

New Species of *Hoya* (Apocynaceae) from Brunei and the Philippines

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Abstract

Two new species of *Hoya* collected from Brunei and the Philippines are described and illustrated with coloured photographs of the flower details.

Introduction

Wild and cultivated species of *Hoya* in Borneo and the Philippines have been documented and studied in recent years (Kloppenburg, 1991; Kloppenburg and Wayman, 1993; Kloppenburg and Siar, 2009; Wennstrom and Stenman, 2008). Several species of Philippine and Bornean *Hoya* have also been used in molecular study to shed light on their phylogenetic position in the genus (Wanntorp et al. 2006). A recent examination of live plants grown in private gardens and nurseries has revealed two new species of *Hoya* taken into cultivation from the wild. They are described and illustrated below.

1. *Hoya yapianum* Kloppenburg, sp. nov. Section Otostemma

A *Hoya sipayensis* Kloppenburg & Wiberg similes, sed hic sp. nova sepolorae apex obtusam non acutam; pedecilli glabras non puberulas; coronae apex interiora acutum non spathulatum; folia magnior; pollinaria ca 1/3 breves, differt. – **Holotype:** BRUNEI. Tutong District, Kuala Belait, 21 Jan 2008, Wang Luan-Keng BN090122 (SING). **Figs. 1 & 2.**

A twining **herb**. **Stem** long slender, glabrous. **Leaves** lanceolate, variable in size, 4.4-8.5 cm long and 1.5-3 cm at the widest part near the middle, apiculate, nerves not conspicuous, pinnately veined, major veins extending from base to near apex. Petiole terete, 1-1.8 cm long. **Inflorescence** umbelliform, consisting of 15-30 flowers. Pedicels variable in length, curved, glabrous with crystalline surface, longest ca 1.5 cm and 0.10 cm in diameter, slight enlarged at the calyx. **Calyx** small, whitish, and calyx lobes (sepals) do not reach the corolla sinuses. Outer surface of calyx lobes granulose, thickened centrally slightly, edges membranous, 0.08 x 0.08 cm, glabrous inside, apex obtuse,



Figure 1. *Hoya yapianum* Kloppenburg. A. Plant habit ($\times 1$); B & C. Inflorescences (B: $\times 1.5$; C: $\times 2$).

narrow ligules present. Sepals very little overlapped at base. **Corolla** whitish, thick, tightly revolute and outer surface villous-pubescent except for the area under the corona. Outer surface of corolla glabrous, about 0.51 cm long and 0.21 cm wide. The **corona** reddish in color, corona crown has the center raised with outer lobes long and narrow, with very thin translucent edges. The inner lobe is raised with an acute apex that does not cover the membranous anthers. Central column pronounced, 0.07 cm long with a 0.10 cm opening, surface glabrous but finely crystalline. Skirt lobes rounded with a central groove leading to the anther winged outer apex. The outer scale membranous, dorsally keeled from apex to apex. The keel about mid way has a hump as it extends to the outer apical area. Scale edges are sharp. Stylar crown short, ovaries 2, cone shaped, glabrous, ca 0.11 cm long and the base pair ca 0.06 cm broad. **Anthers** membranous, triangular; **pollinia** two in pollinarium, oblong, 0.25 mm long and 0.12 mm wide; translator 0.10 mm long and 0.04 mm wide. Caudicles clearly distinct, cone shaped. Retinaculum 0.06 mm long with extensions 0.04 mm. **Fruit** not seen.

This new species is similar to *Hoya sипitangensis* but different as the apex of the sepals are obtuse not acute and the pedicels are glabrous not puberulent; inner apex of the corona is acute not spatulate, the foliage is

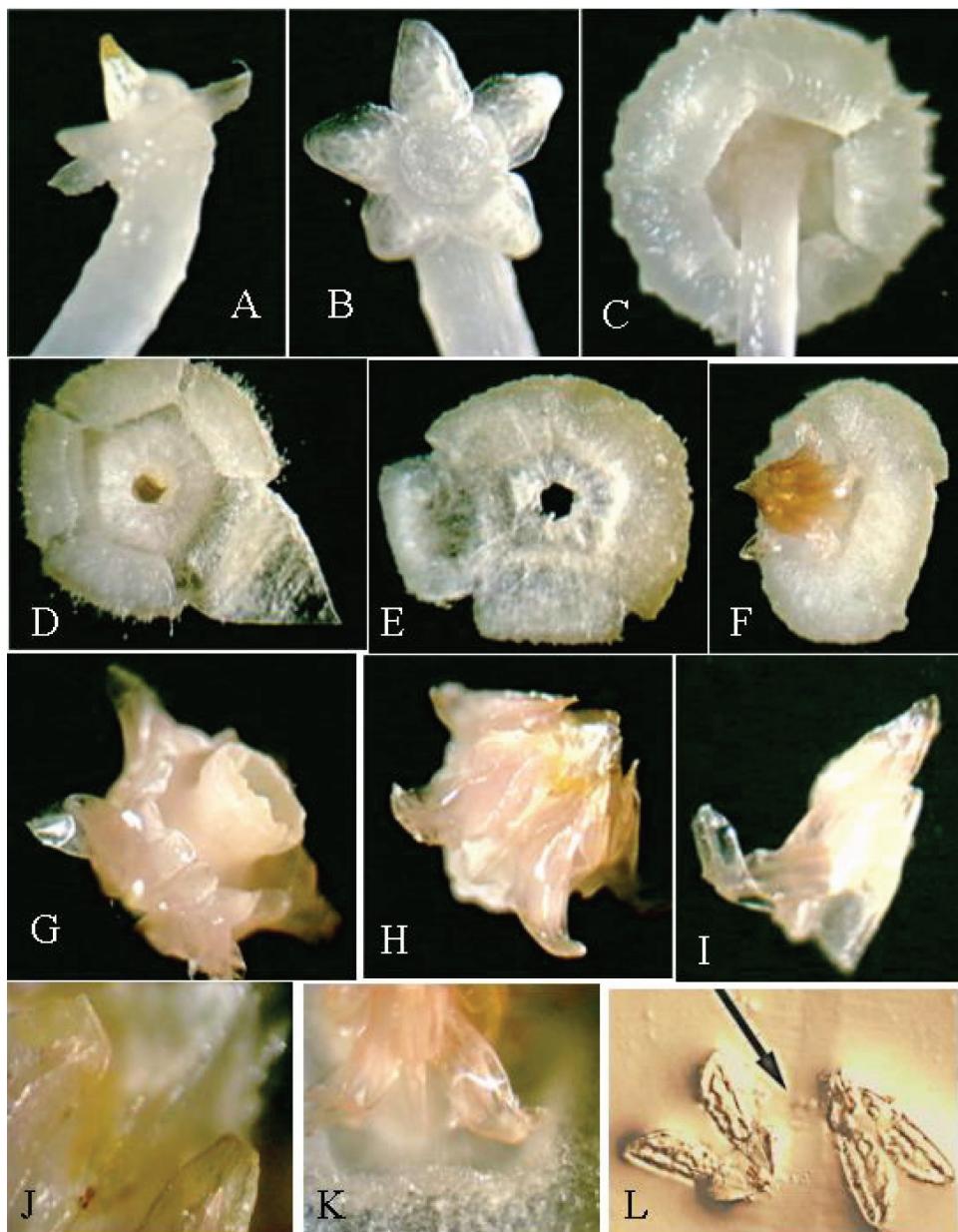


Figure 2. *Hoya yapianum* Kloppenburg, details of inflorescence. A. Pedicel enlarged ($\times 15$), showing also calyx and ovary of pistil; B. Top inside view of the calyx enlarged ($\times 15$). The sepals are very little overlapped at the base; C. View of ventral side of a flower showing corolla enlarged ($\times 8$). Corolla is tightly revolute and outer surface is villous-pubescent except for the area under the corona; D. Outer surface of the corolla enlarged ($\times 8$) with one lobe extended, note this surface is glabrous; E. Dorsal surface of corolla ($\times 8$). There is a slight pentagonal dip in the corolla center under the corona that is glabrous; F. View of the

flower with corona attached ($\times 8$). The corona is reddish in color and the corolla is off white. Crown has center raised with outer lobes long and narrow, with very thin translucent edges. The inner lobe is raised with an acute apex that does not cover the membranous anthers; G. Corona enlarged ($\times 16$). The species of Otostemma Section has a very pronounced central column, surface is glabrous but finely crystalline. Note the thin translucent outer coronal lobe at the left extreme; H. Corona dorsal view enlarged ($\times 16$). The inner lobes are thin and acute, not covering nor exceeding the inner anther apices; I. Individual scale side view ($\times 16$), note the membranous outer scale lobe; J. Flower center showing the inner apex of two lobes ($\times 32$). The retinaculum of a pollinarium is visible in the central lower left; K. Area between two adjacent coronal outer lobes ($\times 32$), In the center is the anther wing not clearly in focus. Note the thinness of the outer coronal lobes and the central keel. All coronal surfaces are glabrous; L. Above two pollinaria the arrow on scale pointer is 0.1 mm. long ($\times 60$).

larger and the pollinia are about 1/3 shorter.

The new species was collected from Brunei by Ms. Wang Luan-Keng and grown to flower by Mr. K. F. Yap on 22 January 2009 in Singapore. Microphotographs and species data taken from materials sent by K. F. Yap.

Note: In size the pollinarium of the new species is close to *Hoya revoluta* Wight, but the outer lobe of the corona of the new species is not divaricate

2. *Hoya benitotanii* Kloppenburg, sp nov. Section Acanthostemma

A *Hoya gigantanganensis* Kloppenburg *similes*, sed *folia ovata-lanceolata apiculatis, basi obtusis vs. linear-elliptic et basi acuminata*; 9 \times 4 cm vs. 11-16 \times 2.4-6.2 cm; *calycis lobus rotundatis* 0.15 \times 0.18 cm *longis* vs *triangularis* et 0.21 \times 0.17 cm *longis*; *corolla aliquantump parvum differt*. – **Holotypus:** Kloppenburg 2010-6 (UC) hic designatus, ex hort. by Ted Green, Kaaawa, Hawaii. **Figs. 3 & 4.**

A long twining **herb**. **Stem** slender, long, glabrous. **Leaves** ovate lanceolate with an obtuse base, variable in size, 9 \times 14 cm long, nerves 3-5, pinnately branched, major veins extending from base to near apex. Petiole terete. **Inflorescence** umbelliform, consisting of 12-15 flowers. Pedicels pale violet or rose in color, terete, curved, 2 cm long, 0.10 cm in diameter, extremely glabrous and shiny. **Calyx** small, sepals very rounded, ciliate, finely reticulate-veined, 0.15 cm long and 0.18 cm wide with nearly 1/2 overlap; ligules at base white, small. **Corolla** revolute, outer surface glabrous, inside surface finely pubescent with whitish shiny stellate hairs; lobes cut more than half way and the apex acute. **Corona** glabrous, inner lobes spatulate, not long, leaving much more of the anthers exposed. The bilobes with flattened upper surfaces, which are longitudinally sulcate, extending beyond outer lobe apices, and the outer lobe apex drops off sharply as in the other species of *Hoya*. **Anthers** 5, membranous, triangular, covering staminal crown, and exceeding inner lobes. Below the lobes are channeled, but only a short distance toward the

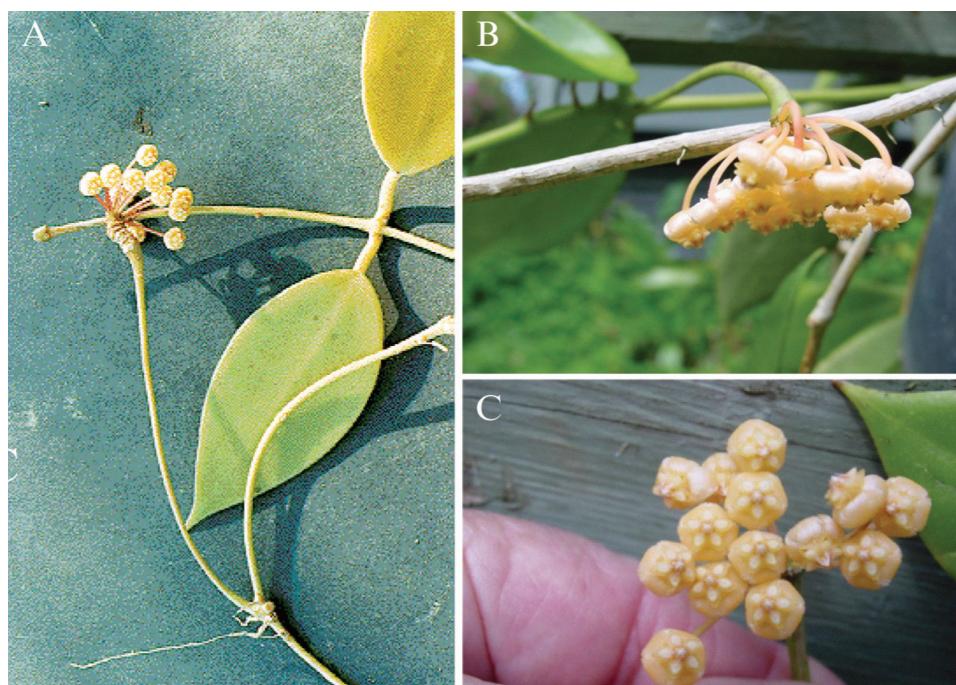


Figure 3. *Hoya benitotanii* Kloppenburg. A. Plant habit ($\times 0.5$); B & C. Inflorescence (B: $\times 1.5$; C: $\times 2.25$).

center where there is a prominent thickened column 0.12 cm in diam (inside) and 0.13 cm (outside) and 0.12 cm tall. Central collar is 0.03 cm in diameter (opening) thickened to 0.02 cm and slightly raised. Pollinaria with two long **pollinia**, 0.57 mm long and 0.14 mm wide; translators prominent, 0.10 mm long and 0.02 mm wide; caudicles prominent; the retinaculum has a broad head and body with long well developed extensions. **Fruit** not seen.

Similar to *Hoya gigantanganensis* Kloppenburg but the leaves are ovate lanceolate with an obtuse base versus linear-elliptic with a cuneate leaf base; the calyx lobes are round not triangular, the corolla is slightly smaller. In addition the pollinium are also shorter in this new species.

The garden clone originated from a 1997 collection of David Bicknell taken from the wild in Matutinao in Badian, Cebu, The Philippines, and grown to flower by Ted Green in Hawaii in the Spring of 2003. The original plant was collected from forest at about 50 ft elevation in a coastal mountain a few meters from the seashore. With the report of this new species, the Philippine *Hoya* has now 69 species, many of which are local endemics.

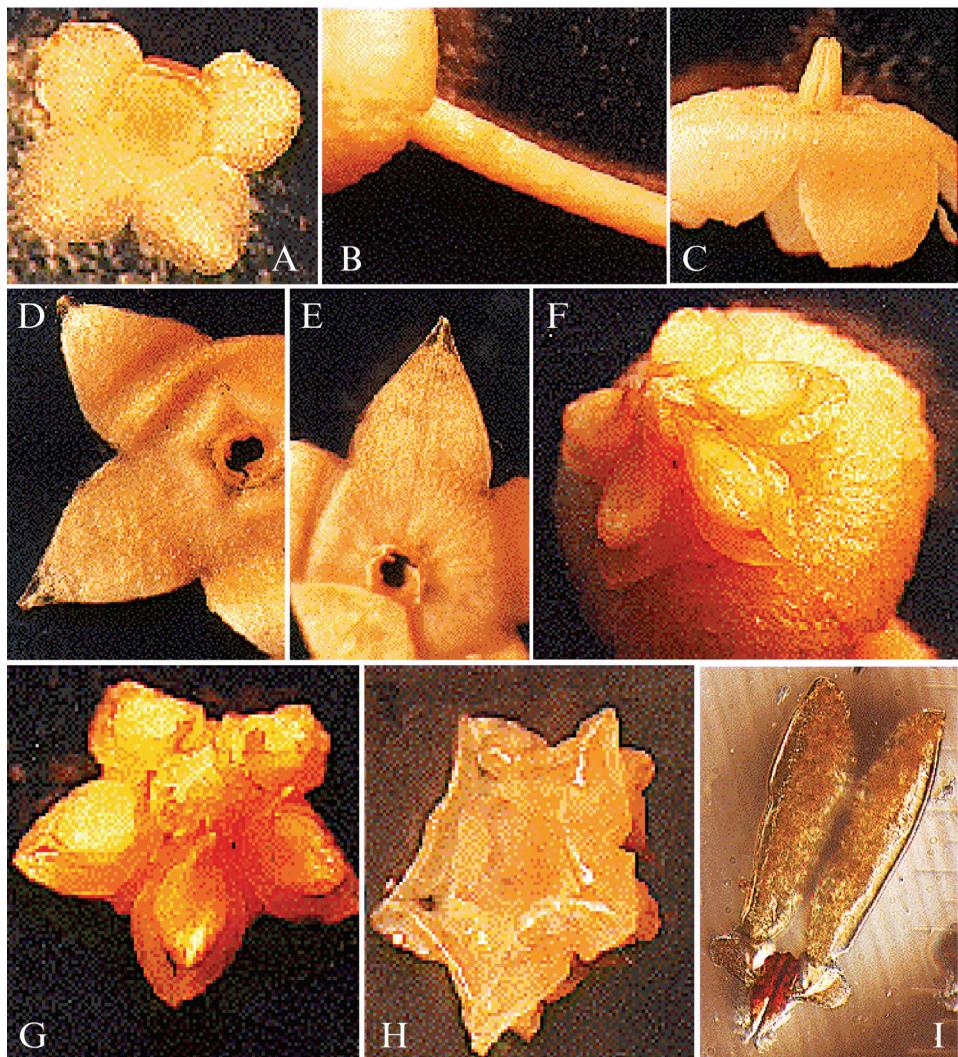


Figure 4. *Hoya benitotanii* Kloppenburg, details of inflorescence: A. Top view of the calyx ($\times 8$). These sepals are very rounded as opposed to the triangular sepals found on *H. gigantanganensis*; B. Side view of the pedicel ($\times 8$), which is actually pale violet or rose in color; C. Side view of flower with the corona removed showing the revolute corolla and the ovaries ($\times 8$); D. & E. Inner (D) and outer (E) surfaces of the corolla ($\times 8$). Inner surface is pubescent (D), outer surface is glabrous (E); F. View of the flower ($\times 8$). The crown is very similar to that of *Hoya gigantanganensis*, except that the inner lobes are not as long, leaving much more of the anthers exposed; G. & H. Upper (G) and lower (F) views of the corona ($\times 8$). Note the inner lobes flare out toward the apex and do not exceed much from the anthers in the center; I. Pollinarium enlarged ($\times 150$). The pollinia are very long, translators and caudicles prominent; the retinaculum has a broad head and body with long well developed extensions.

References

- Kloppenburg, R.D. 1991. *Philippine Hoya Species*. Orca Publisher Co.
- Kloppenburg, R.D. and A. Wayman. 1993. *The Hoya Handbook: A Guide for the Grower and Collection*.
- Kloppenbur, R D. S.V. Siar. 2009. Additional four new species of *Hoya* R.Br. (Apocynaceae) from the Philippines. *Asia life Sciences* **18(1)**: 139-154.
- Wanntorp, L., A. Kocyan and S.S. Renner. 2006. Wax plants disentangled: a phylogeny of *Hoya* (Marsdenieae, Apocynaceae) inferred from nuclear and chloroplast DNA sequences. *Molecular Phylogenetics and Evolution* **39**: 722-733.
- Wennstrom, A. and K. Stenman. 2008. *The Genus Hoya – Species & Cultivation*. Botanova. 144 pp.

