

*Merremia cissoides* (Lam.) Hallier f. (Convolvulaceae),  
a Newly Naturalized Plant to Taiwan

台灣旋花科之新歸化植物—蔓生菜欒藤

Yung-Nan Ko<sup>1,\*</sup> and Ho-Yih Liu<sup>2</sup>

柯勇男<sup>1,\*</sup> 劉和義<sup>2</sup>

<sup>1</sup> Unaffiliated, No. 68, Xianzhong St., Salu Dist., Taichung, Taiwan

<sup>2</sup> Department of Biological Sciences, National Sun Yat-Sen University, Kaohsiung, Taiwan

<sup>1</sup> 台中市沙鹿區賢忠街 68 號

<sup>2</sup> 國立中山大學生物科學系 高雄市蓮海路 70 號

\* Corresponding author: yungnan.ko@gmail.com

\* 通訊作者：yungnan.ko@gmail.com

## Abstract

This paper describes the exotic *Merremia cissoides* (Lam.) Hallier f. as a new record to Taiwan. It is a Neotropical plant whose native home is in tropical America. Recently it was found on the road sides in central Taiwan. A key to its related species in the genus *Merremia* of Taiwan and color photographs taken from its natural habitat are provided for aiding in identification.

## 摘要

本文記錄原產於中南美洲之外來種植物—蔓生菜欒藤(*Merremia cissoides* (Lam.) Hallier f.)近年已歸化於中臺灣，提供形態描述及彩色照片以利本種實務鑑定之用。

**Key words:** naturalized plant, *Merremia cissoides*, Convolvulaceae, Taiwan.

**關鍵詞：**歸化植物、蔓生菜欒藤、旋花科、臺灣

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## Introduction

Introduction of exotic plants been rapidly increased recently with human assistance and improvement in transportation. The results are their wide dispersion, even globalization in distribution of some of the species, causing ecological problems in many parts of the world. According to the revised Flora of Taiwan (Staples and Yang 1998), there were 14 genera and 44 species of the morning-glory family Convolvulaceae in Taiwan, 1998. Since then, for 12 years of botanical inventory surveys of the island, seven more species and two more varieties have been added. Up to date there are a total of 53 species including at least 23 alien species of the morning-glory family in Taiwan (Wu *et al.* 2010; Tsai *et al.* 2010).

The genus *Merremia* Dennst. *ex* Endl. is consisted of approximately 80 species worldwide. They are distributed pantropically, and commonly characterized with yellow or white, campanulate corolla, spirally twisted anther thecae and smooth (non-echinate) pollen grains, but a few of the species have yellow corolla, usually funnelform or somewhat less commonly salverform, straight anthers, and spiny pollen like those of *Ipomoea* (Austin 1980; Staples and Yang 1998; Demissew 2001). For *Merremia* in Taiwan seven species

were reported in the first edition of Flora of Taiwan in 1978, and one more species, *Merremia dissecta* (Jacq.) Hallier f. was added as a naturalized species in 2010 (Tsai *et al.* 2010). The delimitation of "alien naturalized species" was still unclear in Taiwan (Chen 2008; Wu *et al.* 2010).

Recently, we found that *M. cissoides* (Lam.) Hallier f. which is a Neotropical species has naturalized to Taichung City of the central Taiwan. So far it was found in two districts, Chingshui (清水) and Shalu (沙鹿), along the top of roadway slopes (Fig. 1 A) of the National Highway No. 3. at elevations of 194-207m. We speculated that it was likely introduced to these location from commercial mixed seeds of grasses used for soil and water conservation. It was first collected in 2008, and has successfully established its population and expanded to nearby areas. *M. cissoides* is easily distinguishable from its con-generic species by having sticky glandular hairs, palmately compound with 5 leaflets, serrated leaf margin and showy white flowers.

This paper provides its taxonomic description, a key to its related species in the genus *Merremia* in Taiwan, and colored photographs taken from its natural habitat (Fig. 1) for aiding in identification.

## Taxonomic Treatment

*Merremia cissoides* (Lam.) Hallier f., Bot. Jahrb. Syst. 16: 552. 1893. 蔓生菜欒藤 Fig.1  
*Convolvus cissoides* Lam., Tabl. Encycl. 1: 462. 1791.  
*Ipomoea cissoides* (Lam.) Griseb., Fl. Brit. W. I. 473. 1864.

**Description:** Herbaceous vines with milky sap; Stems terete, slender, twining, but often also prostrate, covered in all parts with densely short glandular hairs and scattered long patent hairs; Leaves alternate, long-petiolate, 1-4.5 cm long, palmately compound with 5 leaflets; leaflets sessile, elliptic, ovate or ovate-lanceolate, 4.5-2.2 cm long, margins serrate, apex acute to acuminate, base cuneat. Inflorescences axillary, solitary or 2- to several-flowered cymes (Fig. 1 B); peduncle variable in length; Bracts linear to linear-lanceolate, 1-1.7 cm long, pedicel 4-7 mm long. Calyx with 5 sepals, convex, 1.8-2 cm long, unequal; outer 2 bigger, revolute, deltoid, 9-10 mm wide; apex long-acuminate, base obtuse; middle one asymmetrical, ca. 5 mm wide; inner 2 smaller, ovate-lanceolate to lanceolate, 4-5 mm wide (Fig. 1 C). Corolla white, campanulate, 2.1-2.6 cm across, limb slightly 5-lobed. Pistil included. Ovary glabrous, 4-celled, 4-ovulated, Style 1, stigmas 2-globular, white; stamens 5, included, unequal, anthers light purple, spirally twisted; Capsules depressed-globose, stramineous, 8-10 mm long across, 3- or 4-valved, with persistent sepals (Fig. 1 D); Seeds dark brown to black,

covered with grayish-tomentose. Flowering and fruiting in August to November.

**Distribution:** Native to Tropical America and naturalized to West Africa (Lejoly and Lisowski 2001), India (Biju and Mathew 1993), Ceylon (Austin 1980), Thailand (Staples *et al.* 2005) and Taiwan.

**Specimens examined:** Taichung City, Taiwan: Shalu Landfill at 24°14' 05" E, 120°35' 34" N (TWD 97), elevation 207 m; Lifan Village, Shalu District, 26 Aug. 2008, Y.-N. Ko 1630 (HAST, PPI, TAIF); 24°16' 07" N, 120°35' 24" E, elevation 194 m; Wucho Village, Chingshui District, 11 Nov. 2011, Y.-N. Ko 1641 (HAST, PPI, TAIF).

**Ecology:** At the collection site, *M. cissoides* was growing in open grassy fields or along roadsides (Fig. 1A), associated with *Panicum maximum* Jacq., *Rhynchelytrum repens* (Willd.) C. E. Hubb., *Bidens pilosa* L. var. *radiata* Sch., *Ipomoea biflora* (L.) Persoon, *Cynodon dactylon* (L.) Pers. and *Acasia confusa* Merr. It have slender and twining stems, forming thickets or growing over associated plants, even competing with dominant and aggressive weedy species, *P. maximum*, in the Tadusan area. It was found that its seedlings have successfully established (Fig. 1 E.) and expanded to nearby areas. The Global Compendium of Weeds (Randall, 2011) has labeled it as a weed based on five pieces of literature. However, it could not exempt it as a possible noxious invader. A further study is needed to evaluate its impact on natural environments in Taiwan.

### A Key to the species of the genus *Merrmia* of Taiwan with leaves palmately compounded and with 5-7 leaflets

1. Corolla yellow.....*M. tuberosa* or *M. vitifolia*
1. Corolla white.
  2. Leaflets irregularly pinnately lobed to parted.....*M. dissecta*

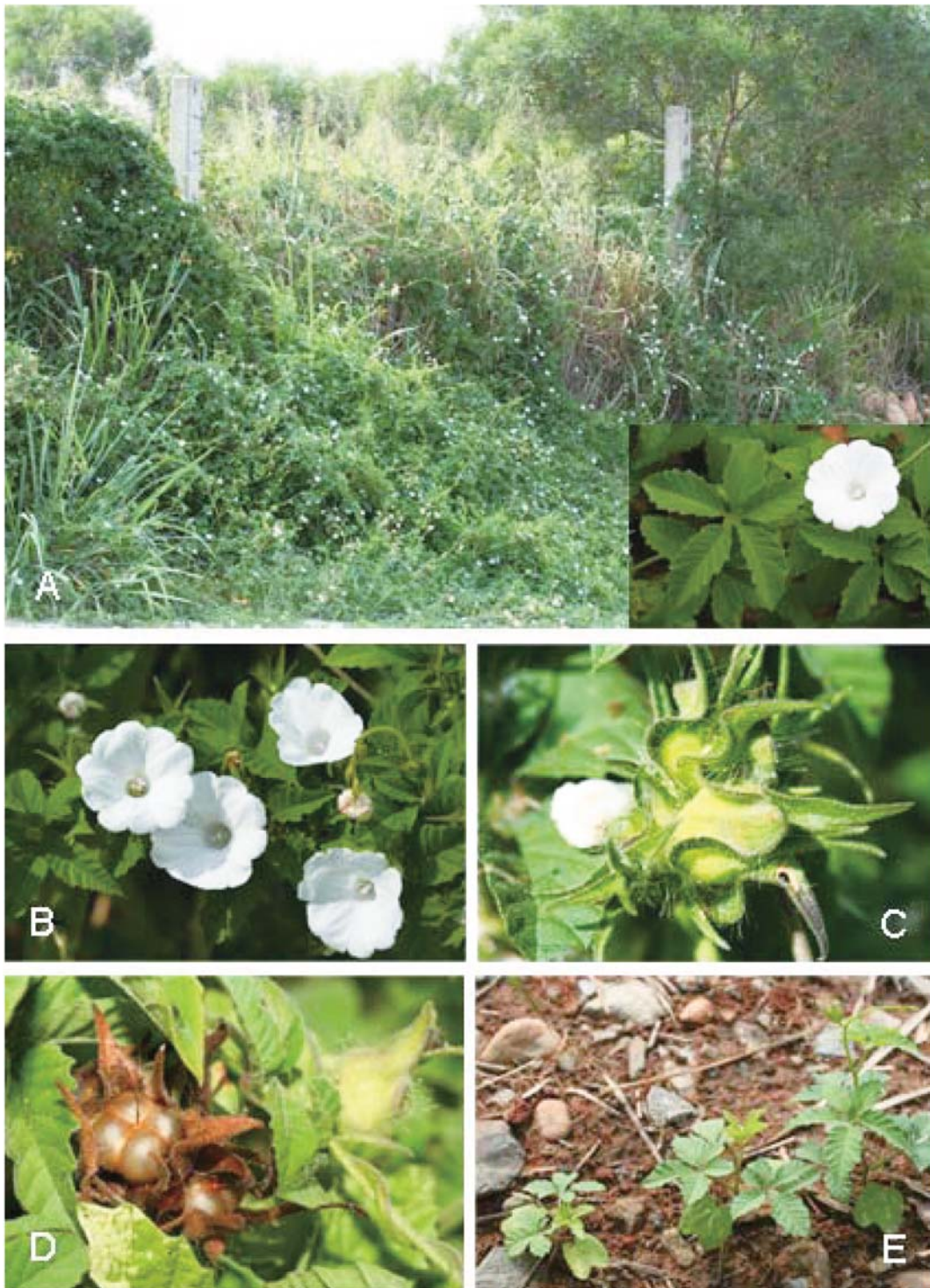
2. Leaflets not irregularly pinnately lobed to parted.  
 3. Leaflets entire; outer sepals ovate to oblong.....*M. quinata*  
 3. Leaflets serrate; outer sepals deltoid ..... *M. cissoides*

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**Fig. 1.** *Merremia cissoides* (Lam.) Hallier f. (A, habitat; B, inflorescence; C, infructescence; D, capsules with persistent calyx; E, seedlings).

