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Hoya rotundiflora (Apocynaceae, Asclepiadoideae), a new horticulturally important species from Myanmar

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Abstract

A new species, *Hoya rotundiflora*, originally found in a market in Thailand and collected in neighboring Myanmar, is described, illustrated and compared with related species. *Hoya rotundiflora* appears to be related to *Hoya thomsonii* and *Hoya lyi* due to the similar growth habit, but it can be easily distinguished by the shape of leaves, corolla and corona lobes.

Introduction

Hoya Brown (1810: 459). is a genus of at least 200 species (Kleijn & van Donkelaar 2001) distributed over a wide area comprising peninsular India, mainland Asia, Malesia, New Guinea, the Solomon Islands, Melanesia, New Caledonia and Australia (Forster *et al*. 1998). Most species of *Hoya* are laticiferous wiry climbers, often epiphytic, with fleshy to succulent leaves of various size, colour, and venation. A limited number of species are pendulous (e.g., *Hoya linearis* Wall. in D.Don (1825: 130)) or erect shrubs (Simonsson & Rodda 2009). The genus *Hoya* as a whole has not been recently revised (Meve 2002), but accounts on *Hoya* have been produced for local floras and checklists. The flora of Myanmar is still very little known and only one checklist has so far been published, containing 19 species of *Hoya* (Kress *et al*. 2003). Among the neighboring countries Thailand is the most species rich, with about 40 taxa (Thaithong 2001) followed by China with 32 (He *et al*. 2009), Assam with 14 (Kanjilal *et al*. 1900) and Lao PDR with eight species and one variety (Newman *et al*. 2007). From 2007 onward a *Hoya* species commercially sold as *Hoya* sp. “Square” became widely available in the trade. It was preliminarily identified as *Hoya lyi* Léveillé (1907: 369) and is still often sold under that name. After studying *Hoya* specimens held in A, B, BM, BRUN, E, FI, HBG, K, L, P, SAN, SING, TO & UPNG herbaria, it became apparent that *Hoya* sp. “Square” instead represents an undescribed species. This is formally described here.

Taxonomy

Hoya rotundiflora* Rodda & Simonsson, *sp. nov. (Figs. 1–3)

Habitum ad Hoyam lyi et Hoyam thomsonii accedit sed corolla revoluta, corona lobis erectiores et folia margine revolutis recedit.

Type:—Ex hort. Sweden, Stockholm, 1 September 2009, *Torill Nyhuus 2009.1* (holotype K).

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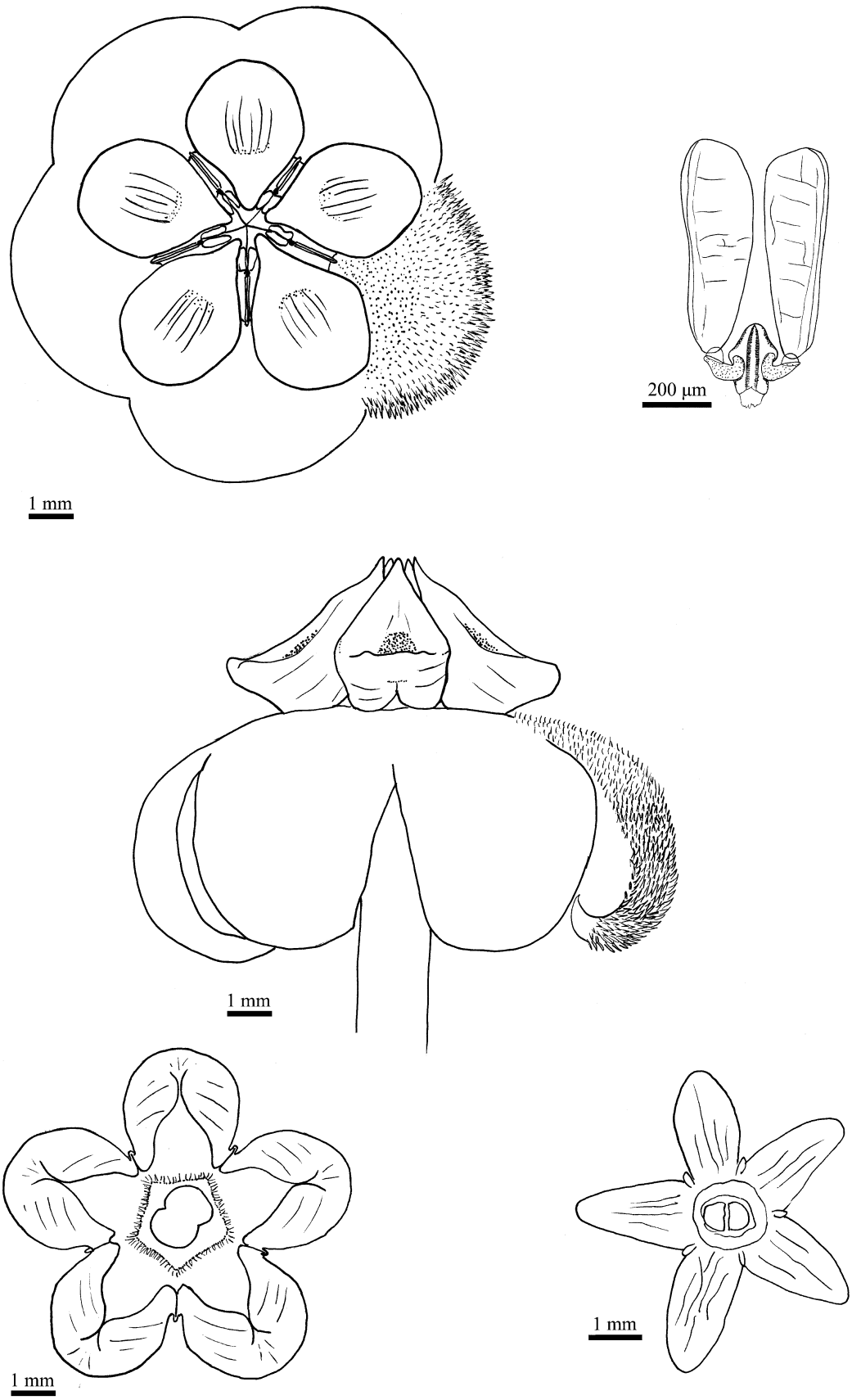

FIGURE 1. Drawings prepared from the holotype of *Hoya rotundiflora*: a. flower (above); b. flower (side); c. corona (underneath); d. calyx. Drawn by M. Rodda.

Pendulous to weakly climbing vine with white latex in all parts. Stems pendulous to weakly twining, cylindrical, ca. 3 mm in diameter, pilose; older stems lignified, glabrous; internodes 2–10 cm long with inactive adventitious roots 1–2 mm long located 0–2 mm below each petiole. Leaves (Fig. 2) opposite, petiolate; petiole 3–10 × 1–2 mm, pilose; lamina oblong-pandurate, 3–5 × 1.5–2.5 cm, widest point 1/8–1/5 length from the apex, fleshy coriaceous, adaxial surface dark green, abaxial surface light green with a distinctive darker margin 2–3 mm wide around the edge (Fig. 2e), abaxial surface glabrous, adaxial surface hirsute, apex round, base round or obtuse, margin slightly revolute on the lateral sides and apex only, ciliate; midrib clearly visible on both abaxial and adaxial surface, secondary veins 4 to 6 each side, less conspicuous,

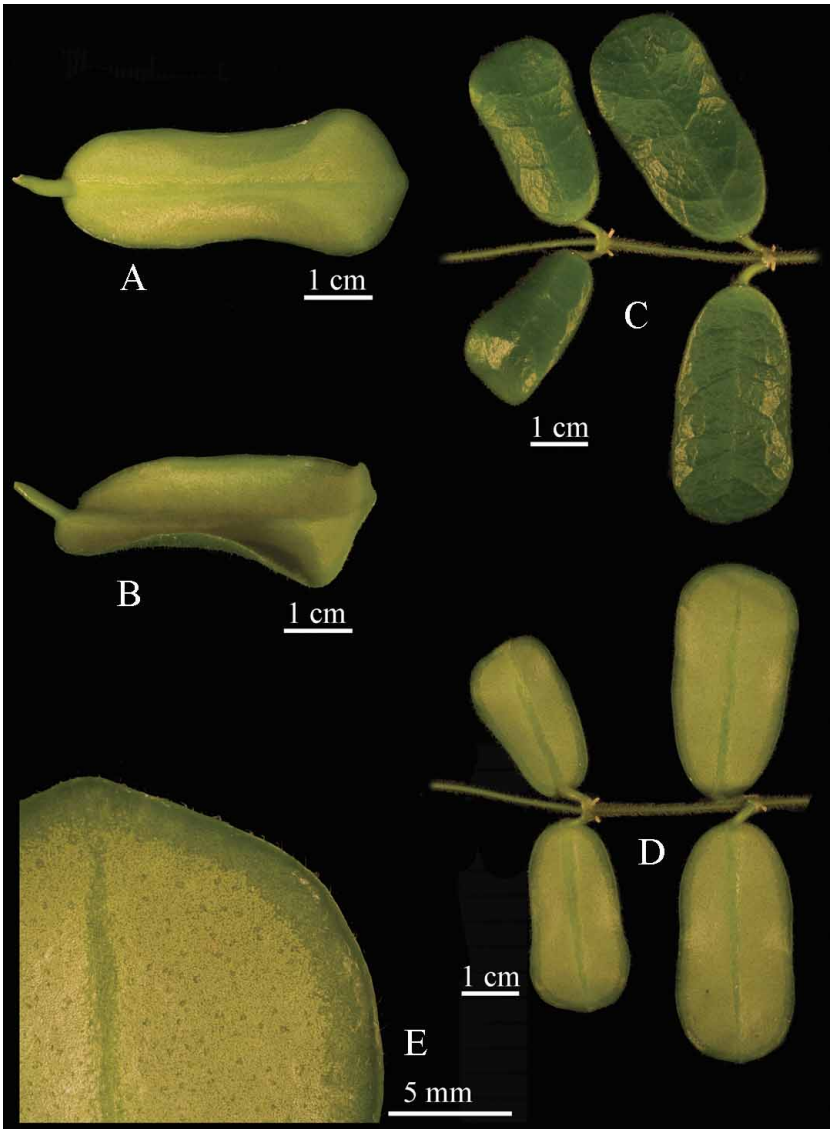

FIGURE 2. Vegetative morphology of *Hoya rotundiflora*. Prepared from the type plant: a. & b. Leaf, abaxial surface with the evident apical and lateral revolute margin; c. & d. leafy stem with adventitious roots beneath each node; e. leaf, detail of abaxial surface with an evident dark margin. Photo M. Rodda 2010.

branching from the midrib at a wide acute or an almost right angle. Inflorescences (Fig. 3) one per node, interpetiolar, positively geotropic, umbelliform, convex, with up to 20 flowers, persistent; peduncle 5–35(–70) × 1.5–3.0 mm, pilose, pedicels filiform, 17–20 × 1.0–1.5 mm, glabrous. Flower buds globular, white. Flowers weakly sweetly scented (lasting about one week in cultivation), from the base of the corolla lobes to the inner apex of the corona 7–10 mm long, corolla 9–12 mm in diam. Sepals (Fig. 1d) ovate, ca. 2.5 × 1.0 mm, apex

round, alternating with single glands, glabrous, a few long hairs at the junction between the sepals and the pedicel. Corolla revolute, white; lobes lanceolate, 9–11 mm long, acute at apex; free portion of lobes 7–8 × 4.5–5.5 mm, distance between each sinus 3.5–4.0 mm, abaxially glabrous, hirsute adaxially, hairs up to 0.3 mm long, lobe apex (ca. 1 mm long) glabrous, margins ciliate. Corona staminal (Fig. 1a,b,c) fleshy, dull white to light yellow, laterally spreading, ca. 3 mm high, 6.5–7.5 mm in diameter; corona lobes held at 30–40 degrees to the filament tube, outer process rounded to obtuse, flattened, only partially folded beneath (Fig. 1c), inner process acute, held at about the same height as the anther appendages. Distance between center and outer corona process 3.3–3.6 mm; distance from center to corona sinus 1.5–1.8 mm; beneath corona, distance between filament tube and anther skirt (beneath guide rail) 0.6–0.8 mm. Pollinaria erect, ca. 830 × 430 µm; pollinia elongated, compressed, 660 × 220 µm, with a lateral pellucid margin; retinaculum 260 × 160 µm; translator 70–100 µm long. Ovary lanceolate, about 1.7 mm long, light green. Fruits and seeds not seen. All measurements from fresh type material.

FIGURE 3. Inflorescence and immature buds of *Hoya rotundiflora.* From type plant in cultivation. Photo M. Rodda 2010.

Phenology:—*Hoya rotundiflora* is commonly seen flowering in cultivation during the summer months, which is consistent with the flowering periods of plants from a monsoonal area such as south Myanmar. A similar flowering season has been observed for *Hoya pandurata* Tsiang (1939: 125) and *H. chinghungensis* (Tsiang & P.T.Li) Gilbert *et al.* (1995: 9) both originating from this geographical area (personal observations).

Habitat and distribution:—Little is known about the original habitat of this species. It has been observed to be difficult to grow and flower in constantly warm areas such as Bangkok (S. Somadee, personal communication) and therefore it is likely to inhabit higher elevated areas where winter temperatures are lower and where there is a greater disparity between day and night temperatures.

The type plant can be traced back to a market in Sangklaburi in Kanchanaburi province, Thailand, where it was first found in 2005. The plant was collected near the border in neighboring Myanmar but the exact locality has been kept secret by the seller.

IUCN Red List category:—Population size and distribution range of *Hoya rotundiflora* cannot be estimated, as it is so far known from only a single collection. Due to the high horticultural interest in *Hoya* it is surprising that no further collections belonging to this taxon have been made since its first introduction into cultivation in 2007. This may suggest that the species may have a very restricted distribution range and small population size containing a limited number of mature individuals or its habitat may be inaccessible, for example being on steep karst formations. Further, *Hoya* populations are often under pressure because of frequent collection to supply the horticultural trade and therefore *H. rotundiflora* is hereby suggested as vulnerable according to IUCN Red List criteria (IUCN 2001).

Additional specimen examined:—*Ex Hort.*, 15 June 2010, *Rodda Hort 2010/1* (L, SING, TO).

Discussion

Hoya rotundiflora is described from cultivated material growing in the personal *Hoya* collection of Torill Nyhuus (Stockholm, Sweden), where the species first flowered in Europe in September 2009. The ornamental potential of this species was apparent immediately after its discovery, and due to the efforts of Surisa Somadee, the plant became widely cultivated in Thailand. Nowadays it is commonly found in tropical areas as a garden ornamental and in colder regions as a house plant where it is known as *Hoya* sp. "Square", due to the "square" or more precisely "rectangular" shape of the leaves. It is currently so common that it can be purchased in flower markets in Bangkok grown in hanging coconut husks (M. Rodda personal observation). *Hoya rotundiflora* was initially identified as *H. lyi*, a Chinese species, but after comparison with type material, it proved to be related but morphologically distinct. After comparison with herbarium material, *H. rotundiflora* was found to be similar to *H. lyi* and *H. thomsonii* Hooker (1883: 61), primarily due to the similar growth habit, as these two species are mainly pendulous plants, often growing tightly attached to limestone outcrops. *Hoya rotundiflora* can be easily differentiated from the related species by flower and leaf morphology and by flowering time. *Hoya lyi* and *H. thomsonii* present a flat to slightly concave corolla, whereas *H. rotundiflora* has revolute corolla lobes making the flowers look globose, hence the choice of the specific epithet (Fig. 1b). The corona lobes of *H. rotundiflora* are nearly erect, set at a 30–40 degrees angle, while *H. lyi* has nearly flat (i.e., spreading) corona lobes, much resembling those of *H. carnosa* (L.f.) Brown (1910: 460). *Hoya thomsonii* instead presents a concave corona with a markedly depressed stigma. The leaves of *H. rotundiflora* present revolute margins and apex, giving the characteristic rectangular or pandurate appearance, while *H. thomsonii* and *H. lyi* have nearly flat, sometimes slightly concave leaves. The three species have a more or less conspicuous dark green margin on the leaf underside (Fig. 2), whereas the leaves of *H. lyi* and *H. thomsonii* have a more conspicuous indumentum on both leaf surfaces. These characters are often difficult to assess, since they are visible only in fresh material. A morphological comparison of the three *Hoya* species is presented in Tab. 1.

The flowering time of *Hoya* species has not been much investigated. *Hoya rotundiflora*, at least in cultivation in Europe, appears to flower in spring or early summer, up to early autumn. *Hoya thomsonii* and *H. lyi* in contrast, flower in autumn.

TABLE 1. Morphological comparison of *Hoya rotundiflora*, *Hoya lyi*, and *Hoya thomsonii*.

	Hoya rotundiflora	*Hoya lyi*	*Hoya thomsonii*
		Leaves	
Shape	oblong-pandurate, convex	ovate (lanceolate), flat-concave	elliptic–lanceolate, flat-concave
Base	round -obtuse	round (attenuate)	acute to round
Apex	round	round (acute)	acute-mucronate
Surface adaxial	hirsute	pubescent*	pubescent*
Surface abaxial	glabrous	pubescent*	pubescent*
		Flowers	
General shape	globose or subglobose	flat	flat
Shape of corolla	revolute	flat to concave	flat to concave
Stigma position	above outer corona lobe	as high as inner corona lobe or slightly depressed	depressed between the inner corona lobes
Corona lobes	erect	flat	concave

* Leaf indumentum often lost in dry specimens.

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