Research paper

_Canscora diffusa_ (Vahl) R.Br. _ex_ Roem. & Schult. (Gentianaceae), a newly recorded genus and species in Taiwan

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【Abstract】_Canscora diffusa_ (Vahl) R.Br. _ex_ Roem. & Schult. (Gentianaceae), a newly recorded genus and species from Taiwan, is so far known only from one locality on a low-elevation (ca. 100–200 m) moist rocky slope in southern Taiwan. This species is native to western China, tropical Asia, tropical Africa, and tropical Australia. We provide a taxonomic description, an illustration, and photographs to facilitate identification.

【Key words】_Canscora diffusa_; Gentianaceae; newly recorded genus; Taiwan; taxonomy

Introduction

The genus _Canscora_ was first established by Lamarck (1785), and the diagnostic characters include two- or three-flowered inflorescence, four unequal petals (two larger and two smaller), and four unequal stamens. Previously, about 30 species were recorded in the genus (Ho & Pringle 1995). Subsequently, about 10 species were circumscribed, and _Canscora_ was represented as being monophyletic by the morphological cladistics analysis, including zygomorphic corolla...
and anisomorphic androecium (Thiv & Kadereit 2002; Thiv 2003). After that, two species were separated to Canscorinella according to an actinomorphic corolla and isomorphic stamens in a recent treatment, so 11 species in total were recorded in a revision of the Canscora (Shahina & Nampy 2014). In Taiwan, six genera and about 30 species of the Gentianaceae have been recorded (Wang & Chen 1998; Wang et al. 2009; Hsu & Chung 2012). In the present study, we recognized this unrecorded genus and species from a botanical exploration of the southern part of Central Mountain Range in Taiwan.

Systematic Treatment

Canscora Lamarck, Encycl. 1: 601. 1785. 穿心草屬

Annual or perennial. Leaves simple, opposite, sessile or petiolate, with 1 or 3 main veins. Inflorescences cymes axillary or complex. Flowers 4 merous, sessile or pedicellate, salver-funnel shaped. Calyx usually tubular, winged or wingless, persistent; corolla zygomorphic, usually with 2 smaller and 2 larger lobes, smaller lobes fused together near apex, sometimes separated, white, cream, or pink, usually tubular, campanulate, or salverform; stamens inserted on apical or middle part of corolla tube, sometimes with 1~3 sterile anthers; ovary 1 locular, globose or cylindrical; stigma bilobed, lobes oblong or capitate, papillose. Capsules globose, oblong-ovate, unilocular, 2-valved. Seeds numerous, suborbicular, seed-coat usually reticulate.

About 11 species: tropical and subtropical Africa, Asia, and Australia; only one species in Taiwan.

Canscora diffusa (Vahl) R.Br. ex Roem. & Schult. Syst. Veg. 3: 301 1818. 鋪地穿心草(Figures 1-2)


Erect herb, annual, up to 60 cm tall, glabrous throughout. Branched from base, ridges smooth. Leaves sub sessile-petiolate, opposite, membranous, ovate or ovate-lanceolate, ca 0.5~4 cm long, 0.4~2 cm wide, apex acute, cuneate at base; veins 3~5. Inflorescences cymes terminal or axillary, dichasial, pedicels 1~3 cm long, slender. Flowers usually 4-merous, irregular. Calyx without wings or striations, persistent; lobes 4, tube 4~8 mm long, lobes unequal, linear to lanceolate, ca. 1~2 mm long, ca. 0.6~1 mm wide, apex acuminate. Corolla tube cylindrical, white, 4~8 mm long; lobes lanceolate to ovate, unequal, 2 shorter and 2 longer (also wider), ca. 2.5~4 mm long, 1~2 mm wide; filaments unequal, 1 longer, always inserted higher up in the corolla tube, 3 shorter; anthers up to 0.5 mm long, oblong, 1 or 2 perhaps sterile. Ovary 3~5 mm long; style 1.2~2 mm long; stigma ca. 1~2 mm long, bilobed, papillose. Capsule oblong to ellipsoid, 4~7 mm long, 2~3 mm diameter. Seeds numerous, up to 0.3 mm in diameter, surface reticulate-pitted.

Distribution: Native to tropical Asia, including W. China, Bhutan, India, Nepal, Indonesia, Malaysia, the Philippines, and Vietnam; tropical Africa and Madagascar; and Australasia. In Taiwan, it occurs at about 100~200 m in elevation in southern Taiwan (Figure 3). Only one small population was found on a moist rocky slope, or in grasslands and roadside earth cuts. The Taiwanese population flower from November to February and fruit from January to April. The plants withered or dried after fruiting.
Figure 1. *Canscora diffusa*. A, habit; B, flower, calyx removed and corolla opened; C, calyx; D, flower; E, pistil; F, stamen; G, capsule; H, seeds. (C. H. Chen 11510)
Figure 2. *Canscora diffusa*. A, habit; B, leaves; C, flower, side view; D, flower, front view; E, fruit, with persistent calyx and corolla; F, seed. Bars, A= 5 cm; B= 1 cm; C, D, E= 2 mm; F=0.1 mm


**Notes:** *Canscora diffusa* has large morphological variations, including variations in habit size and sometimes has the appearance of an actinomorphic corolla, and a different length range of the stamen; so different synonyms have been published and merged (Shahina & Nampy 2014). Corollas of *C. diffusa* are often rose, or sometimes white or orange, but in the ethnic group in Taiwan, only individuals with white flowers have so far been found. Around the habitat, the main associated plant is *Arundo formosana* Hack. (Poaceae), which also grows on wet, steep rocky slopes.

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Figure 3. Distribution map of *Canscora diffusa* in Taiwan (star).

References


臺灣產龍膽科新紀錄屬及新紀錄種：鋪地穿心草