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Tagetes minuta L. (Asteraceae), a Newly Naturalized Plant in Taiwan

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ABSTRACT: *Tagetes minuta* L. (Asteraceae), a herb native to southern South America, has recently become naturalized in central Taiwan. This study gives the taxonomic description and illustration. Photographs are also provided for identification.

KEY WORDS: ***Tagetes minuta*, Asteraceae, Taxonomy, Naturalized plant, Taiwan.**

INTRODUCTION

The genus *Tagetes* L. (Asteraceae) is mainly native to central and southern part of the America, consisting of about 30 species, but shown paraphyletic based on molecular phylogeny (Loockerman et al., 2003). *Tagetes minuta* L. is native to the temperate grasslands and mountain regions of southern South America (McVaugh, 1943; Soule, 1993), where it is used as a condiment, for medicinal purposes, and for mosquito control (Maradufu et al., 1978; Zygadlo et al., 1990; Macedo et al., 1997). In Japan, *T. minuta* was recorded as naturalized weed (Nagada, 1972). From field observation, *Tagetes minuta* showed highly adaptive to mid-mountain region in central Taiwan (authors' field observation).

This study describes the morphology of the species. A line drawing and photographs are also provided.

TAXONOMIC TREATMAENT

Tagetes minuta L. Sp. Pl. 2: 887. 1753.

印加孔雀草 Figs. 1 & 2

Large annual herbs, stems erect, with odor, 1-2 m tall. Leaves slightly glossy green, pungent, glabrous, pinnately compound; leaflets 9-17, linear-lanceolate, margins finely serrulate, with orange translucent glands, 2-4 cm long. Heads numerous, usually in flat-topped cymes; involucre cylindrical, yellowish green, 8-14 mm high, 2-3 mm wide, apex 3-5-toothed; ray florets usually 3 per head, rays 1-2 mm long; disc florets usually 3-5 per head, corollas white, ca. 2.5 mm long; pappus consists of 1-2 unequal awn-like scales, 2-3 mm long, 3-5 ovate to lanceolate scales, 0.5-1 mm long. Achenes cylindrical, dark brown to black, 6-8 mm long.

Distribution: Native in southern South America. Introduced to Europe, Asia, Africa, Madagascar, India, Australia, and Hawaii. Now was found in the middle-high mountain region of Taichung County of central Taiwan.

Specimens examined: TAIWAN. Taichung Co., Hoping Township: Tahsuehshan #200 Forest Road, elev. 1400 m, Nov. 14, 2004, *C.M. Wang 7898* (TNM); Dec. 28, 2004, *C.M. Wang 7996* (TNM); Aug. 30, 2005, *C.M. Wang 8192* (TNM); TANZANIA. Arusha, Arumeru District: Ngaramtoni Ya Chini, elev. 1380 m, July 17, 1999, *W. Kindeketa 18* (TNM); Arusha, Ngorongoro District: Ngorongoro Crater, Misigiyo, elev. 2270 m, June 17, 1997, *P. Metele 4* (TNM); Kilimanjaro, Same District: Mongoloma-Hemkwazu, elev. 680 m, Sep. 16, 1999, *J. A. Mlangwa & J. Amani 581* (TNM).

Notes: *Tagetes minuta* is often found growing in disturbed areas during early successional stages. According to our field observation, we found that it spreads on forest roadside and adjacent to forest margin as common weed.

Another naturalized species in *Tagetes*, *T. erecta* L., has long been known to occur at low elevations in Taiwan. *Tagetes minuta* can be distinguished from T. erecta by having cymoid (vs. single) heads, smaller heads (< 5 mm vs. > 1 cm in diameter), and different colors of corolla (white vs. yellow).

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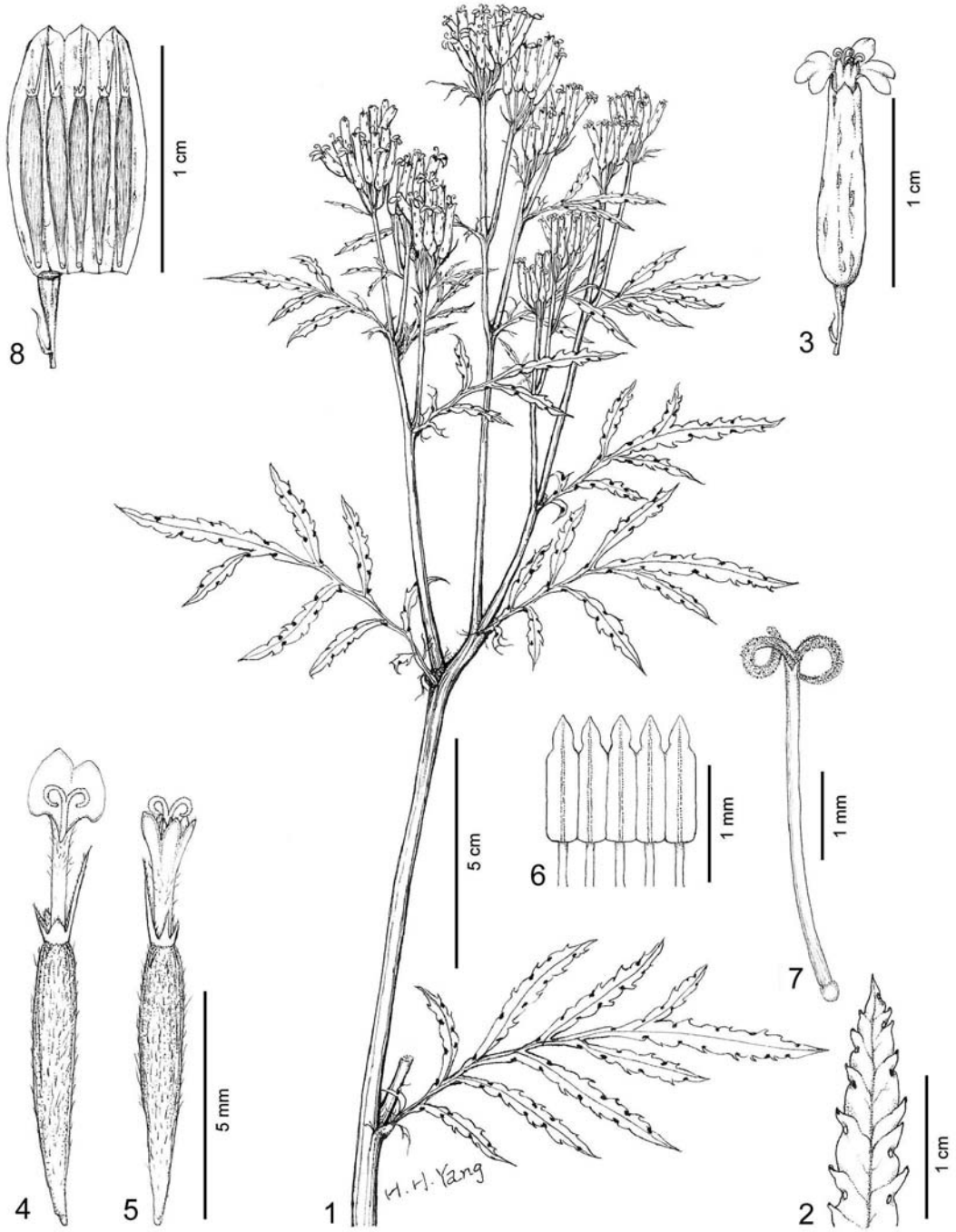


Fig. 1. *Tagetes minuta*. 1: Habit. 2: Leaflet. 3: Head. 4: Ray floret. 5: Disc floret. 6: Stamens. 7: Style. 8: Achenes in bract. (*C.M. Wang 7898*).

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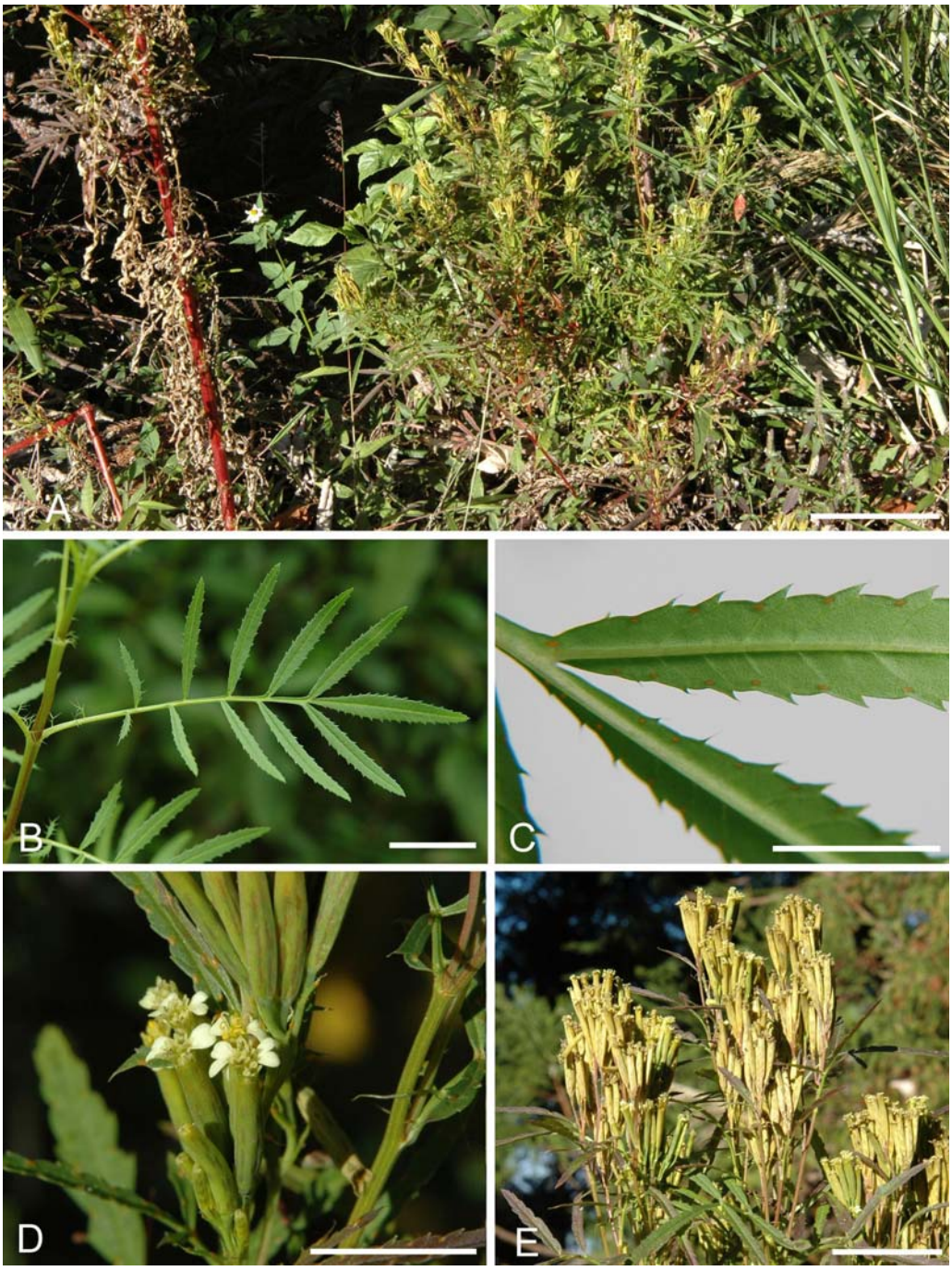


Fig. 2. *Tagetes minuta*. A: Habit. B: Leaf. C: Leaf under surface, with orangish glands. D: Heads. E: Achenes in bracts. bar A = 10 cm; bar B, E = 2 cm; bar C, D = 1 cm.

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臺灣新歸化菊科植物—印加孔雀草

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摘　　要

印加孔雀草(*Tagetes minuta* L.)為原產南美洲南部的菊科植物，新近發現歸化於臺灣中部山區。此為臺灣新記錄種；本文描述其分類特徵，並提供手繪圖及照片。

關鍵詞：印加孔雀草、菊科、分類、歸化植物、臺灣。

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