

A NEW HINTONIA (RUBIACEAE) FROM COSTA RICA

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The genus *Hintonia* (tribe Condamineae) when proposed by Bullock (1935) contained four species and one variety distributed through Mexico from the southern parts of Sonora and Chichuahua to Yucatan and into the highlands of Guatemala. No new taxa have been added until the present, and although many new collections have accumulated since Bullock's publication, they have not appreciably extended the distribution range of the genus. The new Costa Rican species proposed below represents a major extension of that range.

HINTONIA PULCHRA D. Simp. sp. nov.

Arbor, 15 m. alta; ramulis glabris, leviter complanatis, ad nodos tumidis. Folium ellipticum vel anguste oblongum, apice basique longe attenuata, 7-12 mm. longo petiolo incluso 16.5-18 cm. longum, membranaceum vel chartaceum, glabrum; nervis secundariis utroque 6-8; stipulis peristentibus, brevissime subtriangularibus, cuspidatis, 2 mm. longa cuspidate 4 mm. longis. Flores ad quoque nodum bini (i.e. opposita et singulares in quoque axilla foliorum prodientes); sed duorum plerumque unus abortivus est; pedicellis ca. 17 mm. longis, ebracteatis, glabris; receptaculo glabro; lobis calycis quinque, anguste linearibus vel filiformibus, glabris, 27-30 mm. longis; corolla tubiformi, alba, ca. 27 cm. longa, ad basim ca. 6 mm. lata, versus apicem expansa usque 11 cm. ad partem latissimam; staminibus quinque, inclusis, antheris linearibus, 5-6 cm. longis, ca. 0.7 mm. latis; stylo stamen aequans, indiviso, stigmatate indiviso, unilaterali, ca. 11 mm. longo. Capsula ca. 3.5 cm. longa, diametro 1.5 cm., oblonga, base acuta, apice rotundato obtuso, glabra, longitudinaliter 5-nervata et 5-costata; pedicello 2.2 cm. longo; lobis sepalorum persistentibus, 3.4 cm. longis, 1.5-2 mm. latis. Semena horizontaliter affixis, exalatis, clypeatus, diametro ca. 6 mm., 1.5-2.5 mm. crassa; testa granulariter indurata.

Tree 15 m. tall. Leaves elliptic to narrowly oblong 16.5-18 cm. long, membranous to chartaceous. Flower buds two at a node (i.e. borne singly in each leaf axil), but seemingly one of the two aborting; pedicel ca. 17 mm. long, bractless; receptacle glabrous; calyx lobes 5, narrowly linear or filiform, glabrous, 27-30 mm. long, corolla white, trumpet-shaped, ca. 27 cm. long, ca. 6 mm. wide below, 11 cm. wide at apex; stamens 5, included, anthers linear, 5-6 cm. long, ca. 0.7 mm. wide; style equaling the stamens, undivided; stigmatic surface ca. 3.5 cm. long by 1.5 cm. in diameter, oblong, base acute, apex rounded obtuse, glabrous longitudinally 5-nerved and 5-ribbed, the ribs and nerves alternating,

nerves slightly raised in dried material, ribs subalate; fruiting pedicel 2.2 cm. long, angled by the continuation of the capsule ribs down the pedicel almost to the base; sepal lobes persistent in fruit, 3.4 cm. long, 1.5-2 mm. broad. Seeds attached horizontally, not winged, flattened, shield shaped (i.e. one surface convex, the opposite concave), irregularly circular or somewhat angled in outline, ca. 6 mm. across by 1.5-2.5 mm. thick; seed coat uniformly granular-roughened, reddish brown in dried material.

Type: Burger & Liesner 7320 (holotype F, isotypes CR, US).

Costa Rica: Prov. Puntarenas; in forest near the air field about 5 km. west of Rincón de Osa, Osa Peninsula, alt. 50-200 m., 8°42'N, 83°31'W, Burger & Liesner 5438, 7320.

This species differs from others of the genus in the longer, membranous leaves, the very long trumpet-shaped corolla, and the wingless seeds. The single capsule available to me was unopened, but in opening it to examine the seeds, the wall tended to split along the septum as it characteristically does in the genus *Hintonia*.

Its ecological adaptation and floral biology are unknown but in general aspect the plant is suggestive of certain species of *Tocoyena* and *Randia* (viz. *T. guianensis* K. Schum., *R. ruiziana* DC., and *R. williamsii* Standl.). These are species of small trees or shrubs apparently adapted to the heavily shaded shrub layer of tropical, evergreen, rain forest. They produce only a few flowers at a time whose most striking features are the extremely long, tubular, white corollas, and often, the release of a strong fragrance in late evening. The combination of elongated corolla tube, light color, and very strong fragrance released in the evening are presumably adaptations to specialized pollinators, probably some of the species of lepidopterans that are most active at dusk.

The exceptional features found in this species, and especially the wingless condition of the seeds, would perhaps be interpreted by some taxonomists as reason for proposing a new monotypic genus. It has not been uncommon for specialists in the Rubiaceae to use the distinction "winged vs. wingless seeds" as a criterion for distinguishing taxa at the generic level. Hooker (1873, p. 8) even used it at the tribal level, separating the tribes Henriquezieae and Cinchoneae from the Condamineae, Rondeletieae, and Hedyotideae by the former having seeds winged or appendaged vs. seeds wingless in the latter three tribes. Few systematists would now consider a genus to be excluded from or included in one of these tribes solely on the basis of this difference. Of the recent specialists on the Rubiaceae both Brenekamp (1934) and Verdcourt (1958, pp. 229 & 244) have commented on the value of the seed wing in determining relationships between genera. However, I have found no

discussion of the value of this feature as a criterion for delimiting a genus. There seems to be an implied assumption that variation from a winged to wingless condition does not occur in closely related species.

In fact, in the genus *Hintonia*, there is variation in the expression of several morphological features, including seed wing, which lends me to conclude that this new species does belong here. A series of variations toward the form of *H. pulchra* can be seen in *H. latiflora* var. *latiflora*, *H. latiflora* var. *leiantha*, and *H. lumaiana*. For instance, leaf texture, shape, and size all vary from the short, ovate, subcoriaceous leaves of var. *latiflora* to the slightly longer, elliptic, subcoriaceous to membranous leaves of var. *leiantha*, to still larger, narrowly oblong, membranous leaves of *H. lumaiana*. Although I have seen no seeds of *H. lumaiana*, an excellent photograph of the type¹ shows seeds that are only narrowly winged and that more nearly approximate the size of the seeds of *H. pulchra* than of the other species of *Hintonia*.

Bibliography:

- Bremekamp, C. E. B. 1966. Remarks on the position, the delimitation and the subdivision of the Rubiaceae. *Acta Bot. Neerl.* 15:1-33.
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1. Field Museum botanical "phototype collection," negative no. 37,197, of M. G. Luma s.n. (leg. 1878) in herb. P.

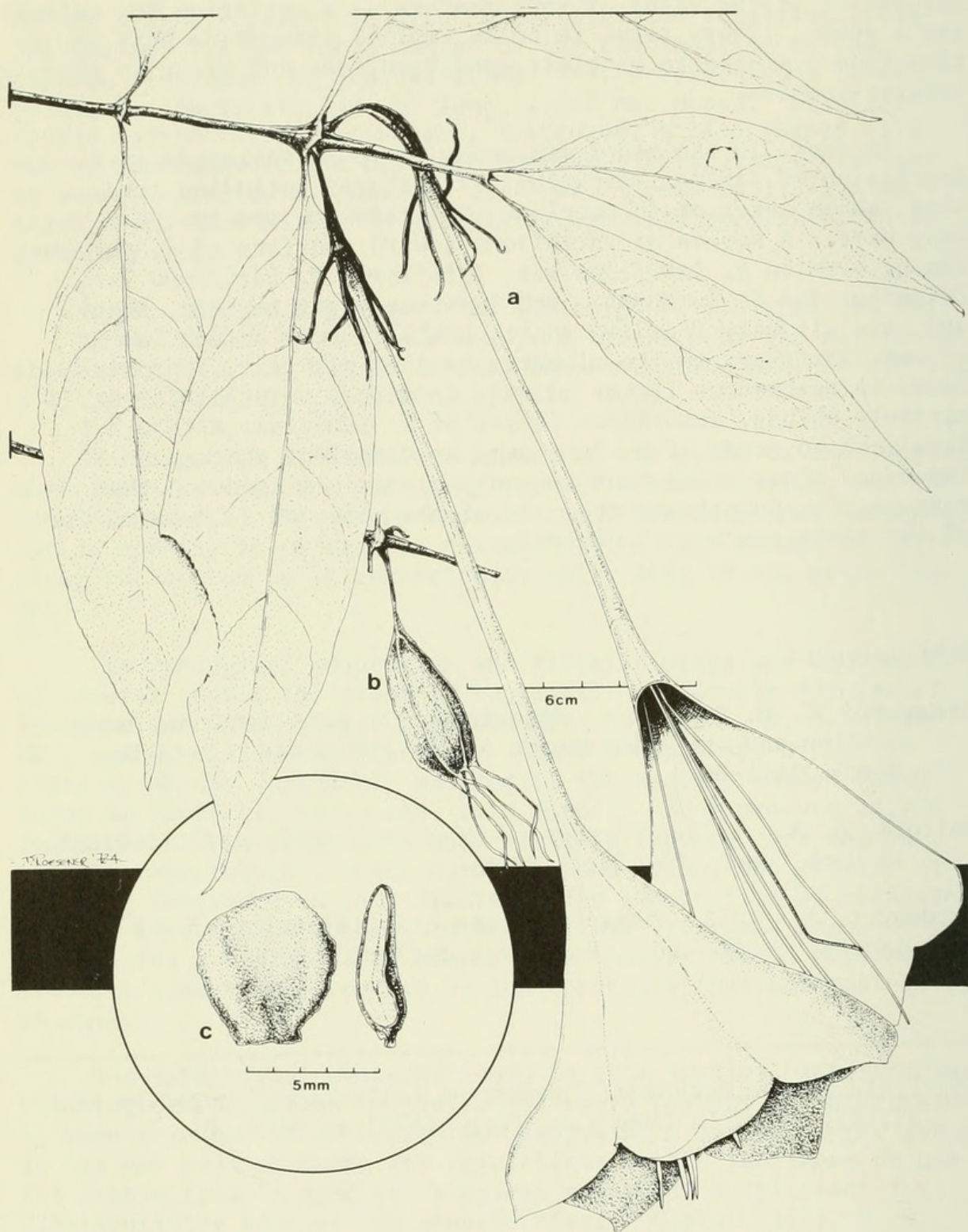


Plate I. *Hintonia pulchra* D. Simp. A, flowering branchlet with one flower showing cut-away view of anthers and style; B, branchlet with capsule (leaves removed); C, seed, lateral view and longitudinal section. Drawn by Richard W. Roesener.



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