
A New Species of *Roucheria* and a New Species of *Hebepetalum* (Hugoniaceae) from the Venezuelan Guayana

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ABSTRACT. A new species of *Roucheria* and a new species of *Hebepetalum* (Hugoniaceae) from southern Venezuela are described and illustrated. *Roucheria sipapoensis* is a montane, small-leaved shrub known only from Cerro Sipapo in Amazonas state, while *Hebepetalum neblinae* is a lowland, wet forest tree from white sand areas in southernmost Venezuela and northern Brazil. Keys to the species of both genera are provided.

Roucheria and *Hebepetalum* are closely related woody taxa in the Linales. Cronquist (1988) placed both genera in the Hugoniaceae, although they had earlier been treated in a more broadly circumscribed Linaceae (Planchon, 1847; Bentham, 1862). While preparing the Hugoniaceae treatment for the *Flora of the Venezuelan Guayana* (Ramírez et al., 1999) and undertaking a revisionary study of *Hebepetalum* and *Roucheria*, we discovered one new species in each genus. Venezuela is the center of diversity of these genera, with five species of *Roucheria* and all three species of *Hebepetalum* occurring there. The species commonly known as *Roucheria punctata* (Ducke) Ducke is now considered a synonym of an earlier name, *R. columbiana* Hallier (Ramírez et al., 1999).

Cronquist's circumscription of Hugoniaceae is supported here based on results of revisionary work of these genera, which point to the presence of drupaceous fruit, woody habit, and crenulate/subcrenulate leaf margins with glands as supporting shared characters with the family. *Hebepetalum* is distinguished from *Roucheria* by its petals with a clawed base which are inwardly pubescent, the presence of trichomes of variable density at the apex of the ovary, and brochidromous leaf venation with secondaries joined in a series of conspicuous and well-formed arches. In *Roucheria* the venation is campodromous, with the secondary veins tightly parallel, and lacking the series of conspicuous arches. Both genera share a submarginal collecting

(fimbrial) vein, which is formed by the fusion of the secondaries. The leaf venation in *Roucheria* is reminiscent of that of many members of the Clusiaceae and Ochnaceae. Including the species described below, we now recognize eight species in *Roucheria* and three in *Hebepetalum*.

***Roucheria sipapoensis* Jardim & P. E. Berry, sp. nov.** TYPE: Venezuela. Amazonas: Cerro Sipapo, Paraque, higher plateau, among rocks, 1798 m, 12 Dec. 1948, *B. Maguire* 27625 (holotype, MO; isotypes, NY, WIS). Figure 1.

Haec species inter congeneros vegetative glabros *Roucheriae monsalvae* A. H. Gentry foliis subsessilibus decurrentibus etiam *R. elatae* Ducke inflorescentia ex panicula axillari 1–4 cm longa constante maxime accedit, sed a hac foliis valde coriaceis atque habitu humiliore altitudine 10 m non excedente, ab illa foliis plerumque minoribus in sicco griseo-olivaceis atque inflorescentia paniculata, ab ambabus lamina foliari marginibus ad basin valde revoluta distinguitur.

Shrub or small tree 3–10 m tall; stems glabrous, nodes round. *Leaves* alternate, simple, ovate-elliptical, coriaceous, subsessile, olive-gray upon drying, with a thin layer of wax, 1.8–8.5 cm long, 0.5–2.5 cm wide, broadly acute at the apex, decurrent, with inrolled margins at the base, glabrous, dark green on the adaxial surface, light green abaxially; midvein raised abaxially, impressed adaxially, numerous strongly parallel secondary veins terminating at the margin in a submarginal, continuous collecting vein, raised on both surfaces; margins crenate-serrate with numerous dentations, 40–55 glands per leaf, inconspicuous, oval, present in each sinus between dentations and flush, not raised in sinus; petioles 0–4 mm long; stipules triangular, caducous, 0.7–0.9 mm long. *Inflorescence* axillary panicles grouped toward the branch apices, axis 1–4 cm long, canaliculate. Flowers regularly arranged on branches of inflorescence, each branch 1- to several-flowered; bracteoles obovate, 1–1.5 mm

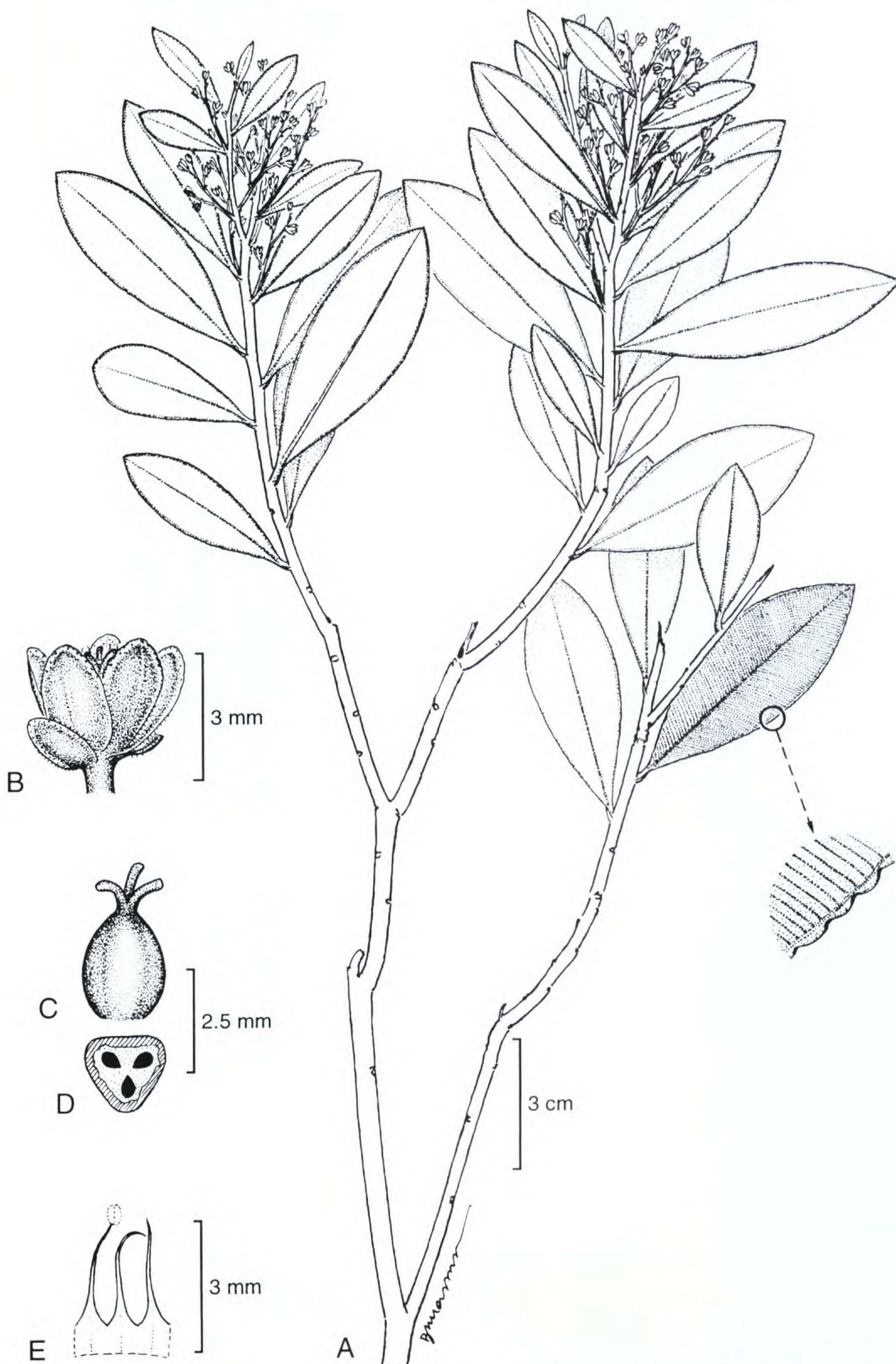


Figure 1. *Roucheria sipapoensis* Jardim & P. E. Berry. —A. Habit and detail of leaf margin. —B. Flower slightly past anthesis. —C. Ovary and styles, frontal view. —D. Cross section of ovary. —E. Remnants of filaments and staminal tube. Based on Maguire 27625.

long, subtending inflorescence axes, along axes, and subtending flowers; pedicels 1–2 mm long; sepals 5, ovate, acute, 2–3 mm long in young fruit, persistent; petals unknown, already fallen off; stamens 10; filaments 2.8 mm long, enlarged at base where connate with base of staminal ring, staminal ring 1.0–1.1 mm wide; ovary 3–4 mm long, the 3 styles free, ascending and each 1–1.2 mm long, glabrous. *Fruit* a three-seeded, ovoid, fleshy drupe 5–8 mm long, 5 mm broad at base; seeds angular.

Ecology and distribution. This species occurs as a shrub or small tree near the summit of Cerro Sipapo on rocky substrate. It is known only from this mountain in western Amazonas state, Venezuela, at altitudes between 1500 and 2000 m.

This species is different from other *Roucheria* species in both habitat and morphology. It is the only species in the genus that occurs in upper montane areas, and it is one of two species in the genus with subsessile, decurrent leaves, the other being *R. monsalveae* from the hyperwet, lowland forests of Bajo Calima, Valle Department, Colombia. The parenchyma cells of *Roucheria sipapoensis* in the petiole and lamina are the thickest seen for any species in the genus (~14–14.5 μm thick), and the epidermal cells are strongly lignified, giving the leaves an especially coriaceous texture.

Roucheria sipapoensis can be distinguished vegetatively from *R. monsalveae* by the auricular leaf blade bases (the leaf margins are strongly inrolled at the base), and the generally smaller blades (1.8–8.5 \times 0.5–2.5 cm in *R. sipapoensis* vs. 3.5–15 \times 1.5–4.0 cm in *R. monsalveae*), which also dry somewhat olive-gray compared to the dark brown-red drying color in *R. monsalveae*. *Roucheria sipapoensis* further differs in having paniculate, subterminal inflorescences, as opposed to the axillary, sessile fascicles of *R. monsalveae*. In the Ramírez et al. (1999) treatment for the Venezuelan Guayana, this species was called "*Roucheria* sp. A."

Paratypes. VENEZUELA. Amazonas: Cerro Sipapo (Paraque) tepui, near summit, peak I, 1798 m, 12 Dec. 1948, Maguire & Politi 27625 (NY, VEN); Cerro Sipapo in Sabana Grande, vicinity of Campo Grande, 1500 m, 21 Jan. 1949, Maguire & Politi 28697 (NY, VEN); Cerro Sipapo (Paraque) tepui among rocks, South Rim and East Rim, 1829–1981 m, 26–28 Jan. 1949, Maguire & Politi 38639 (NY, VEN).

Hebepetalum neblinae Jardim & P. E. Berry, sp. nov. TYPE: Venezuela. Amazonas: Río Marwarinuma, near Cerro de la Neblina in terra firme forest, 00°50'N, 66°10'W, 140 m, 11 Feb. 1985, B. Boom et al. 5729 (holotype, NY; isotype, F).

Haec species a congeneris foliis apice emarginatis distinguitur.

Tree ca. 10 m tall. Mature stems frequently with hollow pith. *Leaves* alternate, entire, repand, obovate, coriaceous, emarginate at apex, decurrent at base, 7.0–15.5 cm long, 2.8–7.8 cm wide; secondary venation broquiodromous, 2–5 mm between veins, terminating in a submarginal collecting vein, intersecondary veins present, midvein raised abaxially, submarginal collecting vein irregular, 0.05–3.0 mm from margin; repand margin with small, inconspicuous glands; petioles slightly bulbous at base, adaxially acanalate, 3–9 mm long; stipules caducous. *Inflorescence* a terminal, many-flowered panicle with 1 or 2 linear leaf-like bracts, to approximately 3 cm long and 0.8 cm wide; bracteoles triangular, 1.5–2.0 mm long; pedicel 0.5 mm long in flower, elongating to 2 mm long in fruit; sepals 5, ovate, acute, ca. 2 mm long, 1 mm wide; petals undeveloped; stamens 10, of two heights united in a basal ring 0.3 mm wide, filaments 10, five 0.9 mm long, five 0.5 mm long; anthers sagittate, bivalved with longitudinal dehiscence; ovary 1 mm long; locules 5, commonly two of these aborted; placentation axile; styles 5, stigma villous. *Fruit* a 5-seeded drupe 5–6 mm long; endocarp bony with 5 costae and intercostal ridged processes.

Ecology and distribution. This species is known from three localities in southern Venezuela and northern Amazonian Brazil, all in wet, lowland, nonflooded forest on white sand.

Hebepetalum neblinae is distinct from other species of *Hebepetalum* in the strongly coriaceous leaves with emarginate apices. Unique features in the leaf anatomy of this species include scattered druse crystals in the leaf blade, contrasting with the typical condition in the genus of absence of crystals, and subepidermal, abaxial mucilage cells, also absent in other species in the genus. In the Ramírez et al. (1999) treatment for the Venezuelan Guayana, this species was called "*Hebepetalum* sp. A."

Paratypes. BRAZIL. Amazonas: Município Sta. Isabel do Rio Negro, 0.7 km atrás da cidade de Sta. Isabel, próximo ao antigo aeroporto, caatinga alta, solo arenoso humoso, 00°22'S, 64°59'W, 100 m, 10 Oct. 1987, C. A. Ferreira 9339 (INPA).

KEY TO THE GENERA OF NEOTROPICAL HUGONIACEAE

- 1a. Leaf venation broquiodromous (secondary veins joined together in a series of conspicuous, well-formed arches near the margin), petals clawed at base, ovary pubescent *Hebepetalum*
- 1b. Leaf venation camptodromous with closely parallel secondary veins, not joined in a series of conspicuous arches, petals not clawed at base, ovary glabrous *Roucheria*

KEY TO THE SPECIES OF *ROUCHERIA*

- 1a. Leaves and young twigs pubescent
. *Roucheria schomburgkii* Planchon
- 1b. Leaves and young twigs glabrous.
 - 2a. Inflorescence an axillary fascicle.
 - 3a. Leaf base cuneate
. *Roucheria calophylla* Planchon
 - 3b. Leaf base decurrent
. *Roucheria monsalvae* A. H. Gentry
 - 2b. Inflorescence axillary or terminal panicles,
never fasciculate.
 - 4a. Flowers in axillary short panicles 1–4
cm long.
 - 5a. Leaves strongly coriaceous, lamina
margin abaxially inrolled, shrubs to
small trees <10 m tall . . . *Roucheria si-*
papoensis Jardim & P. E. Berry
 - 5b. Leaves not coriaceous, lamina
margin not inrolled, trees >15 m
tall *Roucheria elata* Planchon
 - 4b. Flowers in terminal panicles >5 cm
long.
 - 6a. Flowers in glomerules
. *Roucheria laxiflora* H. Winkler
 - 6b. Flowers never in glomerulous
clusters
. *Roucheria columbiana* Hallier f.

KEY TO SPECIES OF *HEBEPETALUM*

- 1a. Leaf apex emarginate
. *Hebepetalum neblinae* Jardim & P. E. Berry

- 1b. Leaf apex acuminate.
 - 2a. Fruit with 4 locules, 4-stylous . . . *Hebepetalum*
roraimense Secco & S. M. B. Silva
 - 2b. Fruit with 5 locules, 5-stylous . . . *Hebepetalum*
humiriifolium (Planchon) Benth

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