.

Key to the Species and Varieties of *Acalypha*

1. Spike sessile; bracts of female flowers deeply 3-fided.....2. *A. brachystachya*
1. Spike pedunculate; bracts of female flowers serrate.....2

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Table 1. The main characters of *Acalypha brachystachya* and its related species

Character	<i>A. brachystachya</i>	<i>A. australis</i>	<i>A. indica</i>	<i>A. minima</i>	<i>A. matudai</i>
Stem	tomentose	tomentose or sparingly hairy	tomentose	wooly	glabrous
Leaves	ovate	lanceolate, ovate	rhomboid-ovate	rhomboid-ovate, ovate	ovate
size (cm)	2.8-4.5×1.5-2.4	2.2-5.2×1-2.1	1.7-3.2×1.4-2.2	1.1-1.7×0.5-1.4	4.7-8.5×2-4
apex	acuminate	acute or acuminate	acuminate	acute or acuminate	acuminate
base	subcordate or rounded	obtuse or rounded	cuneate	acute or obtuse	rounded or subcordate
petiole	shorter or equal to the blade	much shorter than the blade	equal to or longer than the blade	equal to or shorter than the blade	much shorter than the blade
Peduncle (fruiting)	sessile	15-30 mm	4-6 mm	1-3 mm	12 mm
Male flowers	less than 5	more than 15	more than 15	more than 15	more than 15
length of male part (mm)	0.7	4-6	3-4	1-2	12-55
Bracts of female flowers	more than 2	(1-)2	3-9	2-5	1
shape	3-fid, fid lanceolate	ovate-orbicular	broadly orbicular	broadly orbicular	broadly orbicular
apex	obtuse	acuminate	acute	acute	acute
base	fid rounded	cordate	rounded	rounded	cordate
Ovary	hairy	hairy	hairy	hairy	hairy
Seed	oval	oval	oval	oval	oval
size (mm)	1	1.2	1-1.2	1.3	2.5
surface	minutely reticulate	minutely reticulate	minutely reticulate	minutely reticulate	smooth

- 2. Subshrub; male part in spike 12-55 mm long; female flower solitary.....4. *A. matudai*
- 2. Herb; male part in spike less than 6 mm long; female flowers more than 1....3
- 3. Leaves lanceolate or ovate; peduncle long, 15-30 mm long; female flowers usually 2, bracts acuminate at the apex, cordate at the base....1. *A. australis*
- 3. Leaves rhomboid-ovate or ovate; peduncle short, 1-6 mm long; female flowers more than 2, bracts acute at the apex, obtuse at the base.....4
- 4. Stem tomentose, with short hairs; leaves 1.7-3.2 cm long, with cuneate base...
.....3a. *A. indica* var. *indica*
- 4. Stem wooly, with long hairs; leaves 1.1-1.7 cm long, with acute or obtuse base
.....3b. *A. indica* var. *minima*

TAXONOMIC TREATMENT

1. *Acalypha australis* L., Sp. Pl. 1004. 1753; Matsum. & Hayata in Journ. Coll. Sci. Imp. Univ. Tokyo 22: 365. 1906; Pax & Hoffmann in Engler, Pflanzenreich (IV, 147) 85: 35. 1924; Keng in *Taiwania* 6: 31. 1955; Hsieh in *Fl. Taiwan* 3: 441. 1977.

鐵莧菜 Fig. 1b

A. australis L. var. *lanceolata* Hayata in Journ. Coll. Sci. Imp. Univ. Tokyo 20: 51. 1904. (Type: Keelung, *T. Makino*, TI, not seen)

A. australis L. f. *lanceolata* (Hay.) Hurusawa in Journ. Fac. Sci. Univ. Tokyo III. 6(6): 298. 1954.

This species distributes in Ussuri, Korea, Japan, The Ryukyus, Taiwan, China and the Philippines. In Taiwan it inhabits the open roadside or waste field throughout the whole island at low to medium altitude.

TAIPEI: Pali, *C. C. Hsu et al.* 11222; Suigenchi, *S. Suzuki s.n.* April 1929; Taipei Botanical Garden, *Ko s.n.* Aug. 1936; Taipei City, *C. M. Kuo* 6295. TAICHUNG: Kaosaihuku, *S. Suzuki s.n.* July 1924; Neipu-Holi, *C. C. Hsu* 4704. NANTOU: Puli,

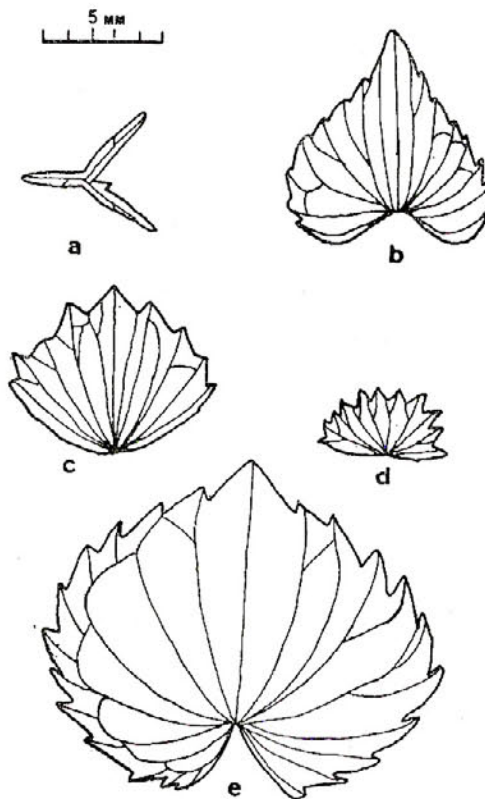


Fig. 1. Bracts of female flower of *Acalypha*.

- a. *A. brachystachya* Hornem (Huang *et al.* 14906)
- b. *A. australis* L. (Hsu 4640)
- c. *A. indica* L. var. *indica*. (Kao 10198)
- d. *A. indica* L. var. *minima* (Keng) Huang & Huang (Hosokawa 2056)
- e. *A. matudai* Hayata (Hsu & Kao 3374)

C. C. Hsu 4640; Musya-Santinozyo, *G. Masamune et al.* 1978. TAINAN: Chiali, *Mori-moto* 112. PINGTUNG: Pingtung, *Yamamoto & Suzuki* 1760.

2. *Acalypha brachystachya* Hornem., Hort. Hafn. 2: 909. 1807; Hooker f., Fl. Brit. Ind. 5: 416. 1887; Trimen ex Hooker f., Hand-Book Fl. Celon 4: 59. 1898; Hutchinson in Fl. Trop. Afr. 6: 899. 1913; Pax & Hoffmann in Engler, Pflanzenreich (IV, 147) 85: 101. 1924; Backer & van den Brink, Fl. Java 1: 489. 1963; Anonymous, Fl. Hupehensis 2: 374. f. 1276. 1979. 短序鐵莧菜 Fig. 1a

A slender annual herb, about 30 cm high; stem sulcate, tomentose and mingled with long straight hairs. Leaves ovate, acuminate with obtuse tip, base slightly cordate or rounded, 2.8-4.5 cm long, 1.5-2.4 cm broad, margin serrate, teeth rounded, with long straight hairs along veins and veinlets at both surfaces; petioles tomentose and mingled with long straight hairs, 1-3.5 cm long. Spike axillary, shorter than bract: male flowers inserted at the upper portion, very small, ebracteate, sepals 4, yellowish brown when dry, valvate in bud; filament 8; female flowers inserted at the lower portion, bract deeply 3-fid, fid lanceolate, rounded at the apex, with hairs and glandular hairs, sometimes the lateral lobes with one auricles at base; sepals lanceolate, hyaline, shorter than the bract; ovary oval, hairy, styles 3, free, filiform, laciniate at the apex. Fruit a capsule, 3-celled. Seeds 3 in each capsule, oval, brown, about 1.5 mm long, carunculate.

This species distributes in Tropical Africa, India China, Taiwan, and Java. In Taiwan, it was found in the forest floor beside a brook in the southern mountain area at the elevation of 1120 m high.

Kaohsiung: Tengchih, *T. C. Huang, S. F. Huang & M. J. Wu* 14906.

3. *Acalypha indica* L., Sp. Pl. 1030. 1753; Wight, Icon. III. t. 877. 1840-53; Henry, List Pl. Formosa 84. 1896; Pax & Hoffmann in Engler, Pflanzenreich (IV, 147) 85: 33. 1924.

3a. var. *Indica*

印度鐵莧 Fig. 1c

This variety distributed in Tropical Africa, Madagascar, India, Sri Lanka, Thailand, Singapore, Java, the Philippines, Taiwan, the Ryukyus and Pacific Islands. In Taiwan it inhabits the open roadside and waste field in the southern part at lower altitude.

KAOHSIUNG: Tsoying, *H. N. Yang* 2407. PINGTUNG: Kaoshu, *M. T. Kao* 9730, 10198; Pingtung, *M. T. Kao* 10086; Hengchun, *T. C. Huang & C. L. Hsiao* 8222. TAI-TUNG: Taitung, *M. T. Kao* 9596; Tawu, *C. C. Hsu & R. Hsu* 4087.

- 3b. var. *minima* (Keng) S. F. Huang & T. C. Huang, *comb. nov.* 小葉鐵莧 Fig. 1d

Acalypha minima Keng in *Taiwania* 6: 32. 1955; Hsieh in *Fl. Taiwan* 3: 442. 1977. Endemic. This variety inhabits open seaside in the southern part.

PINGTUNG: Hsiaoliuchiu, *T. Hosokawa* 2056 (Type !); Kenting, *T. I. Chuang* 1038.

4. *Acalypha matudai* Hayata, Icon. Pl. Form. 9: 100. 1920; Hurusawa in *Journ. Fac. Sci. Univ. Tokyo* III. 6(6): 300. 1954; Keng in *Taiwania* 6: 32. 1955; Hsieh in *Fl. Taiwan* 3: 442. 1977. 恒春鐵莧 Fig. 1e

Endemic. this species distributes in the southern part.

PINGTUNG: Buizan, *E. Matuda* s. n. Aug. 1918; Hengchun Park, *H. J. Ho* s. n. Jan. 1976. TAITUNG: Chihpen, *C. C. Hsu* & *M. T. Kao* 3374; Tawu, Tomabaru, *M. Tyotaro* 8215.

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臺灣植物誌之觀察 (10)

短序鐵莧菜及其相近種 (大戟科)

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摘 要

短序鐵莧菜 (*Acalypha brachystachya* Hornem.) 首次採自臺灣之高雄縣藤枝。本種主要特徵為花序腋生而且非常短，雄花與雌花長在同一花序，雄花位於花序上端，雌花之苞片為三深裂片構成。分布於非洲、印度、中國大陸、臺灣及爪哇。本文同時比較鐵莧菜 (*A. australis* L.)、印度鐵莧 (*A. indica* L.)、小葉鐵莧 (*A. minima* Keng) 及恒春鐵莧 (*A. matudai* Hay.) 之外部形態特徵，再次確認印度鐵莧存在於臺灣，並將小葉鐵莧處理為印度鐵莧之變種。