

STUDIES IN AMERICAN RUBIACEAE

1. NEW AND NOTEWORTHY COSTA RICAN SPECIES

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In a small collection of Costa Rican Rubiaceae sent by William H. Hatheway, of the Tropical Science Center, San José, Costa Rica, several species did not fit any of those included by Standley in the Flora of Costa Rica (Field Mus. Publ. Bot. vol. 18) and could not be matched in the U. S. National Herbarium, or with any species published since the Flora. They are described here, along with critical notes on several other species. Most of the collection came from the slopes of Volcán Barba, a very rich botanical area, a good part of which has been protected in its natural state by the owner, Sr. Botho Steinvorth, who is to be congratulated on his farsightedness in saving for the future a bit of Costa Rica as it was when European man arrived on the scene.

GALIUM hypocarpium (L.) Fosberg, comb. nov.

Valantia hypocarpia L., Syst. Nat. ed. 10, 1307, 1759.

Relbunium hypocarpium (L.) Hemsl., Biol. Centr. Amer. Bot. 2: 63, 1881.

So far as I can determine, the genus *Relbunium* differs from *Galium* only in the presence of 2 or 4 bracts forming an involucre immediately beneath the flower. The fleshy fruit is characteristic of a number of other groups within *Galium*. Although the "bracts" that surround the flower are somewhat smaller than the leaves at other nodes, they do not seem essentially different. What this amounts to, when looked at critically, is that *Relbunium* differs in having sessile rather than pedicellate flowers. The flowers are sessile in a whorl of reduced leaves.

This seems an extraordinarily weak basis for a genus. If this philosophy were followed through, *Galium* would be segregated into a large number of ill-separated genera. I prefer to retain it as a single genus, including the plants of this affinity with stipules so modified as to appear to be additional leaves, and rotate flowers. The distinctions from *Rubia*, *Asperula*, *Sherardia*, and several other Old World genera are dubious enough, but need not be examined here.

I have been using the name *Galium hypocarpium* for years, ascribing the combination to Bentham, but cannot find that he or anyone else ever published it.

GONZALAGUNIA longithyrsa Fosberg, sp. nov.

Arbor parva, folia lanceo-oblonga maxime 10 x 2.5 cm acuminata supra glabra infra sparse sericea glabrata stipulis triangularibus marginibus valde distinctis, thyrsus elongatus maxime 35 cm subcongestus cymulis pedunculatis, fructus maxime 6 mm latus albus coccis 4 seminibus nigris.

Small tree, 4 m tall, with glabrate branchlets; leaves lance-oblong, up to 10 cm long, 2.5 cm wide, apex acuminate, base strongly contracted, obtusish, glabrous above, thinly sericeous beneath, glabrate except on nerves, blade very slightly decurrent on the 4-6 mm petioles; stipules broadly triangular, strongly mucronate or cuspidate, thinner margin sharply set off from inner thickened portion; thyrses very elongate, to 35 cm, rachis strong, sericeous, rather densely flowered, cymules subtended by subulate bracts, pedunculate, peduncles 2-4 mm long, several flowered; flowers not available, calyx lobes (in fruits) minute, triangular, appressed to fruit; fruit white, to 6 mm across, depressed globose, 4-coccous, seeds black, irregularly compressed.

Possibly close to *G. rosea* Standl. but leaves narrower, glabrous above, pubescence closely appressed, rather than spreading, fruit larger.

Costa Rica: Prov. Cartago, Tapanti, 1200 m, at edge of wet forest, Nov. 1, 1964, *Hatheway and Rodriguez 1241* (US, type)

HILLIA hathewayi Fosberg, sp. nov.

Ramuli articulati quadrangulares, folia elliptica, 2-4 x 1.2-1.6 cm, nervis obscuris, stipulae obovatae obtusae 5-12 mm longae; corolla tubo 2.5-3 cm longo lobis late orbicularibus revolutis emarginatis 10 mm longis, 12-13 mm latis, capsula valvis ellipticis 15-27 mm longis 6-7 mm latis.

Epiphytic shrub, glabrous, branchlets 4-angled, appearing articulate, with deep sutures around nodes, internodes very short, mostly 3-8 mm on branchlets, up to 2 cm on main twigs; leaves elliptic to slightly obovate, 2-4 cm long, 12-16 (20) mm wide, apex rounded, base obtuse, venation obscure, 3-4 pairs of lateral veins at a small angle to midrib, petiole 2-3 mm long, flattened; stipules obovate, obtuse 5-9 (-12) mm long, early caducous; flowers terminal on branchlets, calyx lobes spatulate oblong, 5-6 mm long, 1.5 mm wide rounded at apex, corolla tube greenish white, 25-30 mm long, 2.5 mm thick, slightly swollen near top, lobes more or less orbicular or wider than long, strongly revolute, emarginate, 10 mm long, 12-13 mm wide, sub-fleshy, creamy white, anthers well included, narrowly oblong, 5 mm long; style 14 mm long, upper 6 mm bifid; valves of fruit elliptical 15-27 mm long, 6-7 mm wide.

Related to *H. maxonii* Standl. but with corolla tube 2.5-3 rather than 5 cm long, lobes 1.2-1.3 cm across, broader than long, capsule smaller. Perhaps closer to *H. palmana* Standl. which has a similar but longer corolla but rather differently shaped leaves.

Costa Rica: Prov. Heredia: south slope of Volcán Barba, in cool wet woodland pasture, 1950 m, May 26, 1965, *Hatheway 1371* (US, type); Prov. Alajuela: Palmira, Cant. Alfaro Ruiz, 2400 m, *Austin Smith P2678* (US).

HOFFMANNIA steinvorthii Fosberg, sp. nov.

Frutex, folia anguste elliptica vel oblanceolato-obovata, glabrata, cymae subsessiles trichotomae laxe glomeratae, calyx lobis 1 mm longis pilosulis, corolla tubo glabro 8-11 mm longo dilatato lobis ovatis acutis extus pilosis 4-6 mm longis, ovarium triloculare, stigma vix trilobatum.

Shrub 1.5 m tall, stems glabrous, with tiny mostly elongate white dots, with 4 obtuse ridges, somewhat fistulose; leaves narrowly elliptic to oblanceolate-obovate, apex strongly acuminate, almost caudate, base cuneate-attenuate, blades up to 23 cm long and 7 cm wide, slightly hirtellous when very young, glabrate, petioles 1-2 cm long; stipules very low-triangular, obtuse, early caducous.

Cymes subsessile, primarily trichotomous, branches to 2.5 cm long, two of them in some instances suppressed, the remaining one originating from a pulvinus-like reduced bracteate peduncle, the cymules loosely glomerate, irregularly branched to secund, scorpioid, peduncle of cymule 1 cm long, pedicels about 1.5-3 mm long, whole cyme sparsely pilosulous, with minute scale-like bracts or their scars at nodes; flowers with hypanthium turbinate, very sparsely pilosulous, calyx lobes oblong-ovate, about 1 mm long, pilosulous, corolla tube glabrous, slender, 8-11 mm long, dilated somewhat near top, lobes ovate, acute, pilosulous without, about 4-6 mm long, orange-yellow; anthers oblong-linear, 3 mm long, slightly sagittate at base, exserted, attached 2 mm below sinuses, on filaments 2 mm long, dorsifixed well below middle; style filiform, longer than corolla tube, glabrous, stigma capitate, obscurely trilobed, somewhat exserted at anthesis, ovary 3-locular; mature fruit* dark cherry red, fleshy, subglobose, 9-10 mm long, about 7 mm or more wide, with tough epidermis; seeds reddish brown, orbicular, flattened, lenticular, reticulate, 0.7 mm across.

Costa Rica: Prov. Heredia: south slope of Volcán Barba, growing in colony along stream in cool, moist forest, 2000 m, 26 June 1965, *W. H. Hatheway & Alfonso Jimenez 1461* (US, type).

This species keys, in Standley's *Flora of Costa Rica*, to *H. piratarum* Standl. of Cocos Island, from which it differs in its rather open subsessile cymes, 3-celled ovaries and trilobed stigmas. It is unique among Costa Rican species in its 3-celled ovaries, the rule there being 2-celled ovaries. In this respect it resembles *H. cauliflora* Hemsl. of Guatemala, from which it differs in its few-branched cymes and differently shaped leaves, with more widely spaced nerves. It may be closest to *H. angusti-*

* Description of fruit from preserved material supplied later by Dr. Hatheway from the same colony as the type.

folia Standl. which, however, has a much shorter corolla tube and bilocular ovaries. It is dedicated to Sr. Botho Steinvorth, on whose land it was collected, in appreciation of his protection of this area, rich in Rubiaceae.

RONDELETIA AMOENA (Planch.) Hemsl.?

Costa Rica: Prov. Heredia: south slope of Volcán Barba, in rich wet forest, 1940 m, *Hatheway 1280* (US, Fo)

This plant has stiff, strongly reticulate venulose leaves which are much less pubescent than is usual for this species.

PSYCHOTRIA GRANDISTIPULA Standl.?

Costa Rica: Prov. Heredia: south slope of Volcán Barba, near San José de la Montaña, 1600 m, *Hatheway 1460* (US)

This is a small tree growing in the shade of oaks in a rich moist forest. It differs from the type in its attenuate rather than subtruncate leaf-bases, longer leaf blades with more numerous veins, in the sheathing stipules much longer and more strongly marked with white (when dry), and in the truncate, rather than shallowly dentate calyx.

The material referred to this species in the U.S. National Herbarium is rather diverse and may represent more than one species. However, with only a few sheets at hand it is hard to know if the variation is individual, or if distinctive populations exist. So it seems best, for the present, to accept a broad concept of the species.



Fosberg, F. Raymond. 1966. "STUDIES IN AMERICAN RUBIACEAE 1. NEW AND NOTEWORTHY COSTA RICAN SPECIES." *SIDA, contributions to botany* 2, 386–389.

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