



***Hoya nuttiana* (Apocynaceae, Asclepiadoideae), a new species from Sarawak, Malaysian Borneo**

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Abstract

A new species, *Hoya nuttiana* Rodda & Simonsson, endemic of Sarawak, Malaysia is described and illustrated. George Derby Haviland and Charles Hose first collected the species in Sarawak in 1894. More recent collections were made in 1987 and 2007. *Hoya nuttiana* can be separated from all published *Hoya* species because it is the only known species with globular inflorescences of up to 100 flowers with campanulate corollas bearing a stalked gynostegium.

Introduction

The diversity of *Hoya* Brown (1810: 459) in Borneo is unknown (Forster *et al.* 1998) and apart from Merrill's (1921) checklist of Bornean plants, listing eight species, and an unpublished checklist (Nutt 2001), no regional revision has been attempted so far. Extensive fieldwork throughout Borneo will be required in preparation for a comprehensive revision. Following the approach of Rintz (1978), Forster *et al.* (1997) and Liddle & Forster (2008), sterile plants will have to be collected and brought into cultivation *ex situ*, where they will eventually flower. However, years may pass from collection to flowering, thus delaying the completion of a revision.

In the meantime, new *Hoya* species from Borneo have been identified based upon the examination of herbarium collections, which remain of major importance for species discovery (Bebber *et al.* 2010) and from cultivated plants (Rodda & Nyhuus 2009, Rodda & Simonsson 2011a,b, Rodda *et al.* 2011, Trần *et al.* 2011, Rodda & Simonsson Juhonewe 2012).

Despite the genus being revised for Peninsular Malaysia relatively recently (Rintz 1978), in 2012 a new species first collected 118 years earlier in Peninsular Malaysia, *Hoya mappigera* Rodda & Simonsson Juhonewe (2012: 338) was described. Similarly, in the present paper we document the discovery of a species first collected in 1894 in Sarawak, Malaysia by George Derby Haviland and Charles Hose (*Haviland & Hose* 8530, K). Pia Nutt (2001) suggested that the Haviland and Hose specimen may represent a new undescribed taxon, but never published it. We here confirm Nutt's identification and publish the new species as *Hoya nuttiana* Rodda & Simonsson.

Taxonomy

Hoya nuttiana Rodda and Simonsson, *spec. nov.* (Figs. 1 & 2).

The flowers of *H. nuttiana* can be compared to those of *Hoya devogelii* Rodda & Simonsson (2011a: 35) because both bear a pubescent campanulate corolla, a stalked gynostegium and a broad anther skirt. However, in *H. devogelii* the flowers are smaller (ca. 1 cm vs. ca. 2 cm in diam.), more numerous (4–7 vs. up to 100 flowers), and the stalked gynostegium is taller (column 2.5–3 mm vs. 1.2–1.5 mm).

Type:—MALAYSIA. Sarawak: near Kuching, 24 October 1894, *Haviland & Hose 8530* (holotype K!, barcode K000014447).

Vigorous lithophytic climber (fide *Yii Puan Ching et al. S53778*, KEP), with white exudate in all vegetative parts; all vegetative parts glabrous. Leafy stems cylindrical, up to 5 mm in diam., dark brown or grey, with membranaceous peeling bark; internodes 5–20 cm long. Petioles cylindrical, slightly channelled above in proximity to the lamina base, 8–12 × ca. 2 mm in diam., lamina elliptic-lanceolate, coriaceous, (6.5)10–15 × 3–6.5 cm, apex shortly acuminate or cuspidate, base acute, penninerved, main vein depressed on adaxial surface, evident on abaxial surface, secondary veins 5–7 pairs, evident when dry, held at 70–85°, anastomosing near leaf margins, tertiary venation reticulate. Inflorescences pseudo-umbelliform or globular, ca. 10 cm in diam., up to 100-flowered; peduncles extra-axillary, terete, 8–12 cm × 2–3 mm in diam., glabrous; pedicels 3.5–4.5 cm × 0.6–1 mm in diam., pubescent. Calyx lobes triangular, 0.7–1 × 1–1.2 mm, apex acute or round, glabrous adaxially, pubescent abaxially, ciliate; colleters 1(2), in each sepal sinus, ovoid. Corolla campanulate, ca. 1 cm in diam., greenish-yellow (fide *Yii Puan Ching et al. S53778*, KEP), pubescent throughout inside, more so on the lobes and upper 1/3 of the tube (long villous in *Haviland & Hose 8530*, K), outside glabrous, tube 4–5 mm long, 6–7 mm in diam., lobes broadly triangular, revolute, 2–3 × 4–5 mm, apex acute. Gynostegium stalked, corona column conical, 2.5–3 mm × ca. 2 mm (base) or ca. 1 mm (apex) pubescent; Corona staminal, ca. 2.5 mm high, 5–6 mm in diam., fleshy; corona lobes apically oblong, 2.5–3 mm × 0.7–0.9 mm, inner process depressed, round, terminating in an erect, acute tip as high as the anthers, outer process erect, narrowly round, basally forming a broad ‘anther skirt’ with revolute lateral margins. Style-head convex, just shorter than the anther appendages. Pollinia oblong, with round apex and base and evident pellucid margin, 255–280 × 110–120 µm; caudicles attached at the centre of the retinaculum, winged, retinaculum 120–130 × 50–60 µm; ovary bi-carpellate, conical, ca. 2 mm long, each carpel ca. 0.7 mm wide at the base. Fruits and seeds unknown.

Etymology:—*Hoya nuttiana* is named after Pia Nutt who first recognized the taxon as a new species (Nutt, 2001).

Distribution area & Ecology:—The species occurs in three localities in Sarawak, Malaysian Borneo. The type specimen was collected in an unspecified locality near Kuching in 1894. Two further specimens were collected in 1987 on sandstone boulders at the base of a waterfall in the Hose Mountains (*Yii Puan Ching et al. S53778*) and in 2007 in Pulong Tau National Park (*Siti Eryani et al. S97648*).

IUCN Red List category:—The taxon is only known from three collections, one of which poorly localised (*Haviland & Hose 8530*), the others within a National Park (*Siti Eryani et al. S97648*) and a proposed National Park (*Yii Puan Ching et al. S53778*), and therefore likely protected from local extinction. However, the extent of occurrence and the population size are unknown, For these reasons *H. nuttiana* is assessed as Data Deficient (DD) according to IUCN Red List criteria (IUCN 2012).

Additional specimens examined:—MALAYSIA. Sarawak: 7th Division, Hose Mountains, Ulu Sg. Merarai Batang Balleh, sandstone boulders at the base of waterfall, 550 m a.s.l., 29 March 1987, *Yii Puan Ching et al. S53778* (SAR!, KEP!); *ibid*, Marudi, Pulong Tau National Park (western part) trail from long Lobang to camp A, 10 May 2007, *Siti Eryani et al. S97648* (SAR!, KEP, K, L).

Discussion

The morphology of the flowers of *H. nuttiana* is unique in *Hoya*. The only species bearing similar flowers is *H. devogelii* that also has a pubescent corolla, a stalked gynostegium and very broad anther skirt. Broad anther skirts are commonly observed in *Hoya* species bearing a campanulate corolla (Rodda & Nyhuus 2010). The two species can be easily separated because *H. devogelii* has inflorescences of 4–7 flowers, broadly campanulate corollas ca. 2 cm in diameter, and ovoid corona lobes, while *H. nuttiana* has up to 100-flowered

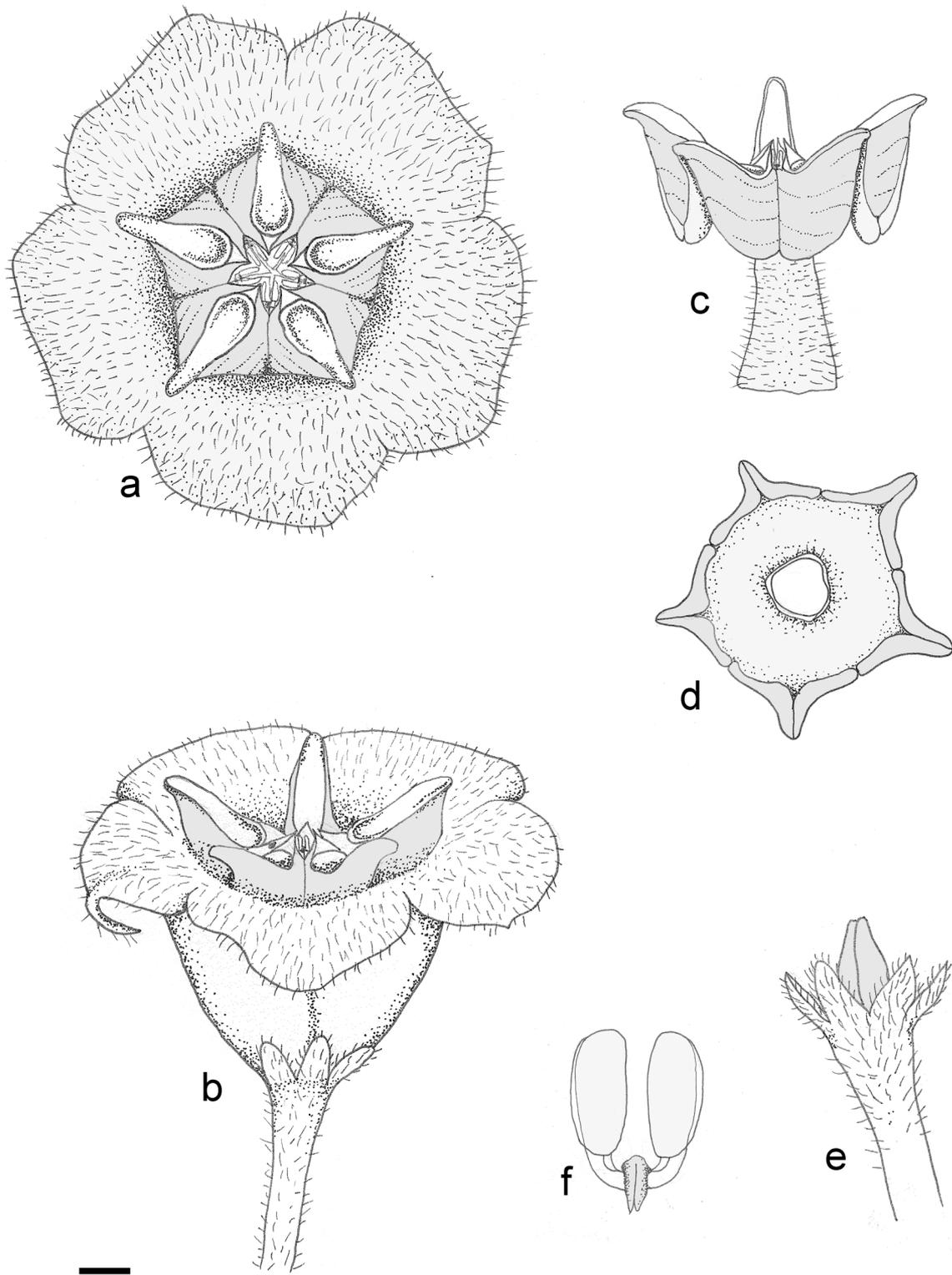


FIGURE 1. Drawings prepared from *Siti Eryani et al. S97648 (SAR)*: a. Corolla from above; b. corolla from side; c, corona and column; d. corona from below; e. calyx and ovaries; f. pollinarium. Scale 1 mm (a–e); 100 μ m (f). Drawn by M. Rodda.



FIGURE 2. Photograph of the holotype of *Hoya nuttiana*, Haviland & Hose 8530 (K). Reproduced with the consent of the Royal Botanic Gardens, Kew.

inflorescences, corollas narrowly campanulate ca. 1 cm in diam., and narrowly lanceolate corona lobes. In a dry state, the coriaceous leaves of *H. nuttiana* can be superficially confused with those of the Borneo endemic *Hoya telosmoides* Omlor (1996) that are usually smaller, (80)100–130 × (25)30–55 mm (fide Omlor (1996)). The two species can be easily separated because the corolla of *H. telosmoides* is urceolate, while the corolla of *H. nuttiana* is campanulate.

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