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Acmella uliginosa (Swartz) Cassini (Asteraceae): A Newly Naturalized Plant in Taiwan

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ABSTRACT: This paper describes *Acmella uliginosa* (Swartz) Cassini (Asteraceae), a plant newly naturalized in Taiwan. It has established its feral population in Taipei, and is closely related to the formerly introduced cultivated species *A. oleracea* (L.) R. K. Jansan and the indigenous species *A. paniculata* (Wall. ex DC.) R. K. Jansen of Taiwan. However, the three species are distinguishable by the conformations of leaves, heads and achenes. In addition to its description and distribution, a colorful photograph, a line drawing illustration and a simplified key to the three species addressed above are also provided in this article.

KEY WORDS: Asteraceae, *Acmella uliginosa*, naturalized plant, Taiwan, taxonomy.

INTRODUCTION

Acmella Rich. & Pers., a pantropical genus of the Asteraceae, is composed of about 30 species. Most species of the genus are distributed in the tropics with matted to erect growth habits, some are pantropical and grow in abundance in roadside ditches and along streams (Jansen, 1985). Of them only *A. paniculata* (Wall. ex DC.) R. K. Jansen is native to Taiwan, and *A. oleracea* (L.) R. K. Jansan has been introduced to cultivated in Taiwan (Peng and Chung, 1998). Recently, we found that *A. uliginosa* has also established its feral populations in Taipei, Taiwan. The occurrence of its colonization possibly resulted from escaping after human's intentional or careless introduction. In Taiwan, the three species of the genus *Acmella*, including *A. uliginosa*, are morphologically very similar.

Key to the genus Acmella in Taiwan

1. Mature achenes with evident cork-like margins, surfaces sparsely to densely tuberculate ……..... *A. paniculata*
1. Mature achenes without cork-like margins, surfaces not tuberculate.
   2. Leaves lanceolate to narrowly ovate or sometimes ovate, base attenuate; heads 6-8 mm tall, 4-6 mm in diameter; corollas 4-merous; phyllaries 5-6, uniseriate; ferally naturalized plants ….....……. *A. uliginosa*
   2. Leaves broadly ovate to deltate, base truncate to short attenuate; heads 11-24 mm tall, 11-17 mm in diameter; corollas 5-merous; phyllaries 15-18, triseriate; known only fromcultivation .....…… *A. oleracea*

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TAXONOMIC TREATMENT

Acmella uliginosa (Swartz) Cassini, Dict. Sci. Nat. 24: 331. 1822; Jansen, R. K. in Syst. Bot. Monogr. 8: 55. 1985. 沼生金鈕扣 Figs. 1 & 2

Spilanthes uliginosa Swartz, Nov. Gen. Sp. Pl. Prodr. 110. 1788.
Jaegeria uliginosa (Swartz) Sprengel, Syst. Veg. 3: 590. 1826.
Spilanthes acmella (L.) Murr. var. *unilginosa* (Swartz) Baker in Martius, F1. Bras. 6(3): 233. 1884.
Ceratocephalus acmella (L.) O. Kuntze var. *uliginosa* (Swartz) Kuntze, Revis. Gen. Pl. 1: 326. 1891.
Coreopsis acmella (L.) E. H. L. Krause var. uliginosa (Swartz) K. Krause, Beih. Bot. Centrabl. 32: 340. 1914.

Plants annual. Stems erect to ascending or occasionally decumbent, green to red, glabrous to moderately pilose. Leaf blades 3.5-5 mm long, 10-20 mm wide, usually lanceolate to narrowly ovate or sometimes ovate, base attenuate, apex acute to acuminate, glabrous to sparsely pilose above and below, margin sinuate to dentate, sparsely ciliate, petioles 6-10 mm long, sparsely to moderately pilose, narrowly winged. Peduncles 2.3-5 cm long, 0.5-1 mm in diameter, sparsely pilose. Heads usually radiate, 6-8 mm high, 4-6 mm in diameter. Receptacle 4-5 mm high, 0.4-1 mm in diameter, apex acuminate. Phyllaries 5-6, uniseriate, herbaceous,

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Fig. 1: Habitat of *Acmella uliginosa* (Swartz) Cassini.

narrowly to broadly ovate, apex rounded to acute, margin entire to irregularly dentate, sparsely to moderately ciliate. Ray florets 4-7, inconspicuous and only slightly exceeding the phyllaries; corollas 1.8-2.2 mm long, yellow to orange-yellow; tube 0.7-0.9 mm long, 0.1-0.3 mm in diameter; limb 0.9-1.2 mm long, 0.8-1 mm wide, achenes moderately to densely ciliate with straight-tipped hairs, lacking an evident cork-like margin and shoulders; pappus of 2-4 short subequal bristles, 0.3 -0.4 mm long. Disc floret corollas 1.2-1.3 mm long, yellow, 4-merous; tube 0.3-0.4 mm long, 0.2-0.3 mm in diameter; throat 0.8-1.0 mm long, 0.4-0.5 mm in diameter; lobes 0.2-0.3 mm long, 0.2 mm wide; stamens 0.6-0.9 mm long, anthers brown-black; style 0.9-1.1 mm long, the branches 0.3-0.5 mm long; achenes 1.2-1.5 mm long, 0.4-0.6 mm wide, moderately to densely ciliate with straight-tipped hairs, lacking an evident cork-like margin and shoulders; pappus of 2 sub- or unequal bristles, the longer bristle 0.4-0.7 mm long, the shorter 0.2-0.4 mm long.

Distribution: Widespread throughout the tropics, especially in the West Indies, Venezuela, Brazil, Africa, Indonesia, and Malaysia. In Taiwan, all the wild populations established are found at Taipei area.

Specimen examined: The specimens we collected and examined as follow. Taipei: Guandu, May 30, 2006 (Chung, 8999); Nanhai Road, May 25, 2006 (Chung, 9000); Nangang, May 22, 2007 (Chung, 9001) and Sindian, Chungyanghsintsun, January 14, 2004 (Ho, 1692). All the specimens above cited are deposited in the Herbarium of Taiwan Forestry Research Institute (TAIF).

Habitat: In tropics the species prefers wet sand, clay, loam, or gravelly soils especially in disturbed areas along roadsides, cultivated fields, marshes, streams, pastures, meadows, and forests; sea level to 1200 m. Although this species is typically erect and lacks roots at the nodes, under very wet conditions it becomes decumbent and produces nodal roots on lower portions of the stems (Jansen, 1985). In Taiwan, *A. uliginosa* usually prefers growing in slightly, wet loam and gravelly soils along the roadsides, and therefore the stem nodes often bear adventitions roots. The current distributional range in altitude is from 10 to 100 m.

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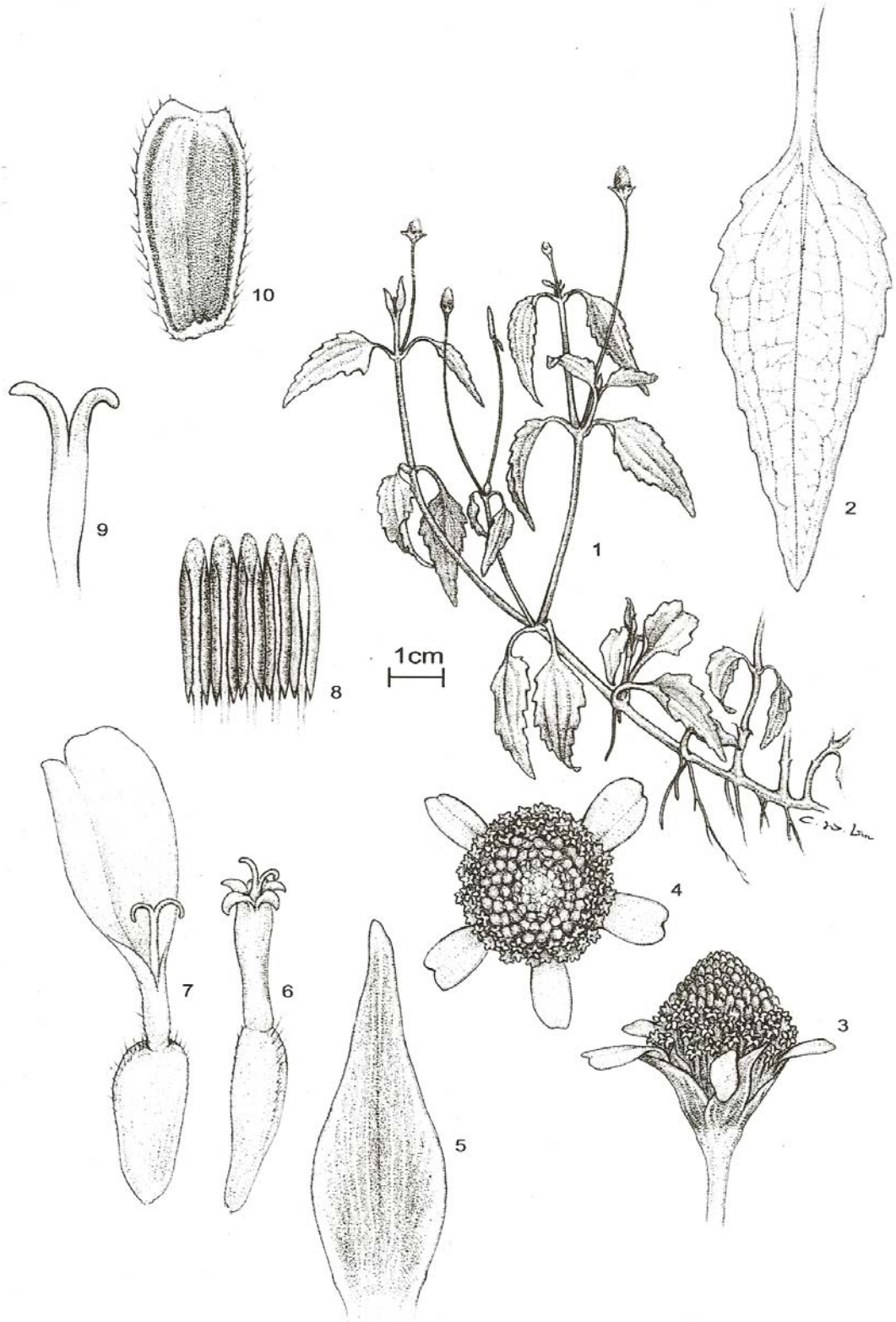


Fig. 2: *Acmella uliginosa* (Swartz) Cassini. 1: Habit. 2: Leaf. 3 & 4: Heads. 3: Lateral view. 4: Dorsal view. 5: Involucral bract. 6: Disc floret. 7:Ray floret. 8: Stamens. 9: Style. 10: Achene.

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臺灣新歸化菊科植物：沼生金鈕扣

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摘　　要

沼生金鈕扣 (*Acmella uliginosa* (Swartz) Cassini) (菊科) 非臺灣原生種，近來在台北地區發現其野生族群，為臺灣新歸化植物。本篇報告描述其形態特徵、地理分布、生育環境及物候特性，並提供彩色圖片及繪圖，同時製作檢索表區別其在臺灣同屬之金鈕扣 (*A. paniculata* (Wall. *ex* DC.) R. K. Jansen) 及已引進栽植之印度金鈕扣 (*A. oleracea* (L.) R. K. Jansan)。

關鍵詞：菊科、沼生金鈕扣、歸化植物、臺灣、分類學。

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