

Hoya sinagtala (Apocynaceae, Asclepiadoideae): A New, Unusual Species from the Philippines

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Abstract

Hoya sinagtala Brillo, Cabactulan & Rodda *sp. nov.* (Apocynaceae, Asclepiadoideae) from the Philippines is described. When sterile, it resembles several species of *Hoya* section *Acanthostemma*, but its flowers make it readily distinguishable by its rotate corolla with a narrowly campanulate tube and free-spreading lobes and triangular-ovate corona lobes. No other species in the genus exhibits this unique combination of characters. The species was originally collected from the wild in Samar Island and subsequently widely distributed in cultivation under the informal name *Hoya* sp. Samar GN 0003 and *Hoya* sp. “Yellow Sapphire”; it is herein formally published after nearly seven years of horticultural circulation.

Key words: endemic, new species, Samar, taxonomy

Introduction

Hoya Brown (1810: 459) is a megadiverse genus in the family Apocynaceae found throughout tropical and subtropical regions, from the Himalayas in the northwest to Okinawa in the northeast, Sumatra in the southwest, and the Fiji Islands in the southeast (Endress *et al.* 2019). As of 2025, at least 500 species are accepted (Pelser *et al.* 2011 onwards; Lamb & Rodda, 2016; Rodda & Rahayu, 2022, 2025; Rodda & Simonsson, 2022). Most species are epiphytic or lithophytic, inhabiting lowland to montane tropical forests in humid and shaded environments typical of the wet tropical biome (Aurigue, 2013).

The Philippines is recognized as one of the centers of *Hoya* diversity, with 198 taxa recorded to date (Pelser *et al.* 2011 onwards). However, substantial taxonomic work remains to consolidate the genus: many recently described species await incorporation into comprehensive revisions, and numerous names will likely prove synonymous once critical assessments are made (De Leon *et al.* 2023). Several of these names were published in non-peer-reviewed journals, often with brief descriptions, insufficient illustrations, and ambiguous type citations (Kloppenburger, 1991)—sometimes reduced to herbarium sheet numbers or possible collector codes (Rodda 2015; Rodda 2017). To date, only a limited number of Philippine *Hoya* species have been published in peer-reviewed journals. Nonetheless, ongoing exploration continues to yield remarkable novelties (Cabactulan *et al.* 2017; De Leon *et al.* 2023).

Several species were described from cultivated material. For example, *Hoya cutis-porcelana* Suarez *et al.* in Aurigue *et al.* (2013:14), endemic to Samar Island, was described from a cultivated specimen derived from wild cuttings, while *Hoya pulchra* Aurigue & Cabactulan in Cabactulan *et al.* (2019: 50) was based on wild-collected material maintained in cultivation. More recently, *Hoya medusa* de Leon *et al.* (2023: 21) was described from a cultivated plant and characterized by a distinctive urceolate corolla and elongated corona lobes.

Between 2017 and 2018 (exact year uncertain, inferred from a 2021 correspondence and the second author, in which the collector reported distributing samples for study), Filipino collector J.A. Ejercito obtained an unidentified *Hoya* from Northern Samar, Philippines. The precise locality and habitat were not disclosed. The plant eventually

entered cultivation and was circulated internationally under the provisional name *Hoya* sp. Samar GN 0003. As with many unidentified *Hoya* taxa distributed via the horticultural trade, the plant became known primarily through online platforms. The prefix “GN” refers to Gardino Nursery (Florida, USA). Gardino Nursery’s website (accessed 1 August 2025) describes *Hoya* sp. “Yellow Sapphire” as producing small yellow flowers with a faint, sweet-spicy night fragrance and a corolla that appears as though it might engulf the corona.

It remained unidentified, tentatively believed to originate from Samar Island, until July 6, 2024, when Ann Asis observed the species in a forested wetland in Gamay, Northern Samar (Posted on Co’s Digital Flora of the Philippines Facebook page: <https://www.facebook.com/groups/philippineplants/posts/7960108154067782/>). In July 2025, the first author obtained a flowering specimen from a local nursery known to propagate many Philippine *Hoya* species. Considering its confirmed wild provenance, persistence in cultivation, and distinct morphology, this taxon now warrants formal recognition and description as *Hoya sinagtala* Brillo, Cabactulan & Rodda *sp. nov.*

Materials and methods

A cultivated flowering specimen was obtained from the garden of Ms. Anna Maria G. Valenzuela, located at C. Lajarca St., Brgy. Mayondon, Los Baños, Laguna, on 8 August 2025. The plant was cultivated under Wildlife Cultivation Permit No. R4A-2022-WCP-LAG-002 issued to Ms. Valenzuela by the Department of Environment and Natural Resources, Regional Office No. IV-A (CALABARZON). Specimen collection, data gathering, and preparation followed the standard procedures outlined in the Kew Herbarium Handbook (Davies *et al.* 2023). Inflorescences and flowers were preserved in a spirit solution composed of 70% ethanol and 30% glycerin; in this preservation, no significant size reduction was observed, with only minimal shrinkage (ca. 5%) likely attributable to slight dehydration. However, for comparison with herbarium-based descriptions, it should be noted that floral parts may shrink substantially upon drying.

Petioles may shrink to 70% of their original width; pedicels may shrink to 50% of their original width; the corolla may shrink to 50% in all dimensions; and the corona, ovary, and calyx may shrink to 70% in all dimensions. Measurements were taken using a tape measure and a vernier caliper, while minute floral parts, such as the corona, were measured under a stereomicroscope using *ToupView* software. The pollinarium was measured under a microscope equipped with an ocular micrometer. Morphological terminology follows the Kew Plant Glossary (Beentje and Williamson 2012). Protologues of *Hoya* species from the Philippines and other regions were carefully reviewed. Comparisons with previously described species were made through direct examination and through specimen loans and photographs from the herbaria A, CAHUP, BM, BO, E, FI, K, L, LAE, MO, P, PLMH, PNH, SING, UC, US (Thiers 2023).

Taxonomy

Hoya sinagtala Brillo, Cabactulan & Rodda *sp. nov.* (Figs 1 & 2)

Type:—PHILIPPINES. Vouchered in Cultivation in Mayondon, Los Baños, Laguna, 15 August 2025, *S.C. Brillo 001* (holotype PLMH sheet number 625900)

Diagnosis:—*Hoya sinagtala* is most similar to *Hoya heuschkeliana* Kloppenburg (1989: 1) in its vegetative characters, in that both have lamina that is fleshy, carnose, variable, ovate-elliptic, obtuse to subacute at the apex, dark green on the adaxial surface, and light green on the abaxial surface, but differ in the rotate corolla with a narrowly campanulate tube and free-spreading lobes (vs. urceolate to campanulate with inflexed lobes) the absence of basal corona extensions (vs. present) and the ovoid corona with erect lobes (vs. stellate with spreading spatulate lobes).

Epiphytic scandent vine rooting along stems, with white exudate in all vegetative parts. **Roots** adventitious on internodes and just below nodes. **Stems** slender, terete, 3–4 mm in diameter, green, sparsely pubescent, glabrescent, and lignified when old; younger, exploratory stems before forming leaves tend to be dark purple in color and flexible; internodes 2.5–3.5 cm long. **Leaves:** petiole terete, 3–11 mm long, 0.96–1.27 mm in diameter, flattened towards lamina base, usually curved, green, sparsely puberulent to glabrescent; lamina fleshy, variable in shape (older leaves obovate to spatulate; younger leaves ovate to elliptic). **Type:** 2.40–4.60 × 1.54–2.14 cm, adaxially green, abaxially lighter green; apex obtuse to subacute, sometimes mucronulate; base attenuate on younger leaves to cuneate on older leaves; margins

entire, occasionally slightly recurved; venation pinnate, usually ~8 lateral veins on each side of midrib, distinctive on younger leaves as light green lines, and obscure on older leaves; adaxially and abaxially sparsely puberulent when young, becoming glabrescent when old; colleters 1–2 at each lamina base, 0.1–0.15 × 0.1–0.15 mm grayish brown, appearing as one or two small brown dots at the base of the lamina in young leaves, appearing as a faint, crescentiform brown line at the leaf base on older leaves. **Inflorescence** umbelliform, convex, 5–9-flowered, flowers opening gradually rather than simultaneously; peduncle extra-axillary, terete, green, positively geotropic, 3–8 mm long, ca. 1.5 mm in diameter; pedicels terete, pale green, ca. 5 mm long, ca. 1 mm in diameter, sparsely puberulent, glabrescent. **Calyx** lobe triangular, oblong, ca. 1.5 × 1.0 mm, green, glabrous; basal colleters 1 at the base of each calyx lobe sinus, acuminate, ca. 0.33 × 0.1 mm. **Corolla** rotate with a narrowly campanulate tube, 6.8–7.0 mm in diameter, 7.0–7.2 mm when flattened, corolla tube narrowly campanulate ca. 2.6 × 3 mm, pale yellow, tube internally densely pubescent, corolla lobes spreading, triangular-ovate, 3.0–3.2 × 2.0–2.2 mm, margins entire, recurved, apex acute-acuminate and recurved, adaxial surface pubescent, the indumentum less dense than in the corolla tube. **Column** cylindrical, ca. 2 × 2 mm. **Corona** staminal, ovoid, 2.0–2.3 mm high, 2.0–2.3 mm wide; corona lobes triangular-ovate, subequal to the height of tube, ca. 2 × 1 mm, inner process acute, erect above the anthers and corolla, almost oblong, pale yellow, completely fused to the back of the anthers, outer process round ovate, with basal revolute margins. **Pollinia** erect, elliptic-oblong, ca. 160 × 85 µm, with a sterile edge along the outer margin, caudicle rounded 20–25 µm in diameter, corpusculum ovoid, 120–126 × 70–74 µm. **Ovary** conical with an acute tip, 1.8–2.0 × 0.7–0.9 mm at the base. **Fruits** and **seeds** not observed.

Additional specimens examined:—*Hoya heuschkeliana* Kloppenb. PHILIPPINES, Sorsogon, Mt. Bulusan, 1 July 1947, *M.D. Sulit*, PNH 3676 (K! [K005659807]); Sorsogon, Mt. Bulusan, 12.8N, 124.1E, 1 July 1947, *M.D. Sulit*, PNH 3677 (L! [L 0275691])

Hoya sinagtala Brillo *et al.*

PHILIPPINES, vouchered in cultivation at the Singapore Botanic Gardens. Plant ex hort., precise locality unknown. Accessioned as MR2073. Flowers in spirit, 15 Sep 2022, *M. Rodda* & *E. H. Yap*, MR2197 (SING)

Distribution and habitat:—Only known from wetlands dominated by *Terminalia procera* Roxb. (1811: 18) and *Barringtonia racemosa* (Linnaeus 1753: 471) Sprengel (1826: 127) in Gamay, Northern Samar (Asis, pers. comm., 6 July 2024).

Phenology:—The plant was observed to flower from August to November in cultivation in the Philippines, year round in Singapore. In cultivation, flowers were observed to open successively, with one or two flowers typically entering anthesis before the remaining flowers of the umbel. The flower is scentless.

Etymology:—The specific epithet *sinagtala* is derived from the Filipino words *sinag* (“ray” or “beam”) and *tala* (“star”), alluding to the corolla’s resemblance to the three radiant stars depicted on the Philippine flag, which symbolize the three major island groups of the country: Luzon, Visayas, and Mindanao.

Provisional Conservation Assessment:—**Data Deficient (DD)**, IUCN 2024, version 16) Aside from being available in the horticultural trade, *Hoya sinagtala* is only known from a forested wetland in Gamay, Northern Samar, and its current population size is unknown, and further information is needed on its distribution and extent of occurrence.

Notes: The vegetative features of *Hoya sinagtala*, including the petiole, lamina texture and shape, and the difference in lamina color between abaxial and adaxial surfaces, closely resemble those of several species within section *Acanthostemma* Kloppenb., such as the Philippine endemic *Hoya heuschkeliana* Kloppenb. and *Hoya bilobata* Schlechter (1906: 301). In the absence of flowers, sterile specimens of *H. sinagtala* can therefore be easily mistaken for several other taxa. Despite several atypical floral and pollinarium characters, we provisionally place *H. sinagtala* in sect. *Acanthostemma* based on its overall vegetative morphology and floral structure, while recognizing that its sectional placement should be further evaluated using molecular phylogenetic data.

Hoya sinagtala can be distinguished from *H. bilobata* in its larger, rotate, basally campanulate corolla (6.8–7.0 mm in diameter, 7.0–7.2 mm when flattened; tube ca. 2.6 × 3 mm) with lobes that are spreading, triangular-ovate, with margins entire, recurved, and apex acute-acuminate and recurved, whereas *H. bilobata* has a smaller spheroid corolla (ca. 3 mm in diameter, 6–7 mm when flattened) with revolute lobes.

Hoya sinagtala lacks the basal bilobed extension on the corona lobes and the revolute apex of the corolla lobes that are characteristic of species within section *Acanthostemma*. There are also several *Hoya* species from the section *Acanthostemma* that have corona lobes lacking or reduced basal bilobed extension, such as *Hoya myrmecopa* Kleijn & van Donkelaar (2001: 477), *Hoya carmelae* Kloppenburg *et al.* (2010: 9), *Hoya lucardenasiana* Kloppenburg *et al.*

(2009: 144), and *Hoya pulchra* however, the corona lobes are larger, and the outer corona processes are upright rather than lying horizontally in the corolla. The rotate, basally campanulate corolla of *Hoya sinagtala* is comparable to that of several species belonging to different sections, including *Hoya medusa*, *Hoya irisiae* Ferreras *et al.* (2014: 3), *Hoya decipulae* Rahayu & Astuti (2019: 45), *Hoya occultata* Rahayu & Rodda (2020: 332), *Hoya telosmoides* Omlor (1996: 290), and *Hoya spartioides* (Bentham) Kloppenburg (2001: 8).

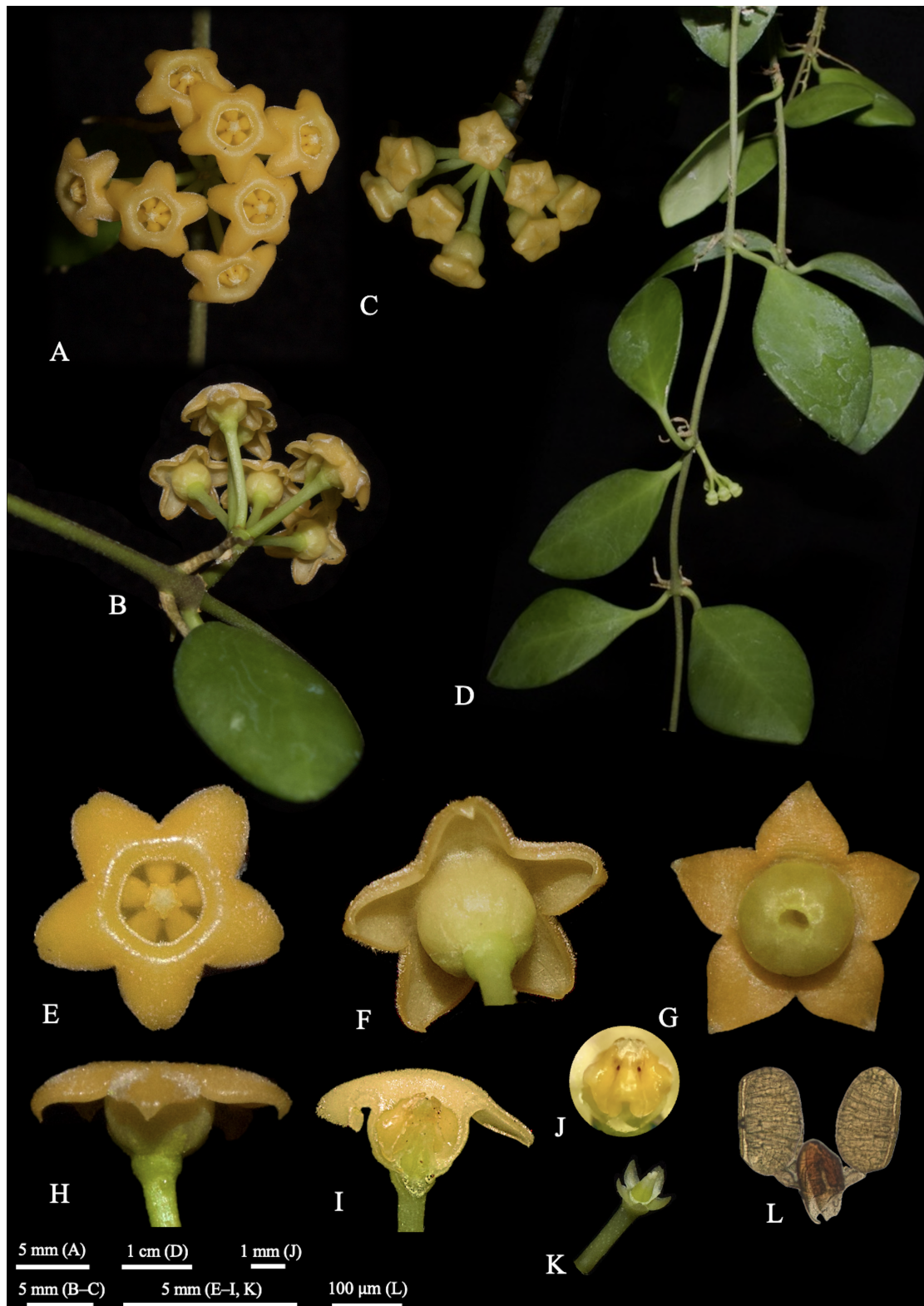


FIGURE 1. *Hoya sinagtala* photographed in cultivation in Manila, Philippines (reference specimen *S.C. Brillo 001* (PLMH) – **A**. Inflorescence, front view and **B**. back view **C**. Unopened flower buds **D**. Branch, with developing flower buds **E**. Single flower, front view **F**. Single flower, back view **G**. Single flower, back view; flattened (calyx and ovary removed) **H**. Single flower, side view **I**. Single flower, longitudinal section **J**. Corona **K**. Pedicel, calyx, and ovary **L**. Pollinarium. (Photographs by S.C. Brillo)

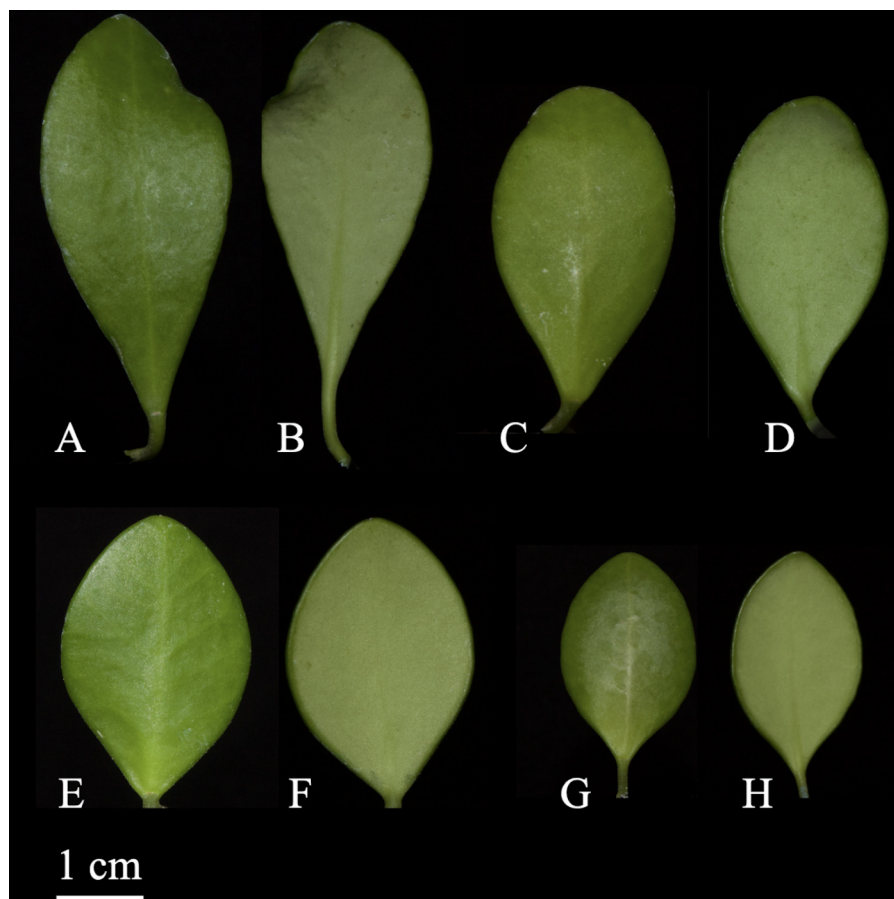


FIGURE 2. Leaves of *Hoya sinagtala* photographed in cultivation in Manila, Philippines (reference specimen *S.C. Brillo 001* (PLMH)). **A.** Larger, older leaf, adaxial view and **B.** abaxial view **C,E.** Usual leaf size, adaxial view and **D,F.** abaxial view. **G.** smaller, younger leaf, adaxial view and **H.** abaxial view (Photographs by S.C. Brillo).

TABLE 1. Comparison of diagnostic characters to distinguish between *Hoya sinagtala* and *H. heuschkeliana*.

Characters	<i>Hoya sinagtala</i>	<i>Hoya heuschkeliana</i>
Lamina surface	adaxially and abaxially sparsely puberulent turning glabrescent	glabrous
Flower colour	corolla and corona are pale yellow	corolla varies from dark red, purplish red, pink, and pale yellow; corona basally dark yellow turning purplish-red at the apex of the inner corona process
Corolla shape	rotate, basally campanulate, with free spreading lobes	urceolate to campanulate with inflexed lobes
Corolla size	6.8–7.0 mm in diameter, 7.0–7.2 mm when flattened	3.5–5.5 mm in diameter
Corolla surface	adaxially densely pubescent in the corolla tube, sparsely pubescent on the lobes	abaxially densely pilose-pubescent, velvety, in the anterior and glabrous at the apex, and from the base of the corona abaxially glabrous, sparsely punctate
Corona lobe shape	triangular-ovate	spathulate
Outer corona process	rounded, apex without basal bilobed extension, apex margin widely spaced	oblong-ovate with long basal bilobed extension, lay flattened on the corolla surface
Pollinium	ca. 160 μ m long $\times$ 85 μ m wide	^a 304 $\pm$ 19 long $\times$ 148 $\pm$ 10 wide

Note: ^a Data from Kuang *et al.* 2024.

The pollinarium of *H. sinagtala* differs from that found in most species currently placed in sect. *Acanthostemma*. Its pollinia are elliptic-oblong, in contrast to the obliquely oblong or oblong-ovate forms typical of most members of the section. Also, the pollinia of *H. sinagtala* are smaller than those of *H. bilobata* ($187 \pm 10 \times 80 \pm 8 \mu\text{m}$ in *H. bilobata*, as measured by Kuang *et al.* 2024), which were the smallest pollinia in their study. The pollinia of *H. sinagtala* also have a reticulated surface, resembling those of the Bornean species *Hoya telosmoides* (Type X pollinia; Kuang *et al.* 2024), but they are smaller— $160 \times 85 \mu\text{m}$ compared with $643 \pm 11 \times 351 \pm 8 \mu\text{m}$ of *H. telosmoides*, and have a rounded rather than pointed base near the caudicle. Based on these traits, the pollinia of *H. sinagtala* are classified as Type X. The pellucid margins are less prominent than in most *Acanthostemma* species, which typically show strongly outlined margins. The translator arms of *H. sinagtala* are shorter, oblong, and have smaller, rounded caudicle; in most other species, they are prominently clavate with larger, more irregularly rounded bulbs. Finally, the corpusculum in *H. sinagtala* is distinctly ovoid, unlike the rhomboid-truncate corpusculum characteristic of most members of the section.

Acknowledgement

The first author expresses sincere gratitude to Ms. Anna Maria G. Valenzuela for taking care of the specimen before examination. Appreciation is likewise given to Mr. Christian Lucañas for facilitating access to *Hoya* sheets from CAHUP. The authors also extend thanks to Dr. Maria Celeste Banaticla-Hilario for her valuable guidance and comments that helped improve this work. We thank the curators of the A, CAHUP, BM, BO, E, FI, K, L, LAE, MO, P, PLMH, PNH, SING, UC, US herbaria for allowing us access or loans of herbarium material.

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