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A New Species of *Cybianthus* (Myrsinaceae) from Tobago and Venezuela

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ABSTRACT. *Cybianthus pittierianus* Pipoly & Ricketson (Myrsinaceae) is described from Tobago, and its taxonomic relationships are discussed. This species is often confused with *C. rostratus* (Hassk.) G. Agostini owing to its free portions of the filaments being longer than the anthers, and leaves with similar elliptic shapes and with petioles less than 1.2 cm. However, *C. pittierianus* is easily distinguished from *C. rostratus* by the former's leaf blade apices abruptly acute to short-acuminate (vs. long-acuminate to caudate), with secondary veins in 18 to 24 pairs (vs. 28 to 32 pairs), corollas 2.4–3 mm (vs. 2.1–2.5 mm), and corolla lobes chartaceous (vs. carnosae) and adaxially glabrous (vs. densely glandular-granulose). *Cybianthus pittierianus* is known from the Coastal Cordillera of Venezuela and Tobago, in cloud forests on potassium- and magnesium-rich but nitrogen- and organically poor soils over metamorphic gneiss or schist rocks.

RESUMEN. Se describe *Cybianthus pittierianus* Pipoly & Ricketson (Myrsinaceae) como especie nueva para la ciencia y se discute su parentesco. Esta especie ha sido confundido con *C. rostratus* (Hassk.) G. Agostini debido a que las porciones apicales libres de sus filamentos son mas largas que las anteras, sus láminas elípticas con pecíolos menos que 1.2 cm de largo. Sin embargo, *C. pittierianus* se distingue fácilmente de *C. rostratus* por sus ápices foliares abrupte agudos hasta corto- acuminados (no largo-, ni caudados), nervios secundarios 18 a 24 (no 28 a 32) pares, corola 2.5–3 (no 2.1–2.5) mm de largo, con lóbulos corolinos cartáceos (no carnosos), y completamente glabros por dentro (sin gránulos glandulares). *Cybianthus pittierianus* se encuentra en la Cordillera de la costera de Venezuela y en Tobago, en bosques nublados con suelos muy pobres en nitrógeno y elementos orgánicos; pero ricos en potasio y magnesio sobre rocas metamórficas de gneis o esquistos.

Key words: Caribbean biogeography, *Cybianthus*, IUCN Red List, Myrsinaceae, Tobago, Venezuela.

In our continuing work to produce accurate checklists and update our understanding of the

systematic biology of *Cybianthus* Mart. (Myrsinaceae), we happened upon specimens first mentioned as a new species by Agostini in his dissertation (1972: 149–155, fig. 31) and subsequently reviewed by Pipoly in 1988 as he worked through collections at the Smithsonian Institution (US). While this species is easily recognized, the authors had not previously proposed its name in the hopes of finding pistillate flowering material, which, now after four decades, has not materialized. Therefore, in the interest of providing a name for this biogeographically interesting species, it is described herewith.

Cybianthus pittierianus Pipoly & Ricketson, sp. nov. TYPE: Tobago [Trinidad & Tobago]. Forest reserve, 16 Mar. 1911 (fl.), *W. Broadway 4051* (holotype, MO; isotypes, BM, BRIT, E, F, G [4], GH, L, NY, S, US, Z [2]). Figure 1.

Quoad laminas foliaries ellipticas vel raro oblanceolatas usque obovatas et petiolos usque ad 1.2 cm longos, plerumque primo intuitu cum *Cybiantho rostrato* (Hassk.) G. Agostini confusus est, sed ab eo laminis abrupte acutis usque brevi-acuminatis (nec longi-acuminatis vel caudatis), nervis secundariis in 18 ad 24 (nec 28 ad 32) paribus, corollis 2.5–3 (nec 2.1–2.5) mm longis necnon lobis corollinis chartaceis (nec carnosis) intus glabris (nec dense glandulari-granulosis) praecclare et statim distinguitur.

Trees, 4–6 m tall; branchlets smooth, terete, 3–4 mm diam., moderately to densely appressed-lepidote. Leaves alternate; blades membranaceous to chartaceous, elliptic, rarely oblanceolate to obovate, 5.1–8.4 × 2.7–3.4 cm, apically abruptly acute to short-acuminate, acumen 0.6–1.4 cm, basally acute, decurrent on petiole; petioles slender, canaliculate, 0.8–1.2 cm, 0.8–1.1 mm in diam., densely appressed-lepidote; blades inconspicuously pellucid-punctate and punctate-lineate on both surfaces, glabrous adaxially, with scattered appressed-lepidote scales abaxially, midrib depressed adaxially, prominently raised abaxially, secondary veins obscure, in 18 to 24 pairs, inconspicuous on both surfaces, blade

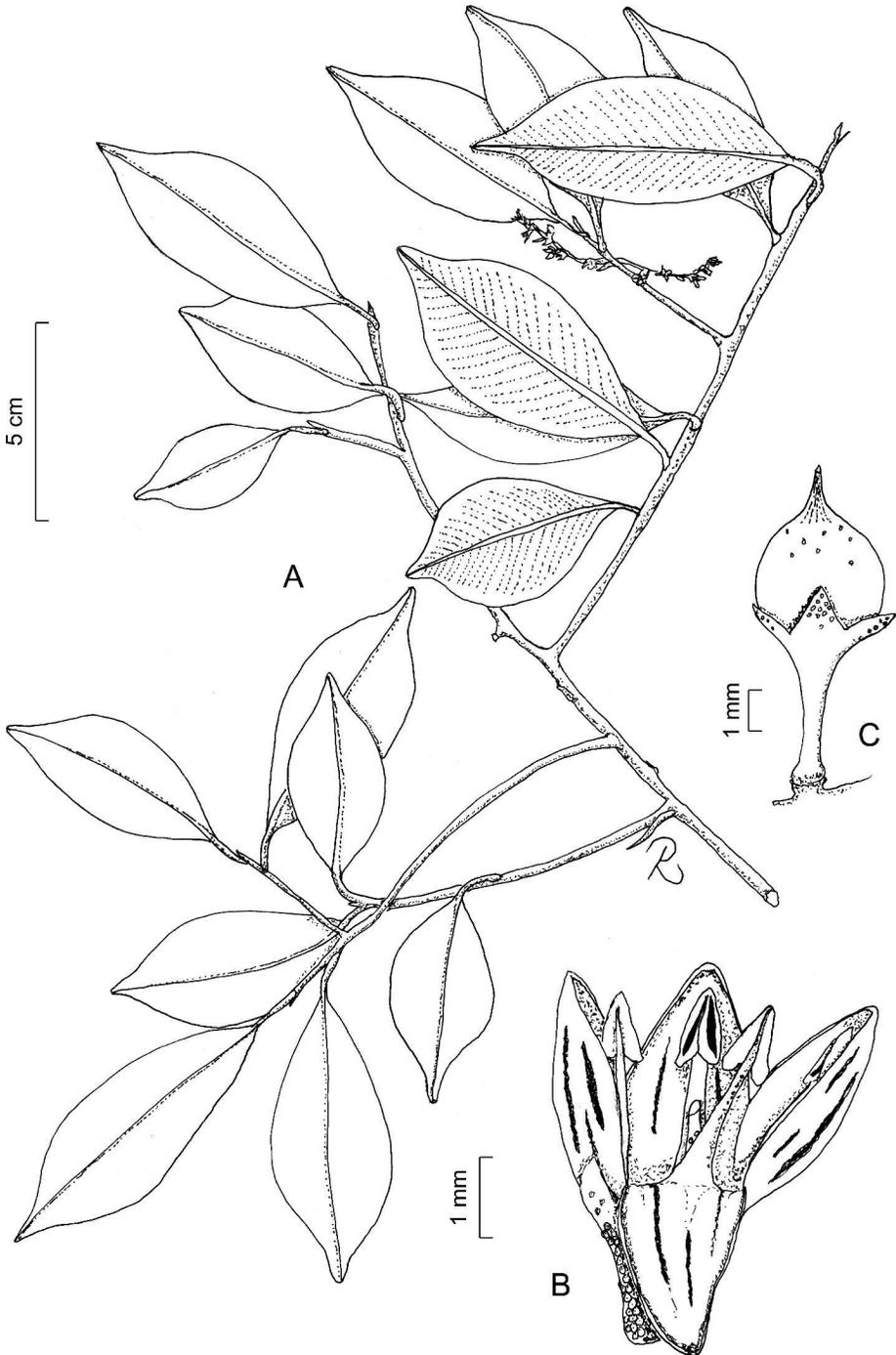


Figure 1. *Cybianthus pittierianus* Pipoly & Ricketson. —A. Branchlet. —B. Staminate flower. —C. Fruit. A, B drawn from the holotype, *W. Broadway 4051* (MO); C drawn from *J. Steyermark & R. Liesner 120737* (MO).

margins entire, flat, epunctate. Staminate inflorescence: raceme or panicle with 1 to 3 racemose branches from base, 2.4–2.6 cm, shorter than leaves, 6- to 10-flowered; rachis conspicuously punctate and

punctate-lineate, densely lepidote; peduncles 0.3–0.5 cm, densely lepidote; inflorescence bract and inflorescence branch bract unknown; floral bract caducous, chartaceous, linear-lanceolate 1.1–1.3 ×

0.8–1 mm, apically acute, inconspicuously punctate and punctate-lineate, densely lepidote abaxially, margin entire; pedicels cylindrical, 0.5–0.7 mm, densely lepidote. Staminate flower 4-merous; calyx chartaceous, cotyliform, 0.8–1 mm, tube 0.1–0.2 mm, lobes ovate, 0.7–0.9 × 0.8–1 mm, apically acute, conspicuously pellucid-punctate, sparsely lepidote abaxially, glabrous adaxially, margin entire, glabrous to lepidote; corolla yellow, chartaceous, campanulate, 2.4–3 mm, tube 0.8–0.9 mm, glabrous throughout, lobes ovate, 1.5–1.8 × 1.3–1.4 mm, apically acute to rounded, inconspicuously punctate, glabrous throughout, margin entire, glabrous; stamens 2–2.2 mm, filaments 1.5–1.6 mm, adnate to corolla tube, staminal tube membranous, 0.5–0.6 mm, epunctate, glabrous, elobate, the apically free portion flat, 0.2–0.4 mm, anthers erect, ovate, 0.7–0.8 × 0.4–0.5 mm, apically acute, basally cordate, glabrous, dehiscent by wide slits, dorsifixed ca. 1/3 from base, connective prominently punctate; pistillode conic, 1.1–1.2 mm, 0.2–0.3 mm diam., densely and prominently punctate, densely translucent lepidote, stigma punctiform, style 0.6–0.8 mm, ovary 0.4–0.5 mm, densely translucent lepidote, hollow. Pistillate inflorescence and flowers: unknown. Fruits depressed-globose, 6–7 × 7–8 mm, sparsely lepidote, endocarp verruculose externally; aril scanty, adnate to seed and endocarp; endosperm type I (Agostini, 1972: 118), embryo straight, ca. 4 mm.

Ecology and distribution. *Cybianthus pittierianus* occurs in the tropical moist montane broadleaf forests to the montane cloud forests of the Coastal Cordillera of Venezuela, which extends from the Yaracuy Depression eastward to the Paría Peninsula in Venezuela (Huber, 1997: 1, map 37; Olson et al., 2001: figs. 1–2; Bonaccorso, 2012: 1). The cordillera is adjacent to a geologically related formation in Trinidad and Tobago where soils have high potassium and magnesium but are nitrogen and organically poor, over metamorphic schist and gneiss material (Huber, 1997: 2). The flora of the islands is distinctly continental, especially that on the Northern Range of Trinidad and the Central Ridge of Tobago (White, 2009: 309; Armstrong, 2012: 1–2). The area is thought to have been formed under pressure during the movement of the Caribbean Plate and consequent flows of Orinoco, Amazon, and combined sediments along the northern continental shelf of Venezuela circling Trinidad and Tobago (Clayton et al., 1999: fig. 8) with simultaneous formation processes providing a basement structure of sediment fill in the eastern Venezuelan Basin and Antilles Forearc (Summa et al., 2003: fig. 4). The tectonic map provided by Gill et al. (2005: fig. 1) shows that the

Coastal Cordillera of Venezuela and the islands of Trinidad and Tobago lie west of the Barbados Accretionary Prism and south of a deformation front that includes the South Caribbean Deformation Zone, La Blanquilla Thrust Belt, and the Tobago Forearc Basin, all accelerating southward from the Caribbean Plate against the South American Plate. It is, therefore, not a surprise that the geologically closely related metamorphic areas on the Atlantic Slope of the Coastal Cordillera and their counterparts on the northern slope of the Tobago Forest Reserve share such a unique species. *Cybianthus pittierianus* possesses a modern-day distribution that superposes the south-central base of the Aves Ridge, where lowlands are thought to have connected to the developing South American continent during the Late Eocene to the Early Oligocene (Iturralde-Vinent & MacPhee, 1999: fig. 6). The connection explained by Iturralde-Vinent and MacPhee (1999: fig. 6) was located north of their Orinoco Seaway and the Eastern Venezuelan Basin, immediately east of the Magdalena Basin.

IUCN Red List category. Given the paucity of collections, *Cybianthus pittierianus* cannot be evaluated and is thus assessed as Not Evaluated (NE), according to the IUCN Red List (2001) categories and criteria.

Etymology. This curious species is named for the Swiss-born, naturalized U.S. citizen Henri François Pittier (1857–1950). Dr. Pittier worked for the U.S. Department of Agriculture, exploring Central America for 14 years, and subsequently spent 31 years living in Caracas, Venezuela. As a geographer, engineer, and botanist, Dr. Pittier wrote a series of outstanding contributions to our knowledge of the floras of Costa Rica, Panama, Colombia, and Venezuela. His work in Venezuela included generalized keys to families, guides to useful plants, and a myriad of other basic works, including larger contributions toward a Flora of Venezuela.

Relationships. *Cybianthus pittierianus* is a member of *Cybianthus* subg. *Conomorpha* (A. DC.) G. Agostini based on its branchlets and calyx moderately to densely appressed-lepidote; its corolla campanulate and the adaxial surface glabrous; and its anthers longer than wide and apically acute, and dehiscent by wide longitudinal slits. With its elliptic, rarely oblanceolate to obovate leaves on relatively short petioles, *C. pittierianus* may at first be confused with another member of *Cybianthus* subg. *Conomorpha*, *C. rostratus*, an allopatric species from the Lesser Antilles. However, *C. pittierianus* may be

clearly and immediately distinguished from *C. rostratus* by the abruptly acute to short-acuminate (vs. long-acuminate or caudate) leaf apices, secondary veins in 18 to 24 pairs (vs. 28 to 32 pairs), corolla 2.4–3 mm (vs. 2.1–2.5 mm), and the chartaceous (vs. carmose) texture of the corolla lobes, which are glabrous (vs. densely glandular-grandulose) within.

Cybianthus pittierianus was first pointed out as a new species by Agostini (1972: 149–155, fig. 31) in his dissertation but was not formally described in an attempt to wait for better pistillate material. Given that over four decades have passed with no significant additional collections to fill that void, it was decided that it would be best to describe the species now and hope that its description alerts those managing the flora of the Venezuelan Caribbean coast and the reserves of Tobago of its presence and geographic significance.

Paratypes. TRINIDAD AND TOBAGO. **Tobago:** Tobago Forest Reserve, 7 Oct. 1912 (stam. fl.), *W. Broadway 3993* (L, S). VENEZUELA. **Carabobo:** Río San Gián, al sur de Borburata, entre La Toma y la cumbre de la fila por el sitio “Capuchinos,” 750–1000 m, 16 Mar. 1911, *J. Steyermark & C. Steyermark 95218* (S). **Sucre:** Peninsula de Paria, Cumbre de Las Estrellas, W of Manacal, ca. 15 km, by air, NW of Irapa, E of El Sanche, N of El Paujil, 10°40'N, 062°40'W, 800–830 m, 30 Nov. 1979 (fr.), *J. Steyermark & R. Liesner 120737* (MO, VEN).

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