
Hoya persicinicononaria (Apocynaceae, Asclepiadoideae), a New Species from Hainan, China

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ABSTRACT. The new species *Hoya persicinicononaria* S. Y. He & P. T. Li (Apocynaceae, Asclepiadoideae) is described and illustrated from Hainan, China. The morphology of the related species *H. pottsii* Traill and *H. liangii* Tsiang are compared to the new species, which differs in its indumentum, leaf arrangement, leaflet pattern, leaf shape, apex, and size, calyx shape, and corolla color.

Key words: Apocynaceae, Asclepiadoideae, China, Hainan, *Hoya*, IUCN Red List.

Hoya R. Brown is a genus of about 60 species distributed in tropical Asian Malesia and Australia, and with 32 species in India (Hooker, 1885). In his later study, Costantin (1912) maintained that the genus comprised approximately 70 species across tropical Asia and Australia. More recently, about 200 species were considered to be distributed throughout the moister parts of the eastern tropics from Nepal and Ceylon to southern China, northern Australia, and the Pacific region, with 29 species in India (Jagtap & Singh, 1999). Tsiang and Li (1977) recognized the genus as having ca. 200 species distributed from eastern Asia to Oceania, and 22 species, three varieties, and two forms in China. Thirty-three species and one variety of *Hoya* are currently recognized in China (Gilbert et al., 1995; Li et al., 1995; He et al., 2009b), with Yunnan, Hainan, Guangdong, and Guangxi provinces as the centers of distribution, and with 12 species recorded in Hainan (Li et al., 1995; He et al., 2009a, b). Forster and Liddle (1996) recognized the genus as having more than 300 species distributed primarily in Malesia, particularly the Philippines, New Guinea, the western Pacific Islands, and Asia, including the Indian subcontinent; they recognized six native species in Australia, among which were one endemic and one naturalized species. Regardless of which circumscription is recognized, the International Plant Names Index (<<http://www.ipni.org>>) lists nearly 500 named species in *Hoya* in the world so far.

Hoya is characterized as a taxon by its opposite leaves and simple leaflet pattern (Hooker, 1885;

Costantin, 1912; Li et al., 1995; Jagtap & Singh, 1999). However, four unusual specimens of *Hoya* were collected by the authors while on two expeditions to Bawangling in Hainan Province in 2007 and 2008. After comparison with specimens at CANT, KUN, HITBC, and IBSC and literature surveys, these collections prove to be a new species. The new species is distinguished by leaves that are alternate, opposite, or whorled and a leaflet pattern that is either simple or ternate, which is rare for *Hoya*, with only *H. dickasoniana* P. T. Li previously described with opposite and whorled leaves (Li, 1994).

Hoya persicinicononaria S. Y. He & P. T. Li, sp. nov. TYPE: China. Hainan Prov.: Bawangling, on a tree in montane tropical rainforest, 19°06'N, 109°06'E, 214 m, 8 Aug. 2007, S. Y. He & J. Y. Lin 0708086 (holotype, CANT, photo at MO). Figure 1.

Haec species *Hoyae liangii* Tsiang valde affinis, sed ab ea foliis alternis oppositis vel verticillatis, simplicibus vel trifoliolatis, calyce extra strigoso, corolla intra albida et dilute persicina atque corona intra persicina differt.

Epiphytic vine, glabrous except for the calyx and corolla; stems thick, terete, with tumid nodes evident, young stems dark green, mature ones gray-white. Leaves alternate, opposite, or whorled, leaflet pattern simple or ternate, fleshy; blades similar and flat, elliptic or obovate, 7–10 × 4–5 cm, ca. 0.3 cm thick; blade surfaces reticulate, with the midrib and lateral vein evident or indistinct, lateral veins in 3 to 5 pairs, adaxially green, abaxially light green, base green; blade with base rounded or cuneate, apex rounded, cuspidate, or retuse; petiole 0.5–1 cm, ca. 0.6 diam., green or gray-white, adaxially with 1 or 2 glands. Peduncle 3.5–7 × 0.4–1 cm, acropetally green, pedicel ca. 1.5 cm, yellowish green; perennial umbel, 5 to 20 flowers; calyx elliptic, apex rounded, externally strigose, yellowish green; corolla pubescent on upper surface, ca. 1.3 cm diam., lobes ca. 3 × 3.5 mm, white with peach markings, lightly reflexed

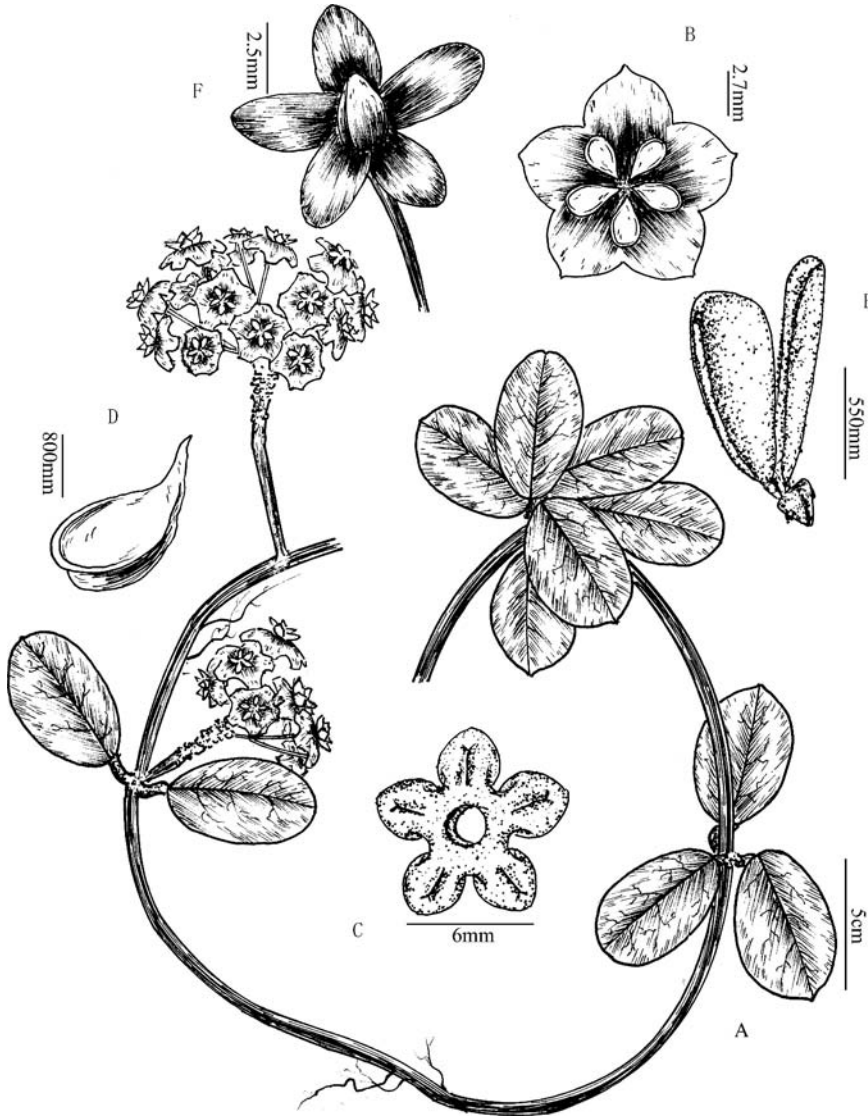


Figure 1. *Hoya persiciniconaria* S. Y. He & P. T. Li. —A. Flowering stem. —B. Flower. —C. Outer corona. —D. Corona, side view. —E. Pollinarium. —F. Calyx and ovary. Drawn from the holotype (He et al. 0708086, CANT).

toward the outer lobe; corona lobes waxy, scales elliptic, pumpkinseed-shaped, with the scales of the corona toward the center with ascending tips, cuspidate, the outer end obtuse, the margins with a hump above the middle, peach-colored, lobe dorsally channeled in the middle, but not to apex, with a branch, lobe ca. 2.7×2 mm, ca. 2 mm thick; stigma well developed; pollinia compressed, with the extremity broad, but sloping inward, golden yellow, ca. $530 \times 330 \mu\text{m}$, outer apex obtuse with hyaline banding not reaching pollinium apex; retinaculum minute,

rhomboid, the stamens situated on the inner basal parts and enclosing the pistil.

Habitat and ecology. *Hoya persiciniconaria* grows in montane tropical rainforest, at altitudes from 200–250 m, as an epiphyte on trees. It is associated with *Taxotrophis aquifolioides* W. C. Ko, *Streblus taxoides* (Roth) Kurz, *Terminalia hainanensis* Exell, *Olea hainanensis* H. L. Li, *Drypetes indica* (Mueller Argoviensis) Pax & K. Hoffmann, *Clausena dentata* Burman f., *Capparis zeylanica* L., and *Renanthera coccinea* Loureiro.

Table 1. Morphological comparison of *Hoya persiciniconararia*, *H. pottsii*, and *H. liangii*.

Characters	<i>H. persiciniconararia</i>	<i>H. pottsii</i>	<i>H. liangii</i>
Indumentum	glabrous except for calyx and corolla	glabrous	glabrous except for corolla
Leaf arrangement	alternate, opposite, or whorled	opposite	opposite
Leaflet pattern	simple or ternate	simple	simple
Leaf texture	fleshy	fleshy	fleshy
Leaf shape	elliptic or obovate	ovate-oblong or oblong-lanceolate	obovate or obovate-oblong
Blade apex	rounded, cuspidate, or retuse	acute	obtuse or rounded
Blade base	rounded or cuneate	rounded or subcordate	rounded or subcordate
Blade length	7–10 cm	6–12 cm	4.5–8 cm
Blade width	4–5 cm	3–6 cm	3–5 cm
Leaf venation	lateral veins in 3 to 5 pairs	basal veins trinerved	lateral veins in ca. 4 pairs
Calyx shape	elliptic	deltoid	deltoid
External calyx surface	strigose	glabrous	glabrous
Calyx apex	rounded	acuminate	obtuse
Internal corolla surface	white pilose	white pilose	puberulent
Corolla color	white with peach markings	white with reddish center	creamy white
Corolla diameter	ca. 1.3 cm	ca. 1 cm	ca. 1.2 cm
Distribution	China: Bawangling, Hainan Province	China: Guangdong, Guangxi, Hainan, and Yunnan provinces	China: Hainan Province

Distribution. *Hoya persiciniconararia* is currently only known from the type collections from a small area in Bawangling, Hainan Province, China. Other species of *Hoya* usually grow at elevations between 200 and 1000 m in Bawangling. Another Chinese endemic, *H. lasiogynostegia* P. T. Li, was recorded 25 years ago from Diaoluashan and Jianfengling, Hainan Province (Li, 1984), and was recently rediscovered in Bawangling, Hainan Province (S. Y. He 20085121, CANT).

IUCN Red List category. *Hoya persiciniconararia* is endemic to Hainan, China. It is found in a disturbed area, and its area of habitat has declined gradually. Our fieldwork indicates that the new species has a total population of approximately 300 mature individuals, with an area of occupancy estimated to be less than 10 km². Therefore, according to IUCN Red List criteria (IUCN, 2001), this species should be considered Vulnerable (VU D1+2).

Phenology. The new species was observed to flower from May to August. The fragrance of the fresh flowers is sweet.

Etymology. The specific epithet is derived from the new taxon's peach-colored corona.

Discussion. *Hoya persiciniconararia* closely resembles *H. pottsii* Traill and *H. liangii* Tsiang, but differs from these species in indumentum, leaf arrangement, leaflet pattern, leaf shape, apex, and size, calyx shape, and corolla color (Table 1).

Paratypes. CHINA. **Hainan:** Bawangling, on tree in montane tropical rainforest, 19°06'N, 109°06'E, 210–220 m, 8 Aug. 2007, S. Y. He & J. Y. Lin 0708087 (CANT), 0708088 (CANT), 12 May 2008, S. Y. He 0805121 (CANT).

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