

# *Geranium molle* L. (Geraniaceae), a Newly Naturalized Plant in Taiwan

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**Abstract.** In Taiwan, native species of *Geranium* L. (Geraniaceae) are mainly distributed in central montane areas. *Geranium molle* L., an annual or biennial herb native to Europe, northern Africa, and western Asia, has recently become naturalized in mountainous regions of central Taiwan. This species is most similar to *G. robertianum* but differs in having palmate-like leaves and bilobed petals. For the species provides a taxonomic description and an illustration. Photographs are also provided for facilitate identification.

**Key words:** Geraniaceae, *Geranium molle*, naturalized plant, Taiwan, taxonomy.

## INTRODUCTION

*Geranium* L. is a cosmopolitan genus, consisting of about 420 species (Aedo *et al.*, 1998a). Six species were recorded in the *Flora of Taiwan*, 2nd edition (Huang, 1993), including one naturalized species (Peng, 1978). Recently, in our botanical exploration of the Central Mountain Range, *Geranium molle* L., an unrecorded species of *Geranium* was collected. It is naturalized in middle-montane region of Taiwan.

*Geranium molle* belongs to section *Batrachioidea* of the subgenus *Robertium* (Yeo, 1984, 1990; Price and Palmer, 1993), which is distributed in Europe, northern Africa, and western Asia (Aedo, 1998b). This species was introduced to the Americas and East Asia as a weed (Aedo *et al.*, 1998a).

## TAXONOMIC TREATMENT

*Geranium molle* L., Sp. Pl. 2: 682. 1753. 柔毛牻牛兒苗 (Figs. 1, 2)

Annual or biennial herb, erect, 15~30 cm tall; stem pilose, somewhat reddish with glandular hairs. Leaves round or circular with deeply palmate lobes, surface pubescent, 1~2.5 cm broad, petioles 2~8 cm long; stipules 4 at each node. Flowers 2, axillary or subterminal, actinomorphic, 8~10 mm in diameter; peduncles somewhat

reddish, 1~2.5 cm long, pilose; pedicels 6~1.2 cm long, pilose; bracts 2; sepals 5, pilose on outside, 3~4 mm long; petals 5, bilobed, pink to magenta, 4~6 mm long. Stamens 10, 2-whorled, anthers ellipsoid, 0.6~1 mm long. Ovary 5~8 mm long; styles 5, ca. 1 mm long. Capsules light brown to brown, rugose, 0.9~1.3 cm long. Seeds light brown, oblong, 1.3~1.8 mm long, glabrous.

**Distribution:** Native to Europe, northern Africa, and western Asia. Introduced to southern Africa, the Americas, eastern Asia, Australia, and New Zealand (Aedo *et al.*, 1998a).

**Specimens examined:** Taichung Co., Hoping Township: Hoping Farm, elev. ca. 1680 m, May 27, 2005, C. H. Chen and C. C. Wu 6464 (TNM); Sep. 14, 2005, C. M. Wang 8206.

**Notes:** This species was found in an exposed area, mixed with pioneer species, including *Alnus formosana* (Burkill ex Forbes & Hemsl.) Makino, *Rosa transmorrisonensis* Hayata, *Torilis japonica* (Houtt.) DC., *Bromus catharticus* Vahl., etc. *Geranium molle* is most similar to *G. robertianum* L., both species are in the subgenus *Robertium* that is characterized by the "carpel-projection" type fruit discharge. Other congeners in Taiwan which have fruit of the "seed-ejection" type. *Geranium molle* differs from *G. robertianum* in having palmate-like leaves, bilobed petals, and smaller flowers (8~10 mm vs. 15~22 mm in diameter).

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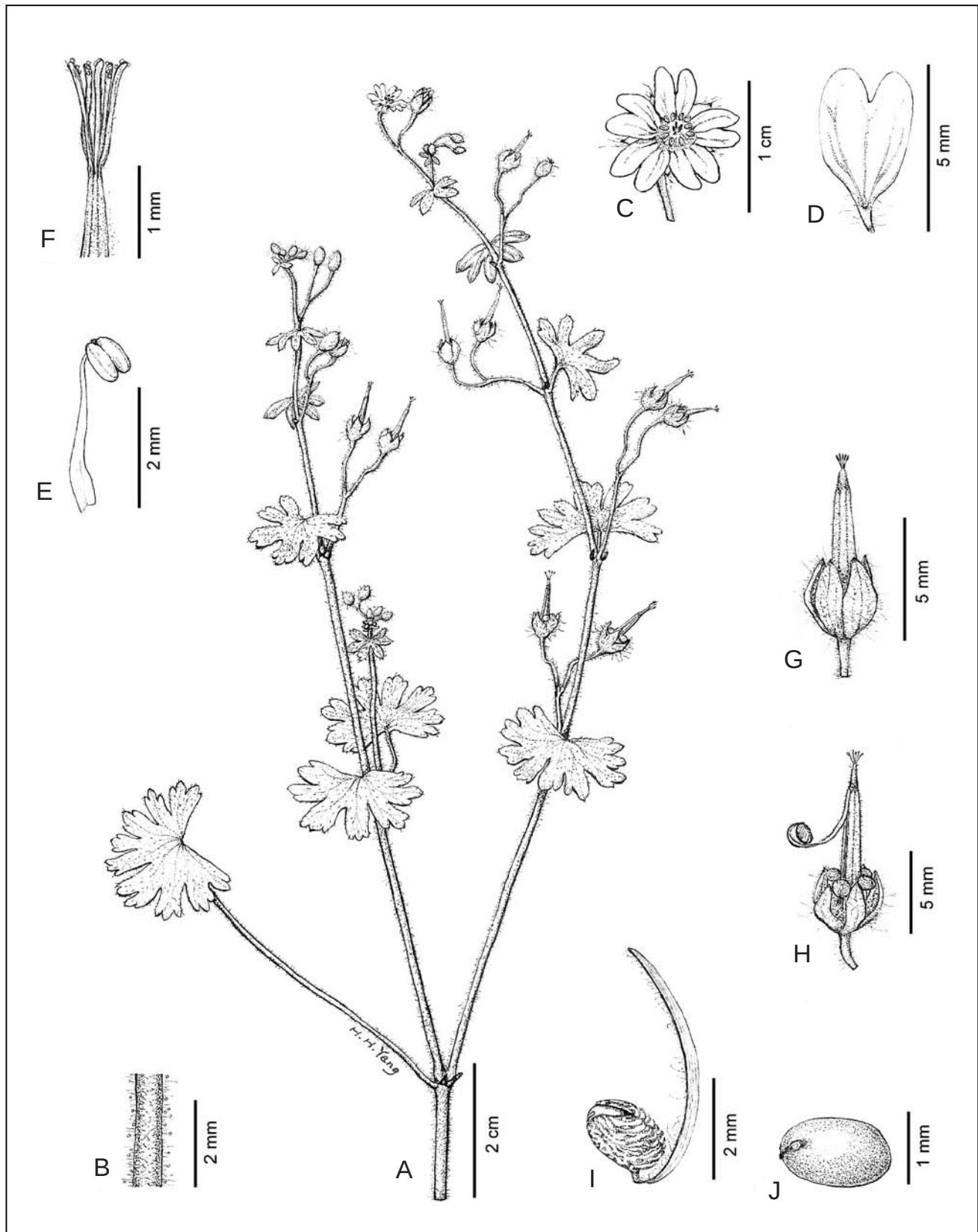


Fig. 1. *Geranium molle* L. A, habit; B, stem; C, flower; D, petal; E, stamen; F, style; G, ovary with calyx; H, dehiscent fruit; I, capsule; J, seed. (C. H. Chen and C. C. Wu 6464)

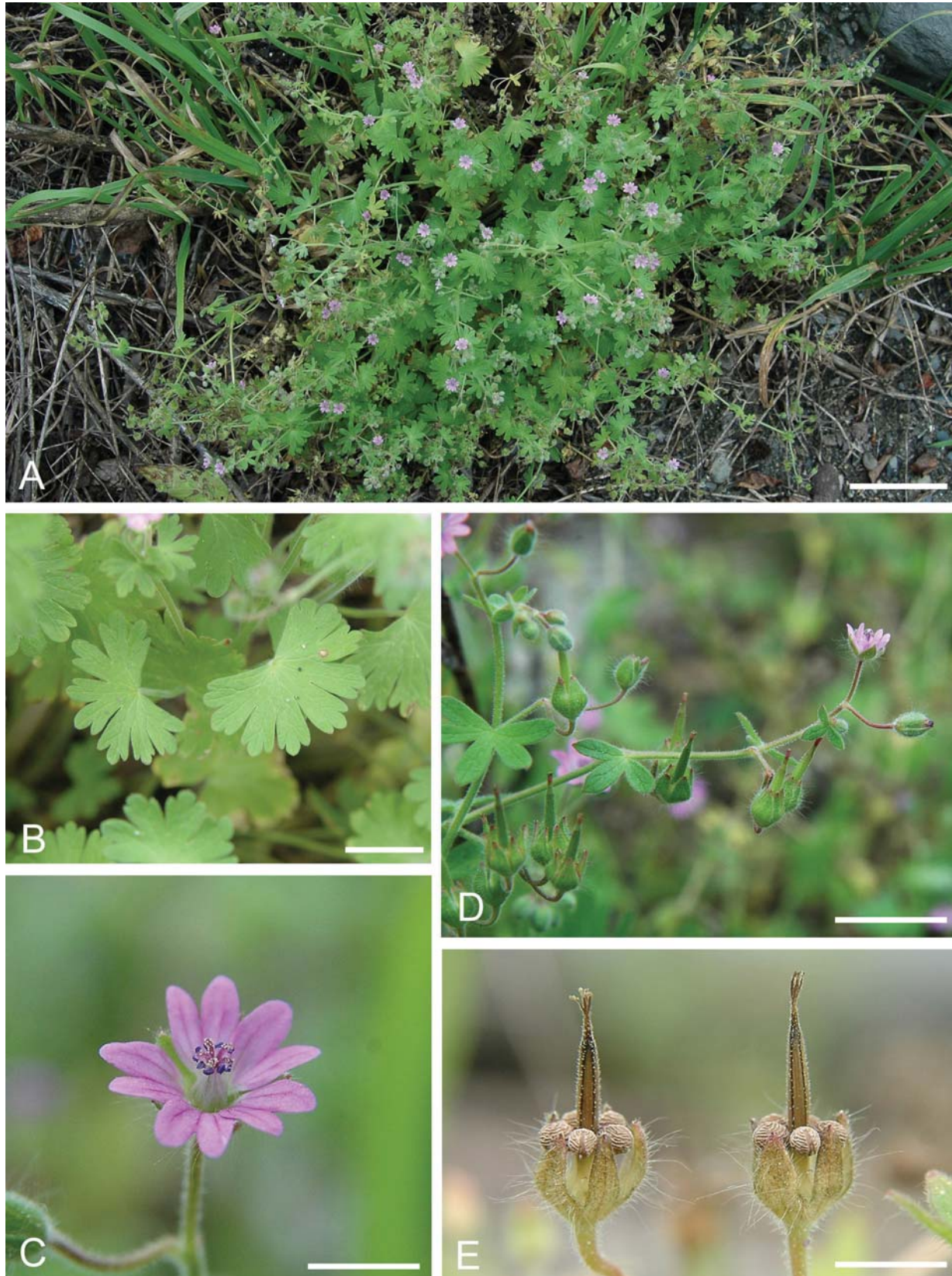


Fig. 2. *Geranium molle* L. A, habit; B, leaves; C, flower; D, inflorescence; E, fruits. Bar A, 5 cm; bar B and D, 1 cm; bar C and E, 5 mm.

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# 臺灣新歸化牻牛兒苗科植物—柔毛牻牛兒苗

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台灣所產之牻牛兒苗屬植物，主要分布於中央山脈的山區；最近發現主要產於歐洲、北非、西亞的一柔毛牻牛兒苗 (*Geranium molle* L.)，亦已經在台灣中部山區發現，為新的歸化種草本；此種與其它台灣原生同屬類群相比，較類似漢紅魚腥草，但葉形掌狀裂葉，花瓣先端深裂分為二，則有不同。本文提供分類特徵描述，手繪圖，以及照片以供區分鑑定。

關鍵詞：牻牛兒苗科，柔毛牻牛兒苗，歸化植物，臺灣，分類。