

研究報告

臺灣新歸化植物—大紅花野牽牛 (旋花科)

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【摘要】在臺灣的旋花科中，以牽牛花屬有最多的歸化物種。近年於臺灣北部和中部低海拔開闊地又發現一歸化植物-大紅花野牽牛 (*Ipomoea cordatotriloba* Dennst.)，本種的花冠直徑2.5 cm明顯大於其近似種紅花野牽牛 (*I. triloba* L.) 之1.5 cm，及擬紅花野牽牛 (*I. leucantha* Jacq.) 之2 cm，因此可與兩者明顯區別。本文提供大紅花野牽牛之特徵描述、彩色照片、線繪圖、近似種之比較照片及比較表，以供鑑定參考。

【關鍵詞】旋花科、牽牛花屬、歸化植物、臺灣。

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Research Paper

Ipomoea cordatotriloba Dennst. (Convolvulaceae), a newly naturalized plant in Taiwan

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【Abstract】 In the family Convolvulaceae, the genus *Ipomoea* has the most naturalized species in Taiwan. A newly naturalized species, *I. cordatotriloba* Dennst., was discovered naturalized at low-altitude open ground areas in northern and central Taiwan. The corolla diameter is larger in *I. cordatotriloba* (2.5 cm) than in the similar species *I. triloba* (1.5 cm) and *I. leucantha* (2 cm); therefore, these species can be easily distinguished. The taxonomic description, color photographs, and line drawings of *I. cordatotriloba* and the Chinese names and key for the similar species are provided to facilitate identification.

【Key words】 Convolvulaceae; *Ipomoea*; naturalized plant; Taiwan.

Introduction

The genus *Ipomoea* L. (Convolvulaceae), distributed pantropically, comprised approximately 800 species worldwide (Wood et al. 2020). Of them, 27 species were in Taiwan [26 species suggested by Chung (2018) and *I. lacunosa* reported by Chao (2019)]. In 2020, Taiwan had 695 naturalized species, including 27 Convolvulaceae species and 18 *Ipomoea* species (Chang-Yang et al. 2022).

In 2018, an unknown *Ipomoea* species was found in northern Taiwan. The species is similar to *I. triloba* and *I. leucantha* but can be distinguished by the glabrous sepals and larger corolla diameter. After detailed comparison with known specimens in the literature (Wood et al. 2020), we identified this taxon as *I. cordatotriloba* Dennst., which is native to the United States and Mexico. *Ipomoea cordatotriloba* had naturally regenerated in northern Taiwan from 2018 to 2021; it also been found in central Taiwan in 2021. Thus, we suggested it as a newly naturalized species in Taiwan, hence collected specimens of it and kept them in the Herbarium of the Taiwan Forest Research Institute (TAIF), and the Herbarium of the Endemic Species Research Institute (TAIE). In this paper, the taxonomic description, color photographs, and line drawings of *I. cordatotriloba* and a comparison table and photographs of the similar species are provided to facilitate identification.

Taxonomic description

***Ipomoea cordatotriloba* Dennst., Nomencl. Bot. 1: 246. 1810.**

Basionym: *Convolvulus carolinus* L., Sp. Pl. 1: 154. 1753.

Type: Icon. in Dillenius, Hortus Elthamensis 1: 100. t. 84 f. 98 (1732), designated by Staples in Staples and Jarvis (2006).

大紅花野牽牛 (新擬) (Figure 1, 2)

Annual vines, stems dextrorsely twining, glabrous, vertically striped. Leaves alternate, cordate, sometimes shallowly 3-lobed, 3.5–5.5 × 3.8–5.8 cm, base cordate, margins entire, apex acuminate, glabrous on both surfaces, lateral veins 7 at each side; petiole 5–7 cm, rough, grooved. Inflorescences umbelliform cymes, axillary, usually 8–13 flowered; bracteoles linear, ca. 3 mm long; peduncle 2.5–9 cm long, glabrous, ribbed; pedicel 3–5 mm long. Sepals oblong, subequal, 7–9 × 3–4 mm, apex caudate, glabrous. Corolla pink, campanulate, ca. 2.5–3 cm long, with a dark-pink center, ca. 2.5 cm in diameter; stamens 5, included; filaments 1 cm long, inserted at the mouth of the tube, 4 mm, pubescent at base; anthers basifixed, ca. 1 mm long; pistil 1, included, 1–1.1 cm long; stigma capitate, 2-lobed, white; ovary conical, green, glabrous, 1 mm long, 2-loculed, 4-ovuled, base with annular disc. Capsules subglobose, 5 mm long, glabrous. Seeds 4, hemispherical, 3–4 mm long, pubescent along ribs.

Specimens examined: TAIWAN. Taoyuan City, Bade District, Bade, 19 Oct. 2021, *Ming-Jer Jung 6564* (TAIF), Chungda Park, *Ming-Jer*

Jung 6563 (TAIF), Dayuan District, Dayuan, 4 Oct. 2021, *Ming-Jer Jung 6554* (TAIF), same loc., *Po-Hao Chen 3353, 3354, 3355, 3356* (TAIE), Pingzhen District, Pingzhen, 23 Sep. 2021, *Ming-Jer Jung 6544* (TAIF), same loc., 17 Oct. 2021, *Ming-Jer Jung 6562* (TAIF). Nantou County, Mingjian Township, Songboling, *Po-Hao Chen & An-Ching Chung 3442, 3443* (TAIE).

Discussion

Originally, *I. trifida* (Kunth) G. Don was treated as two varieties, var. *torreyana* and var. *berlandieri* (Gray 1878), but Austin (1976) suggested var. *berlandieri* as the depauperate form of var. *torreyana*. In 1953, Shimmers transferred the varieties that Gray classified into *I. trichocarpa*, which were then transferred into *I. cordatotriloba* by Austin (1988). Nevertheless, var. *torreyana* is recognized as a glabrous form of *I. cordatotriloba* var. *cordatotriloba* (Wood et al. 2020); thus, the population found in northern and central Taiwan is a form of *I. cordatotriloba* with glabrous sepals.

In Taiwan, *I. cordatotriloba* is similar to two species, namely *I. triloba* and *I. leucantha*, but can be distinguished by its larger corolla diameter. *I. cordatotriloba* flowers cannot be easily observed because they bloom at dawn and wither before 9:00 a.m. Thus, the three species can be easily distinguished by the characteristics of their sepals, capsules, and seeds (Table 1 and Figure 3).

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Table 1. The comparisons of three similar species, *Ipomoea cordatotriloba*, *I. leucantha*, and *I. triloba*.

| Taxa | <i>I. cordatotriloba</i> | <i>I. leucantha</i> | <i>I. triloba</i> |
|------------------|--|---|------------------------------------|
| Corolla diameter | ca. 2.5 cm (Figure 3A) | ca. 2.0 cm (Figure 3B) | ca. 1.5 cm (Figure 3C) |
| Sepals | oblong, glabrous (Figure 3D) | lanceolate, glabrous, with fimbriate at margins (Figure 3E) | oblong, bristly pilose (Figure 3F) |
| Capsules | glabrous (Figure 3G) | pubescent (Figure 3H) | bristly pilose (Figure 3I) |
| Seeds | pubescent along ribs, not speckled (Figure 3J) | glabrous, not speckled (Figure 3K) | glabrous, speckled (Figure 3L) |

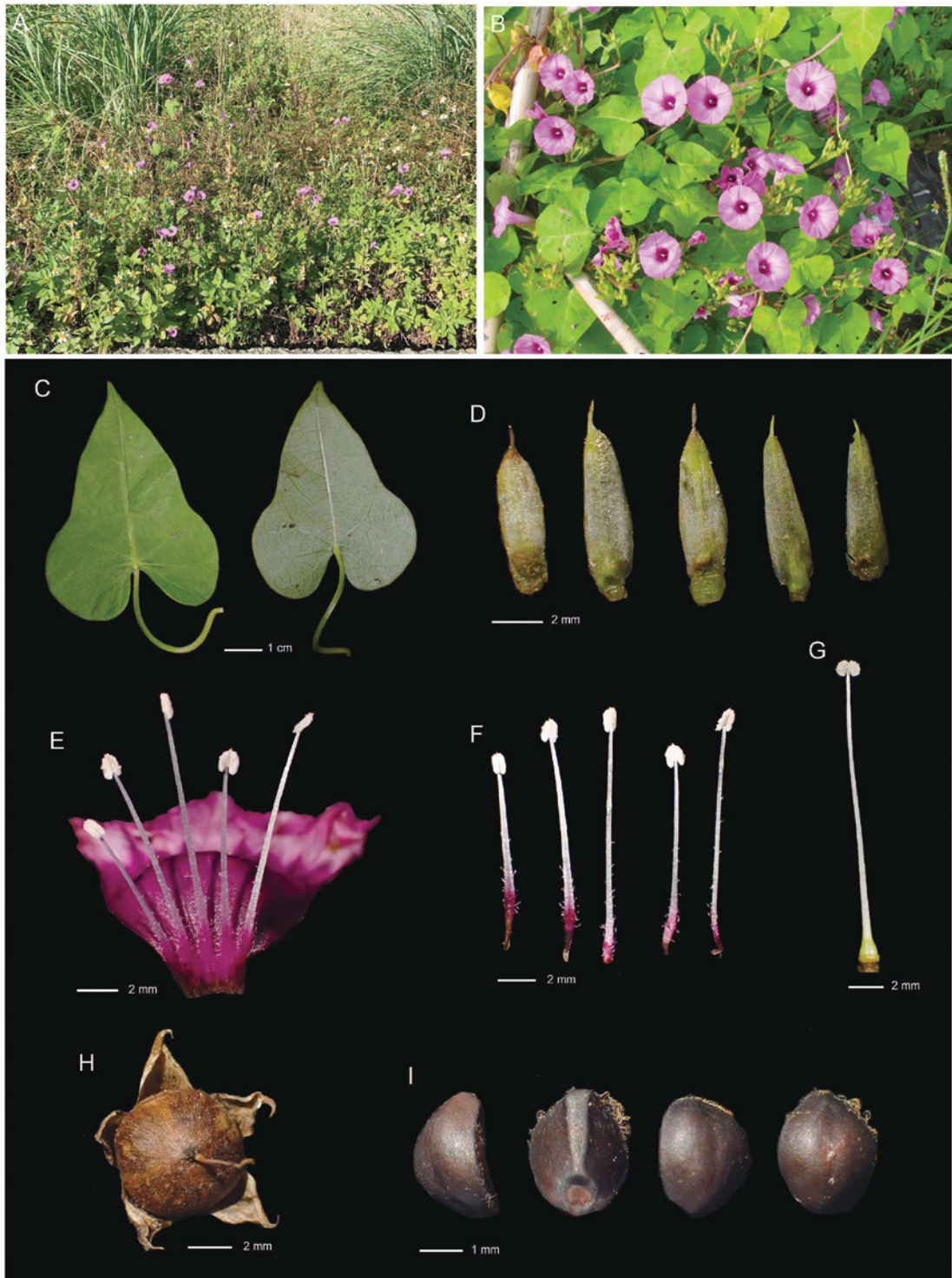


Figure 1. *Ipomoea cordatotriloba* Dennst. A: Habitat. B: Habit at anthesis. C: Leaves, adaxial (left) and abaxial (right) sides. D: Sepals, abaxial sides. E: Corolla (with stamens). F: Stamens. G: Pistil. H: Capsule. I: Seeds. Photographed by Shin-Ming Ku (A, B) and Po-Hao Chen (C-I).

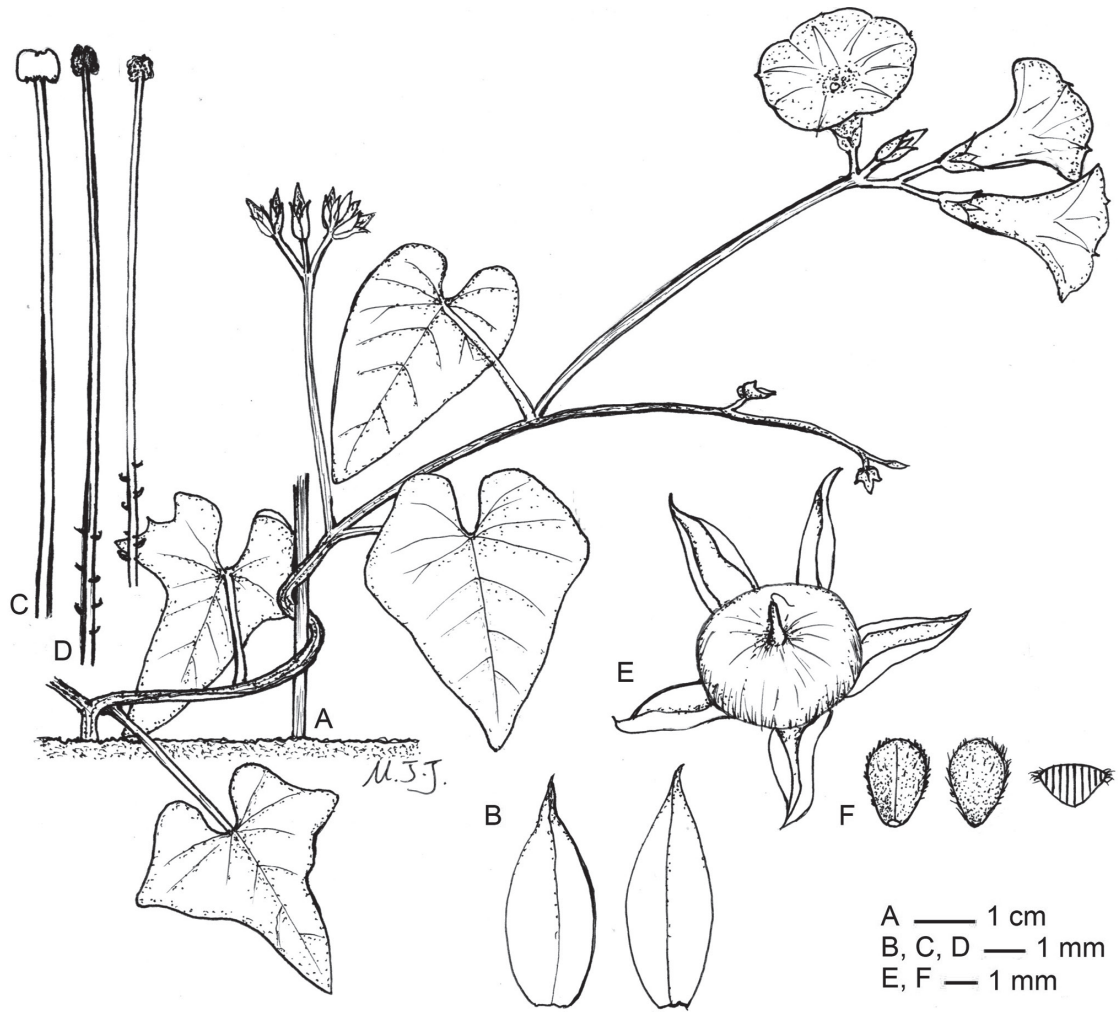


Figure 2. *Ipomoea cordatotriloba* Dennst. A: Flowering individual. B: Sepals of inner (left) and outer (right) whorls. C: Stigma and style. D: Stamens. E: Capsule. F: Seeds, the rightmost the top view. Drawn by Ming-Jer Jung.

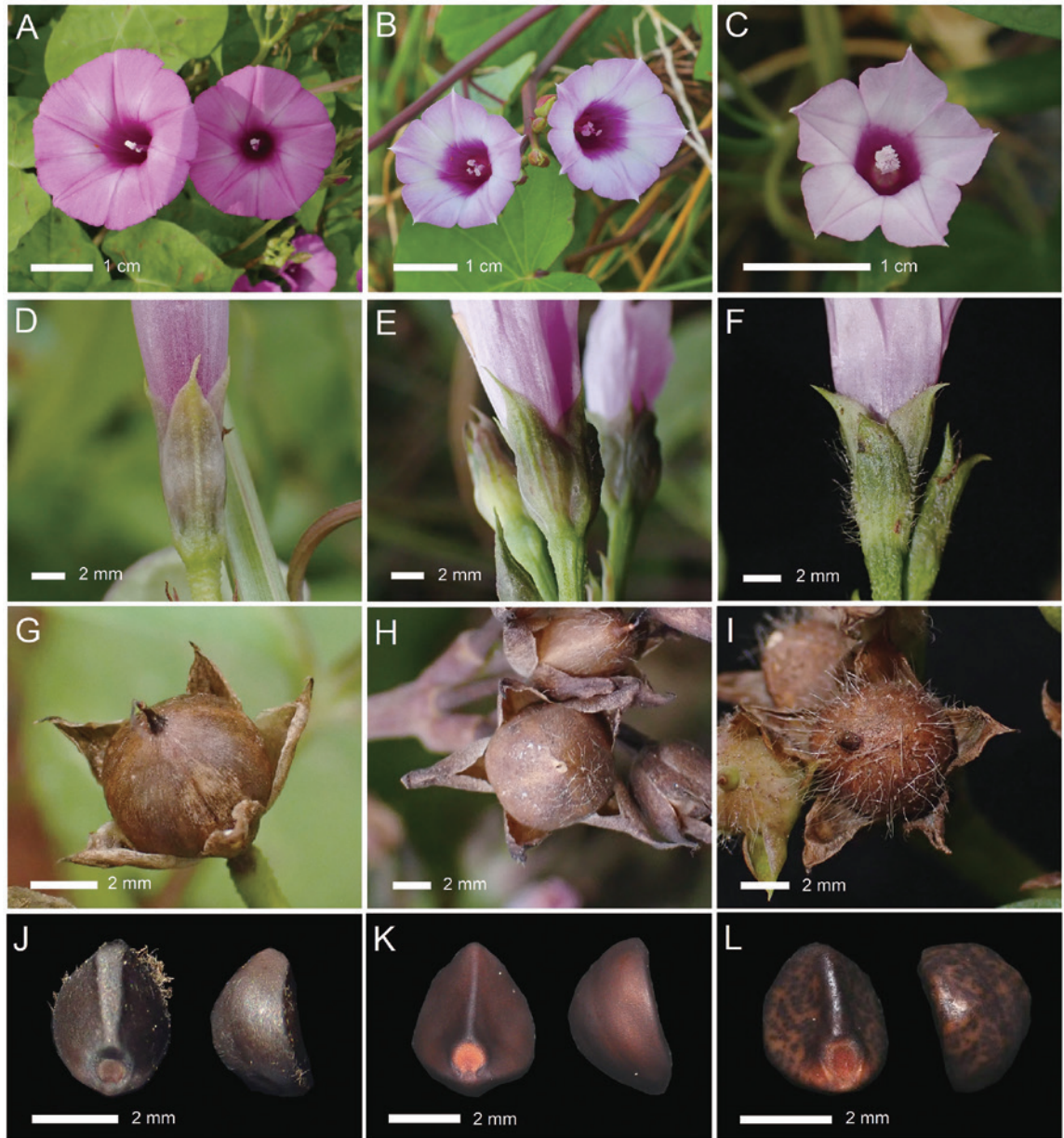


Figure 3. The three similar species of *Ipomoea* in Taiwan, *I. cordatotriloba* (A, D, G, J), *I. leucantha* (B, E, H, K), and *I. triloba* (C, F, I, L). A, B, C: Corolla. D, E, F: Sepals. G, H, I: Capsule. J, K, L: Seeds. Photographed by Shin-Ming Ku (A) and Po-Hao Chen (B-L).

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