

Dioscorea sansibarens Pax (Dioscoreaceae), A Newly Naturalized Plant in Taiwan

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Abstract. *Dioscorea sansibarens* Pax, native to tropical and subtropical Africa and Madagascar, was found to be a newly naturalized plant in Taiwan. This species is characterized by the apex of its leaves being conspicuously caudate, irregularly roundish aerial bulbils, and one to three pistillate inflorescences per axil, each up to 50 cm long. A morphological description, line drawings, color photographs, and habitat are provided here.

Key words: bulbil, *Dioscorea sansibarens*, Dioscoreaceae, naturalized plant, Taiwan.

INTRODUCTION

The genus *Dioscorea* L., consisting of about 600 species, is the largest genus of the Dioscoreaceae (Coursey, 1969). These species are distributed mainly in Southeast Asia, Africa, Central America, South America, and other tropical and subtropical regions (Coursey, 1972; Huber, 1998; Gao *et al.*, 2008). In Taiwan, according to the *Flora of Taiwan* (Huang and Hsiao, 2000), 14 species and four varieties were recorded and found to be distributed in thickets or secondary forest edges. One additional species of this genus was recently found at ca. 400 m in elevation at Fayun Temple, Dahu Township, Miaoli County. After a survey of specimens of *Dioscorea* from HAST (Herbarium, Biodiversity Research Center, Academia Sinica, Taipei), TAI (Herbarium, National Taiwan University, Taipei), TAIIF (Herbarium, Taiwan Forestry Research Institute, Taipei) and TNM (Herbarium, National Museum of Natural Science, Taichung), it turned out that this collection contained *D. sansibarens* Pax, a species not yet reported in the literature according to the *Flora of Taiwan*.

Dioscorea sansibarens is native to the lowland tropics of Africa and Madagascar, especially in riverine habitats (Milne-Redhead, 1975). It is a climbing plant that forms large starchy underground tubers and vegetatively propagates through the production of aerial bulbils. To the present, neither male flowers nor fruits of *D. sansibarens* have been seen in Taiwan, and its colonization is wholly dependent on the aerial bulbils. This species is characterized by the apex of its leaves being conspicuously caudate, irregularly roundish aerial bulbils, and one to three pistillate inflorescences per axil, each up to 50 cm long. This species is documented here with a detailed description of salient features, line drawings (Fig. 1), and color photographs (Fig. 2).

TAXONOMIC TREATMENT

Dioscorea sansibarens Pax, Bot. Jahrb. Syst. 15: 146. 1892; Knuth, *In* Engler A. (ed.). Das Pflanzenreich 43: 87. 1924; Milne-Redhead, Fl. East Africa: 7. 1975; Raz, Fl. North Am. 26: 485. 2003. 非洲薯蕷 (Figs. 1, 2)

Perennial, with large tuber, globose, irregularly lobed. Plant glabrous. Stems

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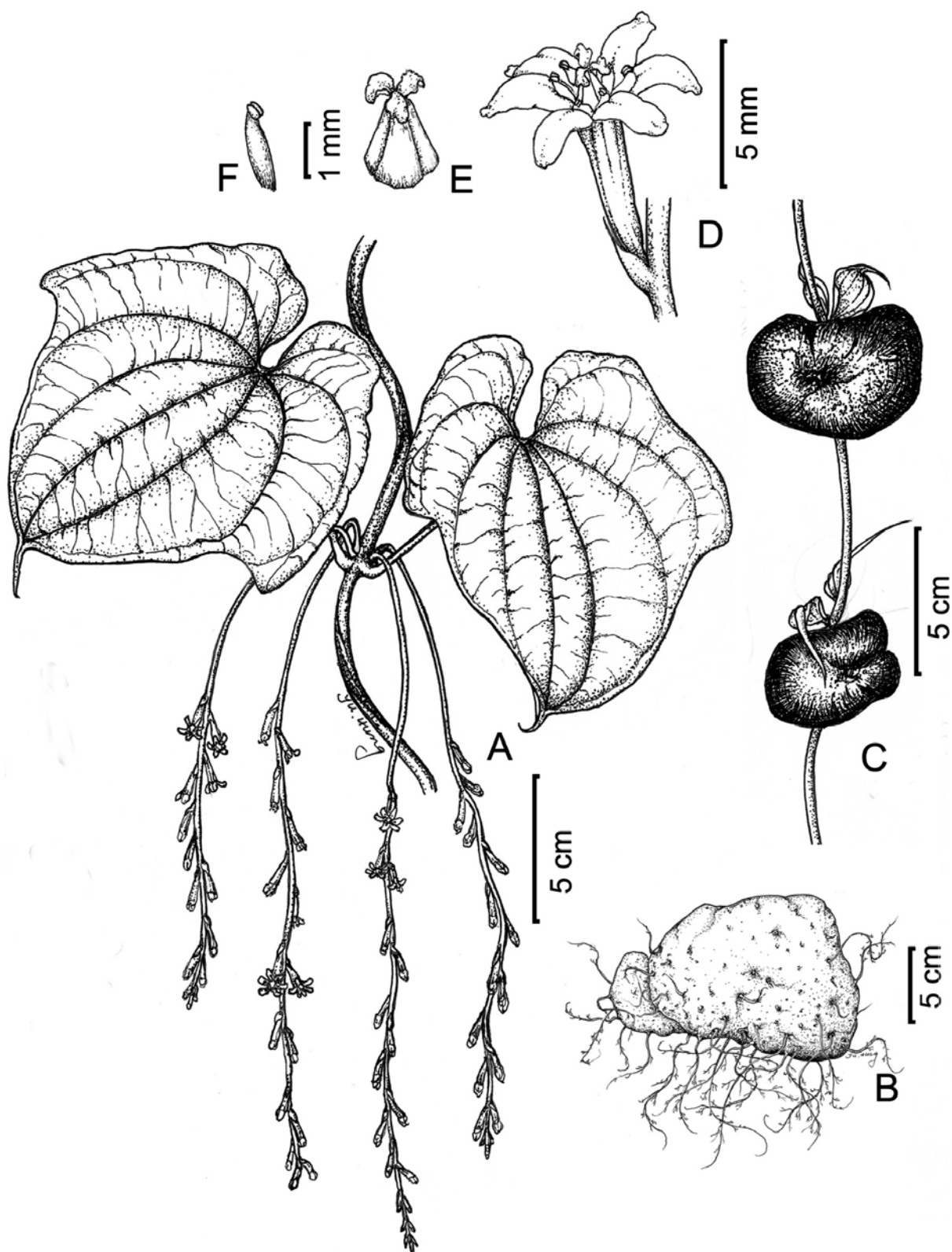


Fig. 1. *Dioscorea sansibarensis*. A, Habit; B, tuber; C, bulbils; D, pistillate flower; E, stigmatic branches and style; F, staminode.

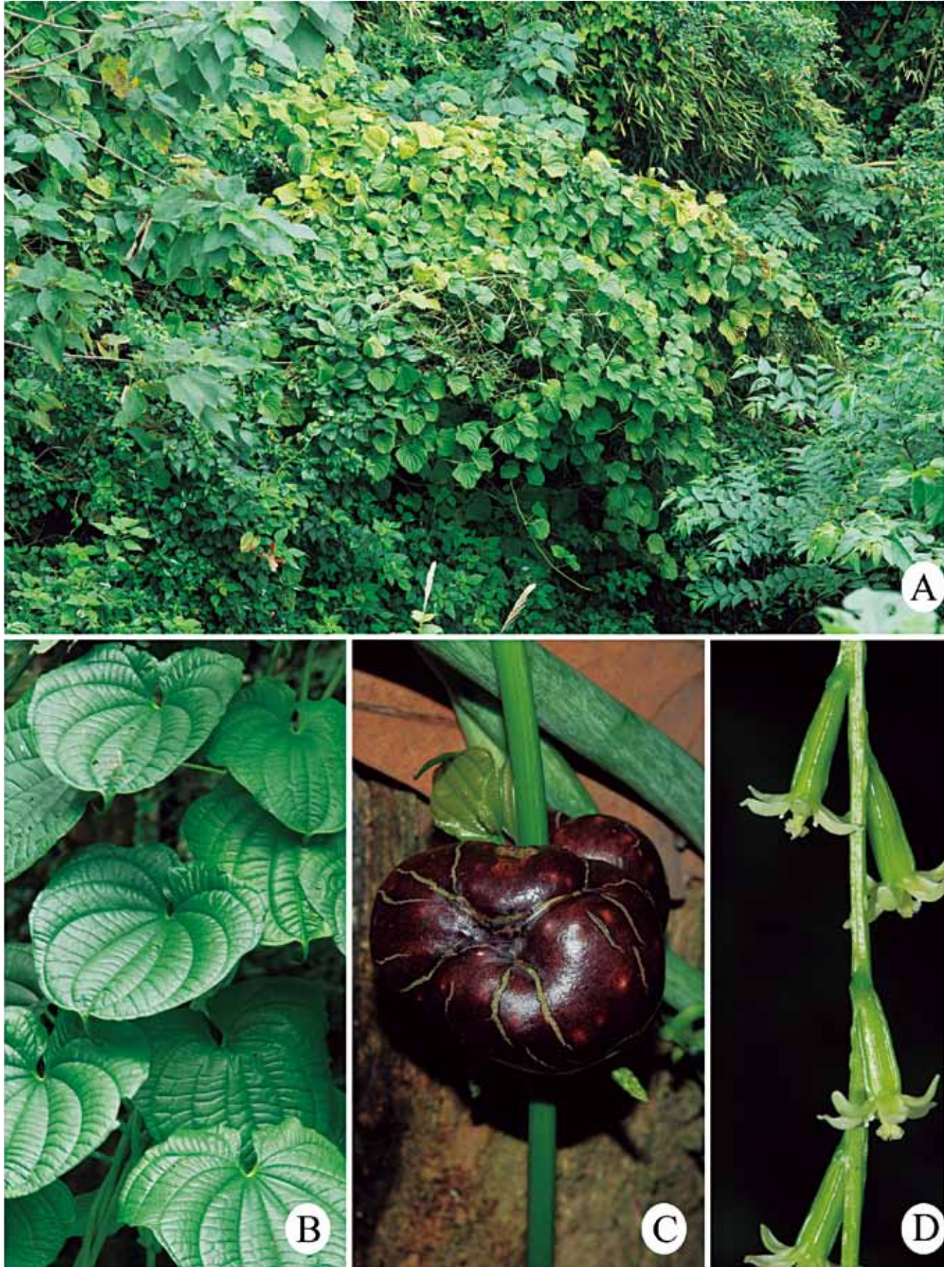


Fig. 2. *Dioscorea sansibarensis*. A, Habitat; B, habit; C, bulbils; D, pistillate flowering branch.

sinistorse, climbing to more than 10 m, terete. Leaf axils with irregularly roundish aerial bulbils, frequently > 5 cm in diameter, deep-purplish. Leaves alternate at basal nodes, opposite distally, petiole 6~12 (~26) cm long; blade heart-shaped, up to 20 (~45) cm long and 23 (~56) cm wide, apex conspicuously caudate, base clasping, margins irregularly 3~5-lobed, younger leaf blades variously shaped and lobed, nerves 7~11. Staminate flowers not seen. With 1~3 pistillate inflorescences per axil, each up to 50 cm long; flowers with a bract at base, directed downwards; ovary inferior, triangular, 7~8 mm long, 1.5~2 mm wide; perianth segment 6, linear, white with purple veins, not widely opening; style columnar, 0.5 mm long, 3-cleft at apex; staminodes 6, small. Fruits not seen.

Specimen examined: TAIWAN. Miaoli Co., Dahu Township, Fayun Temple. *C.M. Wang 14596* (TNM).

Distribution: Native to tropical Africa, Ivory Coast to the Sudan, south to Angola, Rhodesia, and Mozambique, and also in Madagascar (Milne-Redhead, 1975); but naturalized to southern China, Indonesia, Singapore, and tropical America.

Habitat: Commonly climbing over thickets, secondary forest edges, and bamboo woodlands.

Notes: *Dioscorea sansibarens* with large and unusually shaped leaves, is widely introduced as an ornamental plant. However, it can easily spread because it has thousands of aerial bulbils. Once it has gained a foothold and become established in an area of forest, this fast-growing climber may become a serious weed of the forest. Raz (2003) reported that the aerial bulbils of *D. sansibarens* which are shed from mature plants grow vigorously among native vegetation in southern Florida. In Singapore, *D. sansibarens* has become one of the most invasive and damaging weeds in the rainforest (Choo, 2009). Both the tubers and axillary bulbils of this species are toxic.

TAXONOMIC TREATMENT

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臺灣薯蕷科的新歸化植物－非洲薯蕷

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非洲薯蕷(新擬)原產熱帶非洲及馬達加斯加島，本文報導其為臺灣新歸化植物，該植物的葉明顯尾狀，零餘子呈不規則圓形及雌花序1-3腋生，長可達50公分，形態特徵明顯不同於臺灣所產的該屬植物。本文提供非洲薯蕷的形態描述、手繪圖與彩色圖片，並報告其分布及生態。

關鍵詞：零餘子、非洲薯蕷、薯蕷科、新歸化植物、臺灣。