Chamaesyce hypericifolia (L.) Millsp., A Newly Naturalized Spurge Species in Taiwan

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ABSTRACT: Chamaesyce hypericifolia (L.) Millsp., originally native to New World tropics and subtropics, was recently found naturalized in disturbed sites of eastern Taiwan. It represents a new record for the flora of Taiwan. The present study provides taxonomic description, line drawings and other relevant information. In addition, a comparison with C. hyssopifolia is given.

KEY WORDS: Chamaesyce hypericifolia, Chamaesyce hyssopifolia, Euphorbiaceae, Taxonomy, Taiwan.

INTRODUCTION

Chamaesyce is a genus of about 250 species, of cosmopolitan range but with the largest number of species in tropical and subtropical in the New World (Webster and Burch, 1967; Berry, 1999). In Taiwan the genus is represented by 14 species; four of them are endemic to the island, while the remainder widespread in temperate to tropical latitudes (Lin et al., 1991). Recently an additional adventive species, C. hypericifolia, was found in eastern Taiwan. It is a widespread species in the New World tropics and subtropics, which resembles to a more common species viz., C. hyssopifolia but differs in several characters. The present study gives the species description and illustrations, based on live plant materials from Taiwan. Furthermore, a comparison of the diagnostic characters between this species and C. hyssopifolia is made.

TAXONOMIC TREATMENT


An annual or short-lived perennial herb, erect or ascending, mostly 20-100 cm tall, with milky sap. Stems much branched, deflexed at apex, purplish red, glabrous, 2-3 mm across, with somewhat swelled nodes; stipules spreading, triangular, 1-2 mm long and 1-1.5 mm wide,
dentate and ciliate margined. Leaves opposite, distichous; petioles 1-2 mm long, purplish red; blades green flushed with purplish red, sometimes with small purple spots on the surface, oblong to elliptic or oblong-oblanceolate, 2.5-3 cm long and 8-15 mm wide, obliquely truncate to rounded at base, obtuse to subacute at apex, serrate especially above the middle. Cyathia in almost leafless lateral and terminal cyme; involucres turbinate, 1-1.3 mm long, appressed-hairy inside; stalks 0.5-4 mm long; glands 4, green to brownish-green, round, 0.2-0.3 mm across, the appendages conspicuous, obovate to reniform, 0.8-1 mm long and 1-1.2 mm wide, white or whitish pink; bracteoles 4, lanceolate, 0.3 mm long, lacerate and ciliate.
Staminate flowers 10-15, tiny, filaments 0.5-1 mm long, anthers yellow flushed with purplish red, 0.4 mm long. Pistillate flower 1, exserted, style and stigma white, 0.5 mm long, styles 3, each 2-cleft, ovary green, ovoid, 0.8 mm across, with a long pedicel 0.5-1 mm long. Capsule glabrous, 3-lobed, globose, broader below the middle, 1.3 mm long and 1.5 mm wide, brownish when mature; seeds reddish brown, ovoid, 1.1 mm long and 0.7 mm wide, with 4 lateral ridges on each face, the surface with 2-4 depressions, mucilaginous when wet.

Fig. 4. Seeds of *Chamaesyce hypericifolia* (A) and *C. hyssopifolia* (B), showing side view and its enlargement under SEM.

Fig. 5. Capsules of *Chamaesyce hypericifolia* (A) and *C. hyssopifolia* (B).


Distribution: The species is distributed through the southern United States, Mexico, Central America to the West Indies and South America (Berry, 1999; Correll and Correll, 1996; Croat, 1978; Koutnik and Huft, 1999; Webster and Burch, 1967), and is introduced into Java (Backer and Bakhuizen, 1963) and Hawaii (Koutnik and Huft, 1999).
Habitat and Ecology: *C. hypericifolia* was first collected in Hualien in 2002 in garden at Shiang-young Village and is now a wide spread weed in the eastern part of the island. Locally it occurs in some places of the dry and wet lowlands, such as gardens, roadsides and waste ground; also along borders of ponds and marshes. The plant grows in association with other weedy plants commonly found in disturbed areas, such as *Aster subulatus* Michx., *Bidens pilosa* L. var. *radiata* Sch.-Bip., *Emilia sonchifolia* (L.) DC. var. *japonica* (Burm. f.) Mattfeld, *Chenopodium serotinum* L., *Veronica undulata* Wall., and *Mazus pumilus* (Burm. f.) Steenis. Flowering and fruiting are throughout the year.

Notes: In the course of studying the present species, we found another invasive species of tropical American origin, known as *C. hyssopifolia*, that at first sight might be mistaken for *C. hypericifolia*, widespread on this island. It was first collected in southern Taiwan in 1987 (Kao and Chaw, 1987, misidentified as *C. maculata*; Lin et al., 1991) and apparently well established in this island during the past 18 years as another weed of roadsides, railroads, lawns and borders of field.

Although *C. hypericifolia* and *C. hyssopifolia* occur in similar habitats and are usually in a same habit (Figs. 2 & 3), there are several differences between these two species. In *C. hypericifolia* its seeds are orange brown and are ovate having a testa covered with an irregular, polygonal reticulum under SEM, while in *C. hyssopifolia* its seeds are blackish brown and are oblong having a testa covered with cuticular platelets (Fig. 4). The capsules in *C. hypericifolia* are ca. 1 mm across much smaller than those of *C. hyssopifolia*, which is usually distinguished by its larger, more ovoid capsules ca. 1.5-2 mm across (Fig. 5). In addition, the stipules of the former are conspicuous, outspreading and as much as 2 mm long, making a considerable difference from the inconspicuous ones in the latter, of which the stipules are attached to the nodes and hardly 1 mm in length (Fig. 6). In fact, in *C. hypericifolia* the usually purplish red coloration of fresh stipules is quite distinct.
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台灣新歸化大戟科植物「假紫斑大戟」

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摘要

假紫斑大戟（Chamaesyce hypericifolia (L.) Millsp.）（新擬中名）為新歸化於台灣東部之大戟科植物。本文描述其分類特徵、分佈、生長環境並與相關種－紫斑大戟（Chamaesyce hyssopifolia）做比較。

關鍵詞：假紫斑大戟、紫斑大戟、大戟科、分類學、台灣。

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