研究報告

台灣新歸化錦葵科植物—刺金午時花

林惠雯[1]、王秋美[2]、曾彥學[3]

【摘要】刺金午時花 (*Sida spinosa* L.) 原產於熱帶美洲，目前已歸化於台灣中、南部，本文描述其形態特徵、地理分佈及生育地環境，並提供彩色圖片與線畫圖以資辨識，另外再作表與其相似種細葉金午時花 (*S. acuta* Burman f.) 在外觀形態特徵之比較。

【關鍵詞】錦葵科、刺金午時花、植物分類學、歸化植物、台灣

Research paper

Sida spinosa L. (Malvaceae), A Newly Naturalized Plant in Taiwan

Whi-Wen Lin[1] Chiu-Mei Wang[2] Yen-Hsueh Tseng[3]

【**ABSTRACT**】*Sida spinosa* L. is native to Tropical America, now naturalized to central and southern Taiwan. A taxonomic treatment, line drawing, and color photographs of this species from wild are provided to aid in identification. The morphology of *S. spinosa* L. is very similar to *S. acuta* Burman f., and is distinguished from features of stems, leaves and mericarps.

【**Key words**】Malvaceae, *Sida spinosa* L., Taxonomy, Naturalized plant, Taiwan.

INTRODUCTION

The family Malvaceae comprise over 80 genera throughout the world, eight in Taiwan (Chang, 1977; Ying, 1992). The genus *Sida* L. with about 200 species distributed in tropical and subtropical areas, including America, Africa, Australia, Asia and the Pacific islands, is taxonomically one of the most difficult groups displaying wide ranging morphological variability (Sivarajan *et al*., 1992; Tang *et al*., 2007). A total of 6 taxa have been found in Taiwan (Chang, 1977, 1993), but the species of *Sida spinosa* L. was not recorded in the previously taxonomic study of Taiwan.

1. 國立中興大學森林學系，40227 台中市國光路 250 號
Department of Forestry, National Chung Hsing University, 250 Kuokwang Rd., Taichung Country 40227 Taiwan.
2. 國立自然科學博物館植物學組，404 台中市館前路 1 號
Department of Botany, National Museum of Natural Science, 1, Guancian Rd., Taichung 404, Taiwan.
3. 國立中興大學森林學系，40227 台中市國光路 250 號，通訊作者。
Department of Forestry, National Chung Hsing University, 250 Kuokwang Rd., Taichung Country 40227 Taiwan. Corresponding Author. E-mail: tseng2005@nchu.edu.tw

The genus *Sida* is usually perennial subshrubs or herbs, often either stellate-pubescent or nearly glabrous. The leaves are simple or somewhat lobed, serrate. Flowers solitary or in inflorescence; calyx-lobes 5, corolla yellow, the petals 5, free above, connate at the base and adnate to the stamina tube; stamens numberous, free above. Ovary with 5 or more carpels, mericarps separate from the axis after ripening, pointed or usually 2-awned at the apex (Lu *et al*., 2006; Chang, 1977; Li, 1963).

Sida spinosa L., native to tropical America, is now recorded as newly naturalized species to Taiwan, it probably has been accidentally introduced by the importation of crops from America and Australia (Hsu *et al*., 2004), can flower and fruit in all years.

TAXONOMIC TREATMENT

Sida spinosa L., Species Plantarum 2:683. 1753.
刺金午時花 Fig. 1.& 2.

Perennial undershrubs, stems erect, up to 1 m high, much branch, minutely stellate-pubescent. Leaves alternate; blade narrowly oblong or elliptic-lanceolate, 1.5-3 cm long, 0.5-1 cm wide, obtuse at apex, rounded at base, serrate, basally 5-veined, minutely stellate-tomentose beneath, glabrescent above; petioles 1-2 cm long, occasionally spinose at base; stipules 0.3 cm long, subulate. Flowers splitary or in small groups in the leaf axils and crowed at the apices, pedicel 0.2-0.5 cm, joint; corolla yallow with red-veined, ca. 1 cm in diameter, 5 petals, subcordate; calyx campanulate, 0.3-0.5 cm across, minutely tomentose, the lobes triangular; 5 gynoecium, style red or pink; 10 filaments, stamen connate into column at base, glandular hair; pollen grains ca. 100 μm, spheroidal, porate, spines on the surface. Fruits schizocarpic, nearly globose, 0.3-0.4 cm across, mericarps 5, trigonous, apically 2-awned, the awns ca. 0.5 cm long, stellate-hairy; dorsally reticulate-veined. Chromosome unmbers: 2n=14，28 (Paul, 1988).

Specimens examined: Taiwan. Taichung County. Dali City (大里市), Dali Bridge (大里橋), 7 Jan. 2010, Lin 881; Taichung City, Beitun district (北屯區), Ree-Zhong Street (雷中街) 1 Nov. 2008, Lin 110; Nantou County, Ren-Ai Township (仁愛鄉), Nan-Phong Village (南豐村), 26 Dec. 2009, Li 856; Changhua County, Lugang township (鹿港鎮), Chang-Wnpb industrial estate (彰濱工業區), elev. ca. 5 m, 16 Nov. 1998, Yang *et al*., 11588 (TNM); Huatan Township (花壇鄉), the crossing of 137 county road and Yong-Hing road (榮興路), 18 Nov. 2009, Lin 732~738; Pingtung County, Donggang town (東港鎮), elev. ca. 30 m, 30 Dec. 1999, Cheng 2887 (TNM); Fangshan Township (枋山鄉), elev. ca. 290 m, 20 Feb. 1995, Chen *et al*., 5963 (TAIF); Nanjhou Township (南州鄉), Nanjou Sugar Refinery Plant (南州糖廠), 16 Mar. 2000, Ku 510 (PPI); Hengchun town (恆春鎮), Chu-Fire (出火), 10 Sep. 2009, Lin 568; Pingtung City, Neipu Township (內埔鄉), Lao-Pi (老埤), Jul. 16, 2001, Ku 1406 (PPI); Taitung County, Lanyu Township (蘭嶼鄉), Iraralai (朗島), 11 Aug. 1976, Chang 8912 (PPI).

Notes: The first record of *Sida spinosa* L. in Taiwan was in 1976 by C. E. Chang at Iraralai (朗島) of Lanyu island, which was treated as S. spp.. After that, most Taiwan authors misidentified this species as S. acuta Burman f.. *S. spinosa* L. closely resembles *S. acuta* Burman f., and the distinctions are that the petioles 1-2 cm long, leaves densely stellate-hair beneath, stem with spines and each fruit with 5 mericarps, (vs. the petioles 0.3-0.5 cm long, leaves very sparsely stellate-hair, stem without spines and each fruit with 6 or 7 mericarps).

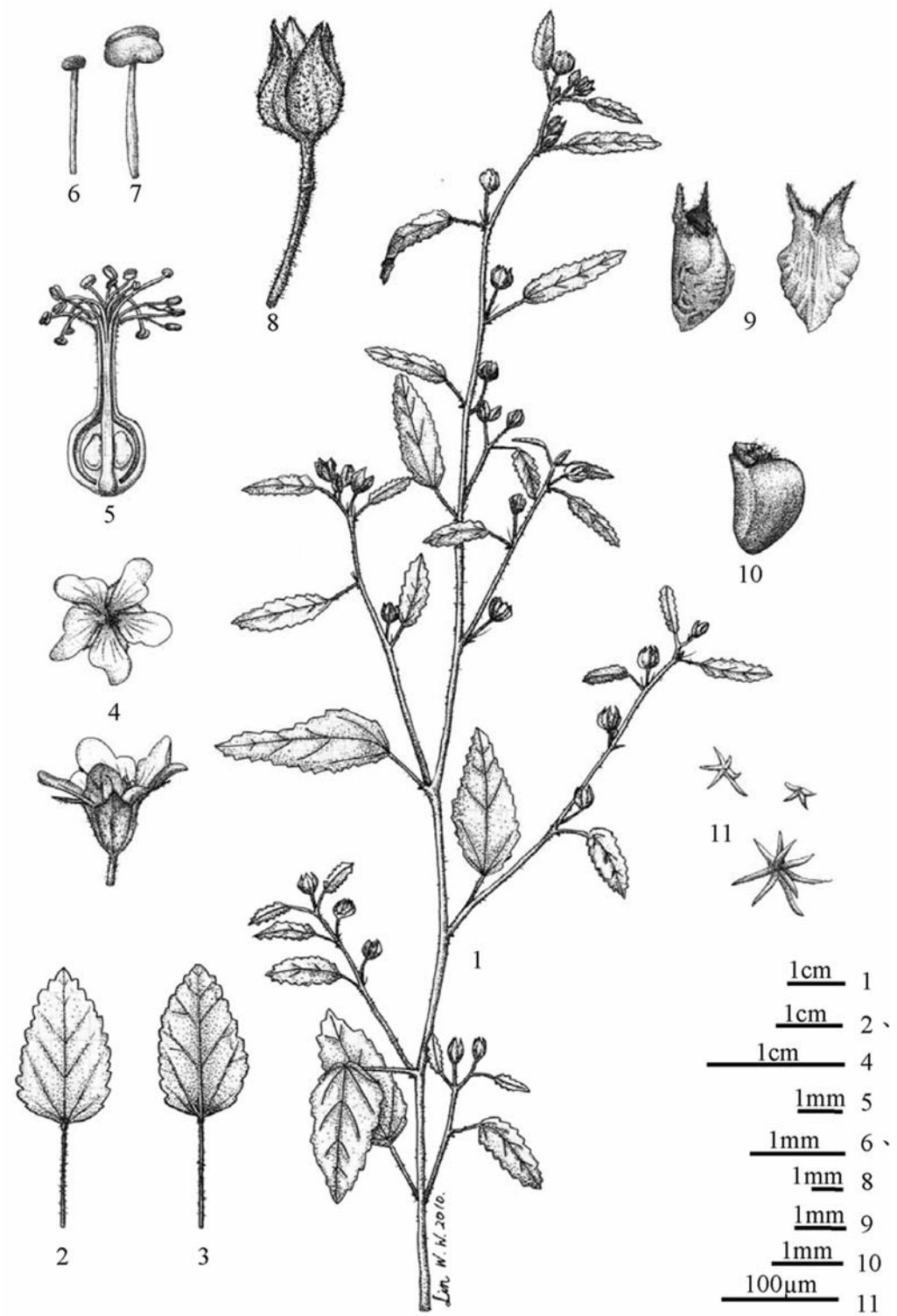

Fig 1. *Sida spinosa* L. 1: Habit; 2: Leaf, adaxial surface; 3: Leaf, abaxial surface; 4: Flower; 5: Dissected flower; 6: Stigma-style; 7: Stamen; 8: Fruit; 9: Mericarps; 10: Seed; 11: Indumentum.

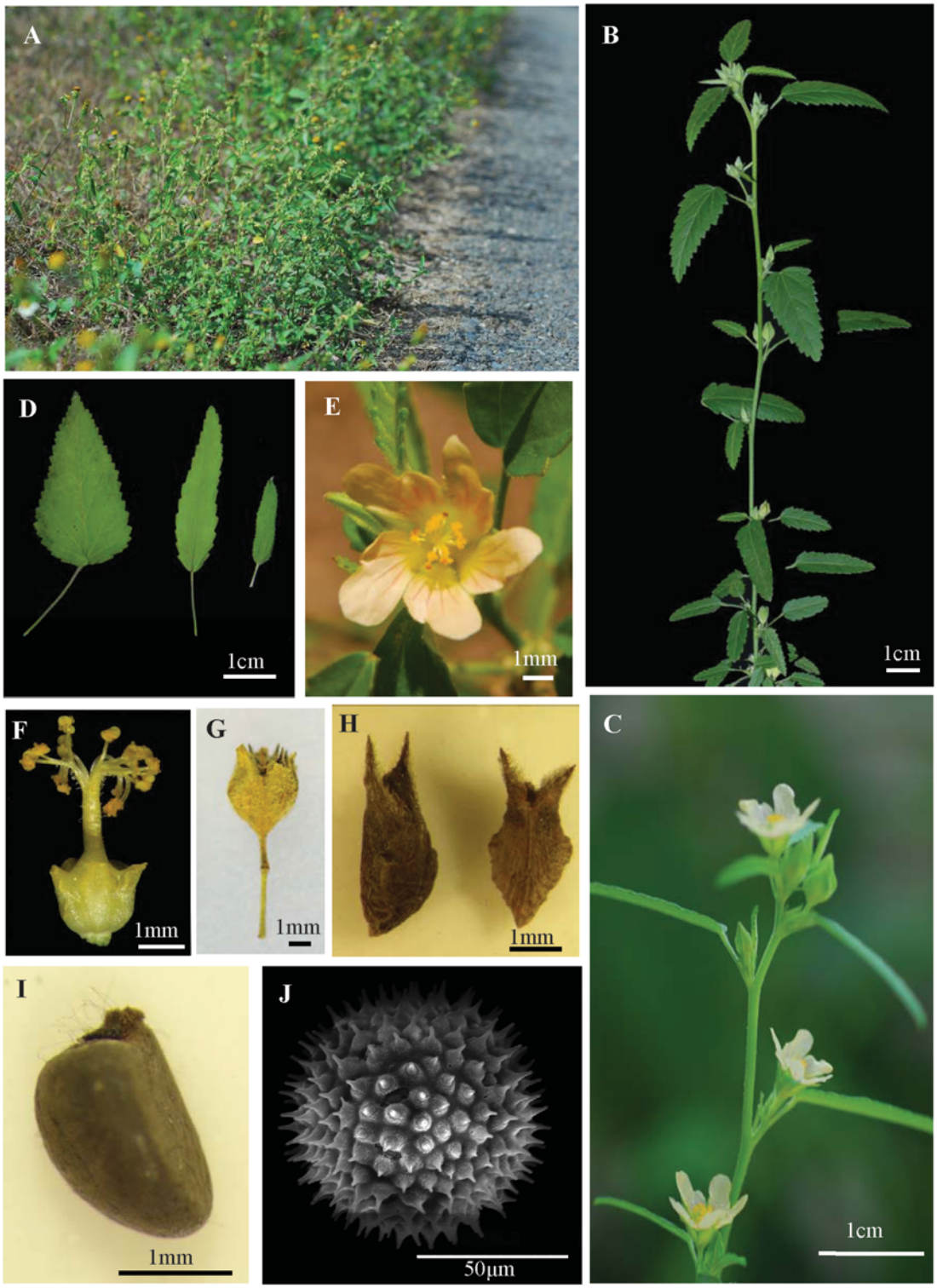

Fig. 2. Sida spinosa L. A: Habitat. B: Habit. C: Inflorescences. D: Types of leaves. E: Flower. F: Flower remove perianth. G: Fruit. H: Mericarps. I: Seed. J: SEM photo of pollen grain.

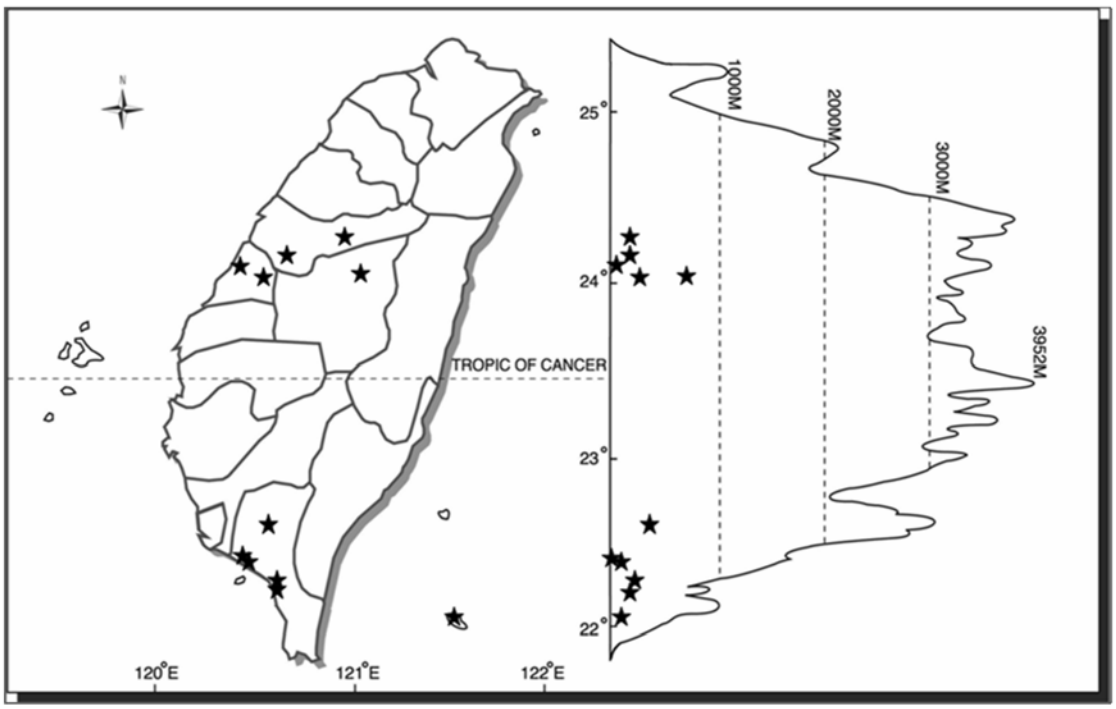

Fig. 3. Distribution of Sida spinosa L. in Taiwan.

Table 1. Comparision of *Sida spinosa* L. and *S. acuta* Burman f.

Species	*Sida spinosa* L.	*Sida acuta* Burman f.
Stem	with spines	without spines
Petiole	1~2 cm	0.3~0.5 cm
Leaves	densely stellate-hair beneath	very sparsely stellate-hair
Stipule shape	subulate	lanceolate
Number of mericarps	5	6 or 7
Awns of mericarps	stellate-hairs	glabrous

Distribution: This species, *Sida spinosa* L. is native to tropical and subtropical America, Africa, Australia, Asia and the Pacific islands (Tang *et al*., 2007) and previously naturalized to Ryukyus (Hatusima, 1971) and Japan (Nagada, 1972). Recently, it naturalized to central and southern Taiwan, was found in waste places and roadsides, at low and medium elevations up to 1,900 m

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