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# *Hoya tamdaoensis* (Apocynaceae, Asclepiadoideae), a new species from Vietnam

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## Abstract

A new species of *Hoya* R.Br. from Tam Đảo National Park (Vĩnh Phúc Province, Vietnam), *Hoya tamdaoensis* Rodda & T.B.Tran, is described and illustrated. It is distinguished from the morphologically similar *Hoya siamica* Craib by corolla size, lamina shape, coloration, and orientation of the petioles.

**Key words:** *Hoya siamica*, limestone, lithophytic, lower montane forest, Marsdenieae

## Introduction

In his revision for the Flora of Indochina, Costantin (1912) listed 16 species of *Hoya* Brown (1810: 459) occurring in Vietnam, one of which, *Hoya pseudovalifolia* Costantin (1912: 139), has been synonymised with *Hoya micrantha* Hooker (1883: 55; Rodda & Simonsson Juhonewe 2013). Since then, the number of *Hoya* species in Vietnam has almost doubled (Phạm 2003, Phạm & Averyanov 2011, Trần *et al*. 2011a, 2011b, Phạm *et al*. 2012, Rodda 2012, Rodda *et al*. 2012, Rodda & Simonsson Juhonewe 2013, Phạm *et al*. 2014). The percentage of taxa endemic to Vietnam is high with only eight species also found in neighboring China (Li *et al*. 1995, Rodda 2012) and six in Lao PDR (Newman *et al*. 2007, Rodda 2012).

When an updated revision is completed, it is likely that some of the currently recognized species will be synonymised (Rodda & Simonsson Juhonewe 2013).

During a recent joint expedition of the Vietnam National Museum of Nature and the Singapore Botanic Gardens to Tam Đảo National Park, Vĩnh Phúc Province in September 2011, an unidentified species was collected. Upon comparison with specimens of *Hoya* in HN, IBSC, KUN, P, and VNM, we established that it represents a new species that is here described as *Hoya tamdaoensis* Rodda & T.B.Tran.

## *Hoya tamdaoensis* Rodda & T.B.Tran *spec. nov.* (Figs. 1 & 2)

Similar to *Hoya siamica* Craib (1910: 419) in exhibiting inflorescences positively geotropic, convex, flowers numerous, corollas white, pubescent within, and leaves glabrous, but distinguished by the corolla size (1.8–2.2 cm diam. vs. < 1 cm diam. in *H. siamica*) and the lamina shape (base attenuate-rounded and apex caudate vs. base cuneate or acute and apex acute or acuminate in *H. siamica*).

TYPE:—VIETNAM, Vĩnh Phúc prov., Tam Đảo N.P., Máy Giấy trail, 1072 m, 20 September 2011, *Nguyễn Quốc Bình, Jana Leong-Škorničková, Trần Hữu Đăng VNM-B1465* (holotype, SING!; isotypes HN!, VNMN!).

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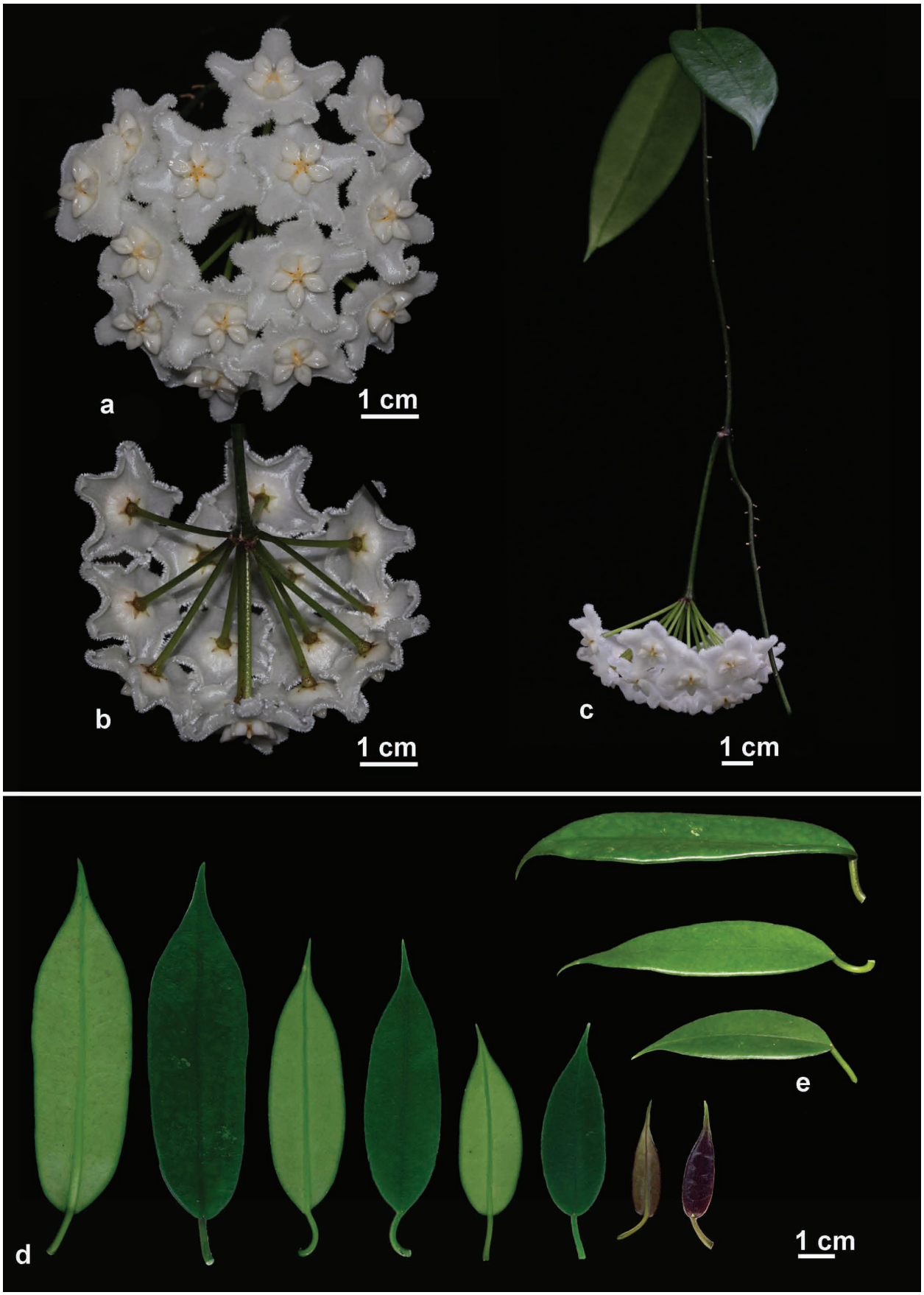


**FIGURE. 1.** Photographs of a living plant of *Hoya tamdaoensis* cultivated at the Singapore Botanic Gardens (*M. Rodda MR729*, SING) **a.** Inflorescence, adaxial view; **b.** Inflorescence, abaxial view; **c.** Branch, peduncle, and pendulous inflorescence; **d.** Leaves, four leaves from mature to immature (left to right), each leaf adaxial (right) and abaxial (left); **e.** Leaves, side view, with evident attachment of the petiole to the lamina at almost right angle. Photographs by M. Rodda.

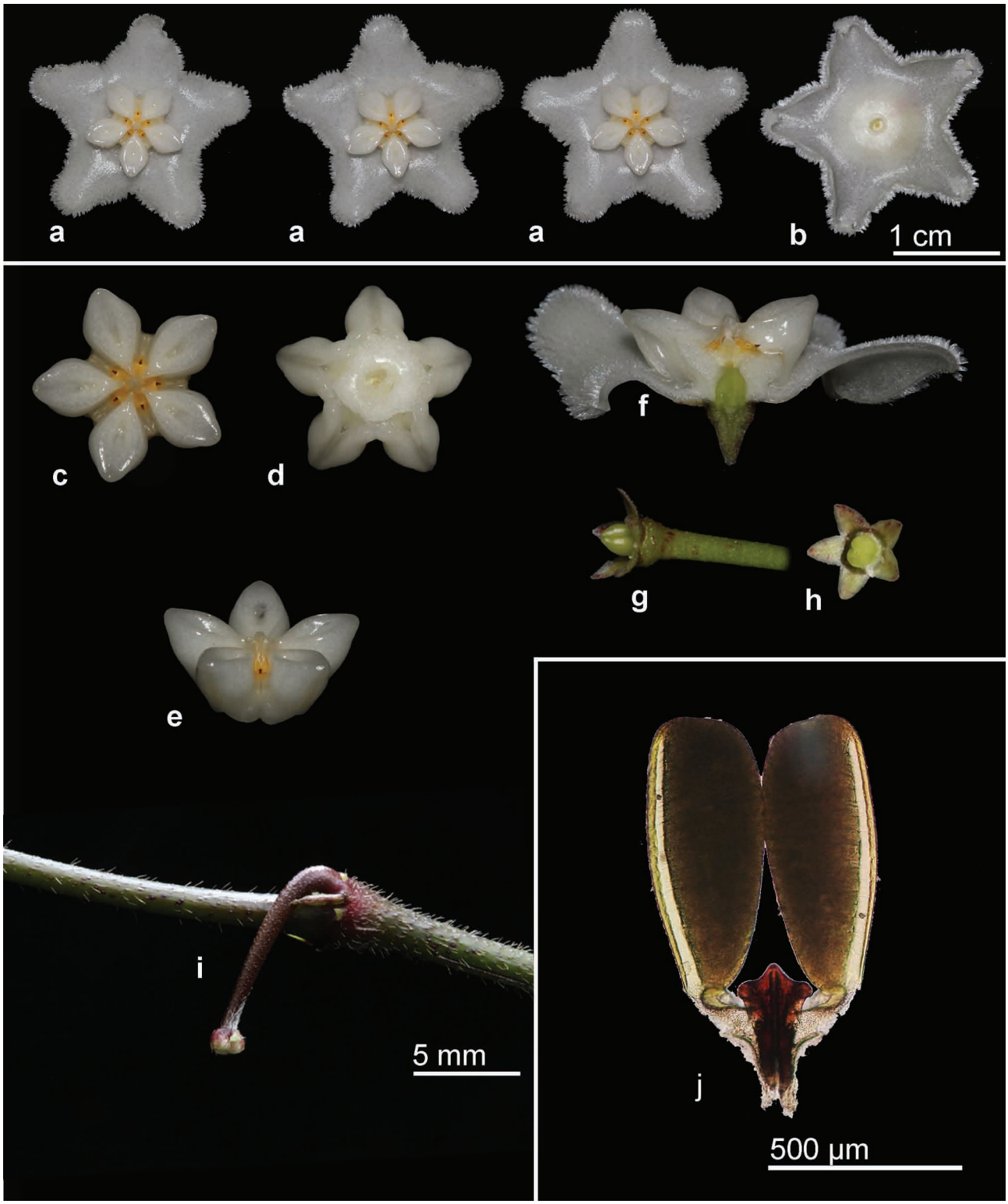


**FIGURE 2.** Photographs of flower details of *Hoya tamdaoensis* cultivated at the Singapore Botanic Gardens (*M. Rodda MR729*, SING): **a.** Three single flowers with evident corolla and corona; **b.** Corolla, abaxial view; **c.** Corona, top view; **d.** Corona, underneath; **e.** Corona, side view; **f.** Flower, longitudinal section; **g.** Calyx and ovaries, side view; **h.** Calyx and ovaries, top view; **i.** Immature peduncle borne on a young pubescent branch; **j.** Pollinarium. Photographs by M. Rodda.

Lithophytic climber with white exudate in all vegetative parts, glabrous, except young stems sparsely pubescent with retrorse hairs. *Stems* slender, internodes (5–)8–12(–15) cm × 1.5–3 mm, dark green to brownish purple; *adventitious root* sparsely produced along the stem. *Leaves* wine-red when young; *petiole* recurved, held at an almost right angle to the lamina, 0.8–2 cm × 1.5–2.5 mm, dark green to brownish purple; *lamina* oblong-lanceolate, (4–)5–10 × (1.5–)2–3

cm, base attenuate-rounded, apex caudate, margin entire, reflexed in older leaves; venation pinnate, secondary veins in 4–7 pairs, borne at 70°–90° to midrib, anastomosing, tertiary venation reticulate, dark green above, glossy with occasional grey spots, midrib depressed above, raised underneath, lighter green with a slightly darker midrib and edge underneath; *colleters* one at each lamina base, triangular, 0.8–1 × 0.8–1 mm. *Inflorescence* pseudo-umbellate, convex; peduncle 3–10 cm × 1.8–2.5 mm diam., dark green to purplish brown, glabrous. *Flowers* (4–)10–15 per inflorescence; *pedicel* 2–2.5 cm × 0.8–1.2 mm diam., light green, glabrous. *Calyx* lobes broadly triangular, 1.5–2 × 1–1.5 mm wide, light green with purple spots, glabrous; *basal colleter* one per calyx lobe sinus, ovate to triangular, 1.5–2 × 1–1.2 mm, apex rounded. *Corolla* rotate, flat, 1.8–2.2 cm diam., tube 5–6 mm long, thickly pubescent inside, glabrous outside, lobes broadly triangular, 6–8 × 5.5–7 mm, white, margin recurved, apex acute, revolute, thickly pubescent inside with glabrous apex, glabrous outside. *Corona* staminal, 9–10 mm diam., 4–5 mm high, *lobes* ovate, 3.5–4.5 × 2.3–2.6 mm, concave above, underneath sulcate with inrolled margins, outer process apex rounded, inner process acuminate. *Anthers* ovate, ca. 1.3 × 1.2 mm, with apical round membranaceous appendage exceeding the style-head by 0.5–0.7 mm. *Pollinia* clavate, 650–750 × 270–320 µm, narrowing towards the base, apex truncate, sterile edge all along the outer edge of the pollinium; *corpusculum* rhomboid, 300–400 × 180–220 µm, apex acute; *caudicle* broad, spathulate, hyaline, ca. 150 × 100 µm at the widest. *Style-head* 5-angled in cross section, with 5 lobes alternating with the stamens, style-head apex round, ca. 1 mm long, 2–2.5 mm broad at the base. *Ovaries* 2, ovate, 1.5–2 mm × ca. 1 mm wide at the base, light green, apex narrow. *Fruit* and *seed* not seen.

**Etymology:**—The new species is named after the collection locality, Tam Đảo National Park, Vietnam.

**Distribution and ecology:**—Only known from the type locality in Tam Đảo National Park, Vietnam. *Hoya tamdaoensis* was found growing epilithically on limestone covered by moss in evergreen lower montane forest.

**Conservation status:**—Known from only one locality; the preliminary conservation status of *Hoya tamdaoensis* is Data Deficient (DD; IUCN 2014).

**Notes:**—*Hoya tamdaoensis* is morphologically similar to the *Hoya siamica* species complex that has been well documented in Thailand (Tungmunnithum *et al*. 2011). The complex is very variable in vegetative and reproductive morphology and is likely to include more than one taxon. Both *H. tamdaoensis* and members of the *H. siamica* complex exhibit inflorescences positively geotropic, corollas rotate, pubescent within, and corona lobes ovate. The leaves of *H. siamica* are very variable, ovate, obovate, elliptic, lanceolate, and oblanceolate.

*Hoya tamdaoensis* can be distinguished from *H. siamica* by corolla size (1.8–2.2 cm diam. vs. < 1 cm diam. in *H. siamica*) and the lamina shape (base attenuate-rounded and apex caudate vs. base cuneate or acute and apex acute or acuminate in *H. siamica*). The abaxial laminar surface of *H. tamdaoensis* is light green with a slightly darker midrib and edge, while in *H. siamica* it is uniformly coloured. Young leaves of *H. tamdaoensis* are dark wine-red in colour, while the young leaves of *H. siamica* are pale green. Lastly, the petioles of *H. tamdaoensis* form an acute to often almost right angle with the lamina, while in *H. siamica* the petiole and lamina form an almost 180° angle.

**Additional specimens examined**:—UNLOCALISED. (nursery purchase), 27 Aug 2014, *M. Rodda MR729*, collected from material cultivated at the Singapore Botanic Gardens (SING!).

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