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A new variety of *Markhamia stipulata* (Bignoniaceae) from Southern Vietnam

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ABSTRACT: A new variety, *Markhamia stipulata* (Wall.) Seem. ex Schum. var. *canaense* V.S. Dang ***var. nov.*** from Ca Na area of Thuan Nam District in Ninh Thuan Province, Southern Vietnam is described and illustrated. This variety is morphologically similar to *Markhamia stipulata* (Wall.) Seem. ex Schum. var. *pierrei* (Dop) Santisuk, but differs in having a longer corolla tube, shorter capsule, lesser number of leaflets and lateral veins. Furthermore, comparison of the diagnostic characters between this variety and the above mentioned related variety is also provided.

KEY WORDS: Bignoniaceae, *Markhamia stipulata*, new variety, taxonomy, Vietnam.

INTRODUCTION

Markhamia Seem. ex Baill., a genus of at least 6 species distributed from tropical Africa and China to Southeast Asia (Mabberley, 2008), can be easily distinguished from other genera in the family by having foliaceous pseudostipules usually present, corolla campanulate-funnel-shaped with dingy yellow to brownish red or reddish yellow to reddish brown, and capsule long cylindric with floccose or villous. Until now, one species of *Markhamia* has been recorded with two variety *M. stipulata* var. *kerrii* and *M. stipulata* var. *pierrei* for the flora of Vietnam (Pham, 2000).

During field surveys in Ca Na area, Thuan Nam District of Ninh Thuan Province in southern Vietnam in 2013-2014, the author collected few interesting specimens of *Markhamia* Seem. ex Baill. They differed significantly from the two Vietnamese variety reported by Pham (2000) and Santisuk & Vidal (1985), and also differed from those from China (Zhang & Santisuk, 1998) and Thailand (Santisuk, 1987). Furthermore, they did not match specimens of *Markhamia* in the Vietnamese herbaria of VNM and HN nor in the Muséum National d'Histoire Naturelle (P). Hence it is described as a new variety *Markhamia stipulata* (Wall.) Seem. ex Schum. var. *canaense* V.S.Dang var. nov.

TAXONOMIC TREATMENT

Markhamia stipulata (Wall.) Seem. ex Schum. var. ***canaense*** V.S. Dang ***var. nov.*** Fig. 1&2

Type: **VIETNAM**: Ninh Thuan, Thuan Nam District, Ca Na, 30 km southeast of Phan Rang City, alt. 19 m, 11°19′22.32″N, 108°48′06.24″E, 20 June 2013, V.S. Dang 210 (Holotype: VNM; Isotypes: VNM, HN, TAI).

Trees small, 3–6 m tall. Young branches sparsely puberulous to glabrescent. Leaves compound, imparipinnate, opposite, 14–20 cm long, foliaceous pseudostipules usually present; leaflets 7–9, opposite, oblong, ovate-oblong or elliptic-oblong, 6–8 × 3–4.5 cm, apex subrotund to acuminate, base broadly acute to rounded, puberulous to glabrescent below, margin entire or crenate, lateral veins 5–7 on each side of midrib, along with main veins convex on both sides. Petiole 2–2.5 cm long; lateral petiolule 0.1–0.2 cm long, terminal petiolule 1–1.5 cm long. Inflorescences a terminal, 8–14-flowered raceme, 14–18 cm long; bracts triangular, 0.1–0.15 × 0.1–0.2 cm, persistent, glabrous. Calyx spathaceous, 3.5–4 cm long, brownish yellow, sparsely puberulous to glabrescent, with a long uncinate at apex. Corolla reddish yellow to reddish brown, 11–14 cm long, pubescent; base of tube narrow cylindrical, 6–7.5 cm long; apically widening to funnel-shaped, 3–4 cm long; lobes 5, subrotund, dingy yellow internally, 2–2.5 cm long, 1.5 cm broad, with scattered warty glands outside. Stamens 4, didynamous, epipetalous, not exserted; filaments 4–5 cm long, glabrous at insertion; anthers 0.4–0.6 × 0.1–0.15 cm. Ovary oblong, narrow, ovule many; style filiform, sparsely puberulous to glabrescent, 9–10 cm long; stigma 2-lobed. Capsules dehiscing loculicidally, linear, compressed, 16–20 × 1.7–2 cm, puberulous to glabrescent, with sparsely tuberculate to warty glands. Seeds long ellipsoid, thin, 3–3.5 × 0.5–0.8 cm, membranous winged.

Etymology: The specific epithet is derived from the type locality, Ca Na area of Thuan Nam District in Ninh Thuan Province, Southern Vietnam.

Phenology: Flowering from April to June, and fruiting from July to September.

Distribution: *Markhamia stipulata* var. *canaense* is known only from a very restricted area of about 20 hectares in Ca Na of Thuan Nam District, Ninh Thuan

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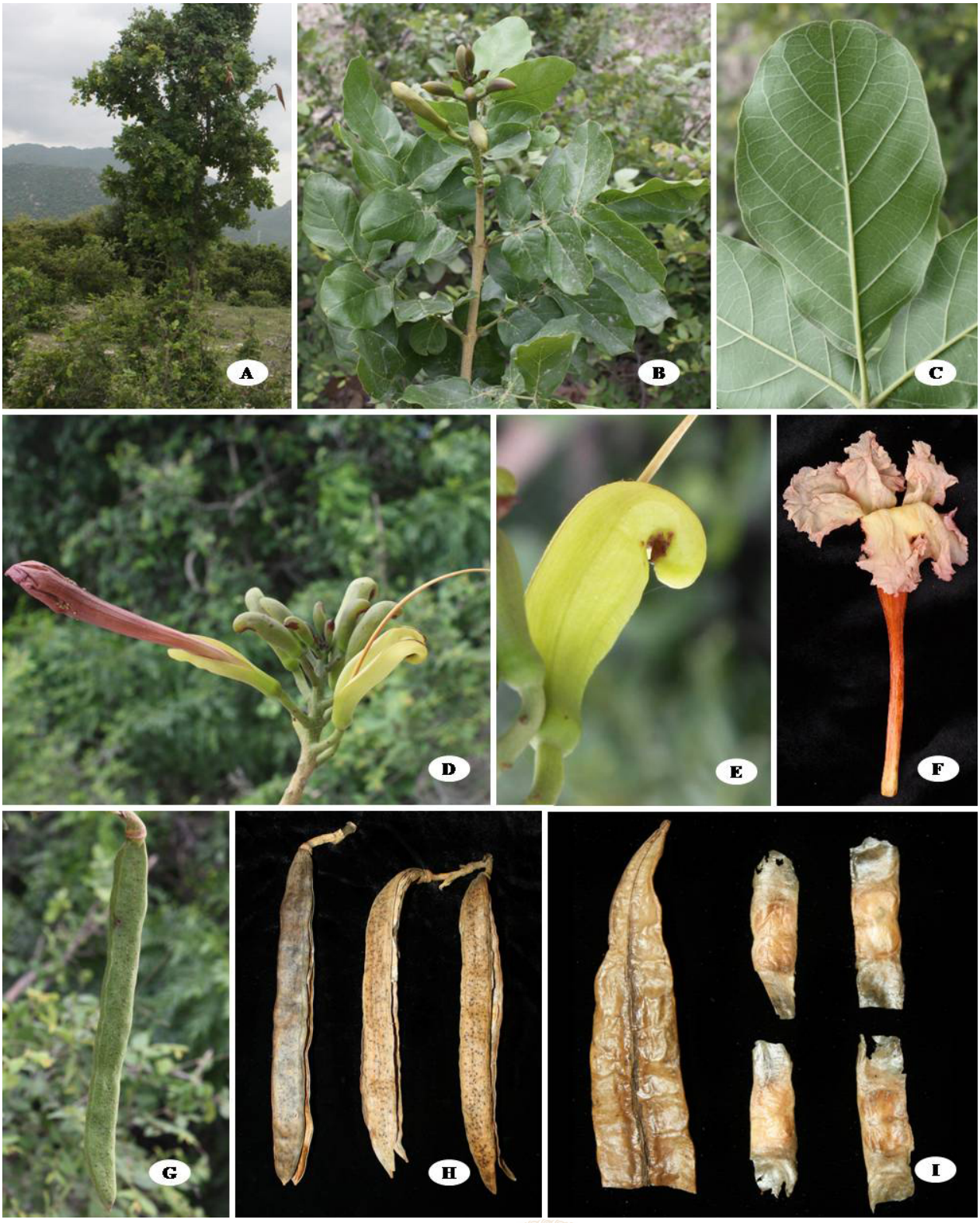


Fig. 2. Photographs of *Markhamia stipulata* var. *canaense*. A. dabit; B. pinnately compound leaf and inflorescence on a branch; C. leaflet; D. inflorescence; E. calyx; F. corolla; G. fresh fruit; H. dry fruit; I. four winged seeds flanked by one septum fragments.

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Table 1. Morphological comparison of *Markhamia stipulata* var. *canaense* with its closest ally (modified from Santisuk & Vidal, 1985; Santisuk, 1987; Zhang & Santisuk, 1998; Pham, 2000).

Morphological characters	*M. stipulata* var. *canaense*	*M. stipulata* var. *pierrei*
Trees	3–6 m tall	7–30 m tall
Leaves	14–20 cm long	40–60 cm long
Leaflets and lateral veins	Leaflets 7–9, lateral veins 5–7 on each side of midrib	Leaflets 9–13, lateral veins 7–9 on each side of midrib
Inflorescences	14–18 cm long	16–34 cm long
Calyx	With a long uncinate at apex	With a short uncinate at apex
Corolla	11–14 cm long	8–10 cm long
Capsule	16–20 × 1.7–2 cm, with sparsely tuberculate to warty glands	25–43 × 2.3–2.8 cm, with dense tuberculate to warty glands



Fig. 1. Illustrations of *Markhamia stipulata* var. *canaense*. A. pinnately compound leaf and inflorescence on a branch; B. calyx; C. corolla; D. fruit; E. seed. Drawn by Van-Son Dang from V.S.Dang 210.

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Province (Southern Viet Nam), at an elevation of about 19–20 m.

Habitat: This variety occurs in secondary forests, thickets and savannas.

Additional specimen examined: **VIETNAM**: Ninh Thuan, Thuan Nam District, Ca Na, 30 km southeast of Phan Rang City, alt. 20 m, 11°19′23.21″N, 108°48′08.61″E, 18 July 2014, *V.S.Dang et al. V1801*, and 28 November 2014, *V.S.Dang et al. V2256* (VNM!, FU!).

Note: *Markhamia stipulata* var. *canaense* is morphologically similar to *Markhamia stipulata* var. *pierrei* but differs in having a longer corolla tube, 11–14 cm long (vs. 8–10 cm long); shorter capsule, 16–20 cm long (vs. 25–43 cm long); lesser number of leaflets, 7–9 (vs. 9–13) and lateral veins 5–7 on each side of midrib (vs. 7–9 pairs). It often grows in association with *Uvaria micrantha* Hook. f. & Thoms., *Polyalthia minima* Ast., *Grewia abutilifolia* Vent. ex Juss., *Capparis rigida* Jacobs, *Bauhinia racemosa* Lam., *Memecylon octocostatum* Merr. & Chun., *Glochidion hohenackeri* (Müll.Arg.) Bedd., *Clausena dimidiata* Tan., *Sauropus poilanei* Beille., *Koelreuteria paniculata* Lamk., *Pleiospermum annamense* Guill., *Tetrastigma pachyphyllum* (Hemsl.) Chun, *Schefflera canaensis* C.B. Shang., *Wrightia dubia* (Sims) Spreng., *Clerodendrum petasites* (Lour.) S.Moore.

Key to the variety of *Markhamia stipulata* of Vietnam.

1a. Corolla dingy yellow or brownish yellow; capsule floccose to deeply lanate woolly .....…… **1.** var. ***kerrii***

1b. Corolla reddish yellow or reddish brown; capsule sparsely puberulous to subglabrous ……2

2a. Leaflets 9–13, lateral veins 7–9 on each side of midrib; corolla 8–10 cm long; capsule 25–43 cm long, with dense tuberculate to warty glands ……..**2.** var. ***pierrei***

2b. Leaflets 7–9, lateral veins 5–7 on each side of midrib; corolla 11–14 cm long; capsule 16–20 cm long, with sparsely tuberculate to warty glands ……..…….. **3.** var. ***canaense***

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