Calycogonium pseudofloribundum, a new species of Melastomataceae, Miconieae, from eastern Cuba

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Abstract

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Calycogonium pseudofloribundum of the Melastomataceae tribe Miconieae, from eastern Cuba, a species new to science, is described and illustrated. C. pseudofloribundum is closely related to C. floribundum, with which it has been confused for a long time. It can be distinguished from the latter species by leaf features (the ovate to lanceolate leaves have an acute to apiculate apex, the blade is flat to slightly revolute, the margin usually obscurely to minutely dentate towards the apex, the adaxial surface is flat and usually opaque to whitish in dry material by presence of wax layers; they have two, rarely one, pair of secondary veins, the second pair originating 2–9 mm above the base), the external calyx teeth being 5–6 mm long, and the petals being white, obtuse to acute, 4–5 × 2–2.5 mm. An amended description and an illustration for C. floribundum is also provided.

Additional key words: Calycogonium bissei, Calycogonium floribundum, Calycogonium revolutum, Miconia, Pachyanthus, Tetrazygia, taxonomy, Greater Antilles

Introduction

Calycogonium DC. is an Antillean genus of shrubs and small trees with about 40 species (Michelangeli & Bécquer in press). Like most genera in the Miconieae, Calycogonium does not seem to be monophyletic (Bécquer & al. 2008; Michelangeli & al. 2004, 2008) and its species are placed in four different clades along with species of Miconia Ruiz & Pav., Pachyanthus A. Rich. and Tetrazygia Rich. (Goldenberg & al. 2008; Michelangeli & al. 2008). However, most of these clades can be diagnosed by morphological characters, as it has been the case for many groups in the Miconieae (Bécquer & al. 2008; Martin & al. 2008; Goldenberg & al. 2008).

One of these clades can be diagnosed by abaxially densely stellate-pubescent leaves and inflorescences sometimes reduced to a single flower (Judd & Skean 1991). Several Cuban endemic species of Calycogonium and one of Pachyanthus belong to this clade, e.g. C. floribundum Borhidi, C. grisebachii Triana, C. plicatum Griseb., C. revolutum Alain, Pachyanthus reticulatus Britton & P. Wilson (Bécquer & al. 2008; Michelangeli & al. 2008) and also C. bissei Bécquer (2010).

During a morphological study of this species group, two unidentified herbarium specimens housed at HAJB and JE (Bisse & Rojas HFC-3544, Bisse & Rojas HFC-16819) from eastern Cuba came to my attention. The specimens have the ovary locules extending into the free distal portion of the ovary. This feature constitutes the synapomorphy of a small group of species that includes C. bissei, C. revolutum and P. reticulatus (Bécquer 2010).
Also, the specimens are related to *C. floribundum* by the fact of having both axillary and terminal inflorescences.

My comparative study of the specimens above with several others deposited in B, HAC, HAJB and JE (herbarium abbreviations following Thiers 2008+), which were up until now determined as *Calycogonium floribundum*, showed that they do not belong to the latter species, although some of their features match those given in the protologue of *C. floribundum*.

Borhidi (1978) described *Calycogonium floribundum* based on a unique specimen deposited at HAC, supposedly collected in Sierra del Cristal near Cucu yal del Norte by O. Aurich & C. Horstmann (no. 4.28), with an isotype deposited in the herbarium GAT.

A careful examination of the holotype of *Calycogonium floribundum* confirmed that the two questioned specimens indeed correspond with this species, but demonstrated that all the specimens previously annotated as *C. floribundum* represent a yet undescribed, morphologically similar and presumably closely related species, which is described below and compared with *C. floribundum*.

*Calycogonium pseudofloribundum* Bécquer, sp. nov.

Holotype: Cuba, Guantánamo, Baracoa, Alturas de Baracoa, Mina Amores, place where río Camarones & río Baez meet, 20°25.493′N, 74°37.166′W, 110 m, steep 45° slopes, 21.6.2002, D. Skean, E. Bécquer, L. R. González-Torres & J. Carrión 4167 (HAJB; isotypes: B, FLAS, HAJB). – Fig. 1, 2A–D.

A *Calycogonio floribundo* foliis ovatis vel lanceolatis, acutis apiculatis, margine planis et parum revolutis integris, acutis apiculatisve, margine planis vel parum revolutis, cuneata, eglandular; thecae 2, smooth, with a dorsal-apical pore. *Ovary* semiinferior, 3-locular, apically slightly sunken at the insertions with the style, densely rufous-tomentose; locules extending into the free, conical distal portion (Fig. 2A); placentation axile, placenta not intrusive; style (Fig. 2B) terete, attenuate apically, glabrous, c. 5.5 mm long, with ± 30 seeds. *Seeds* 1.2–1.5 mm long, with papillate testa surface.

Etymology. — The specific epithet refers to the fact that this new species has been confused with *Calycogonium floribundum*, and also alludes to the close morphological resemblance between them.

**Delimitation.** — *Calycogonium pseudofloribundum* differs from *C. floribundum* by its ovate to lanceolate (ver-
Fig. 1. Photo of the holotype of Calycogonium pseudofloribundum at HAJB; top frame: axillary flowers, bottom frame: terminal flowers.
sus ovate-elliptic or obovate-elliptic), acute to apiculate (versus obtuse to retuse) leaf blade with plane to slightly revolute (versus revolute) and distally usually obscurely minutely dentate (versus entire) margin, the adaxial face being flat (versus usually bullate) and usually opaque to whitish in dry material by presence of wax layers (versus shiny), the leaf venation with two pair, rarely one, of secondary veins, the second pair suprabasal, originating 2–9 mm above the base (versus one pair of basal, rarely suprabasal secondary veins originating 1–2 mm above the base); the calyx with the external teeth 5–6 mm (versus 3–3.5 mm) long, and the white and obtuse to acute (versus purple and truncate) petals of 4–5 × 2–2.5 mm (versus 7.5–8 × c. 5 mm).

**Calycogonium pseudofloribundum** and **C. floribundum** are the only species of the genus in Cuba with both axillary and terminal inflorescences. It is possible that both species have axillary inflorescences with some of them appearing terminal (pseudoterminal inflorescences). Little is known, however, about the phenology of the species and whether they have only pleonanthic shoots (typical for plants with axillary inflorescences) or also truly hapaxanthic shoots in which the apical shoot meristem is transformed into a flowering axis after a period of vegetative growth (Judd 1986).

**Phenology.** — Plants with buds have been collected in April, flowers and young fruits in June.


**Additional specimens examined.** — **CUBA**: Prov. Guantánamo: Charrascos en la subida a Sierra Azul, Quibiján, Baracoa, alt. aprox. 500 m, 4.1.1960, Alain & L. Figueiras 7343 (HAC, HAJB); Baracoa, pluvisilva a orillas del arroyo Juraguá, al suroeste de Camarones, 100 m, 5.8.1975, Álvarez & al. HFC-26980 (B, HAJB, JE); Baracoa, Loma de Buena Vista, parte oeste (al oeste de Camarones), 100 m, 5.8.1975, Álvarez & al. HFC-27368 (B, HAJB, JE); Baracoa, subida a la Sierra Azul ladera noroeste (al sur de Quibiján), matorral xeromorfo subespinoso sobre serpentina, suelo fersialítico pardo rojizo, 15.4.1986, Arias & al. HFC-58773 (B, HAJB, JE); Baracoa, pinar en la loma al noroeste de Baracoa, 2.1968, Bisse & Köhler HFC-5384 (HAJB, JE); Baracoa, Quibiján, Sierra Azul, charrascos entre 400–600 m, 2.1968, Bisse & Köhler HFC-5477, HFC-5653 (HAJB, JE); Baracoa, charrascos en el valle del río Báez cerca de Arroyo naranjo, 200 m, 4.1975, Bisse & al. HFC-25608 (HAJB); Baracoa, Quibiján, pluvisilva de la zona de Arroyo Blanco en el camino a Vega de la Palma, 16.2.1978,
Bisse & al. HFC-36975 (HAJB, JE); Imías, Sierra de Imías, cima de la loma Demajagua Hueca (entre río Duaba y río Jojo), charrascos y pinares sobre laterita, 700 m, 16.4.1984, Bisse & al. HFC-53221 (B, HAJB, JE); Camino a la mina de Río Baex, 18 km NO de Baracoa por carretera, y luego 7–9 km SO por carretera, entre dos puentes sobre el Río Baez, 20°25.55′N, 74°37.23′W, 100 m, 22.10.2009, Michelangeli & al. 1468 (HAC, HAJB, NY). – PROV. HOLGUÍN: Moa, charrascal cerca de la mina La Melba, 600 m, 4.1.1969, Bisse & Lippold HFC-11078 (HAJB, JE); Moa, La Melba, charrascal cerca del aserrío, 400–500 m, 22.12.1968, Bisse & Lippold HFC-11259 (HAJB, JE).


Shrub, evergreen. **Indumentum** formed by c. 0.1 mm long stellate and 0.2–0.7 mm long dendritic hairs present on young twigs, abaxial leaf surface, inflorescences, flowers and young fruits. Young twigs flattened in dry material, densely ferrugineous to rufous-tomentose. **Mature branches** with smooth bark. **Leaves** with a 0.4–0.7 cm long terete petiole flattened in dry material, canaliculate above, densely ferrugineous-tomentose, later grey-to-ferrugineous indumentum, sometimes turning grey with age. **Venation** acrodromous, with one pair of basal (rarely suprabasal, originating 1–2 mm above the base) symmetrical secondary veins; midvein, secondary and tertiary veins impressed above, prominent beneath; tertiary veins ± perpendicular to the midvein; quaternary veins inconspicuous on either side. **Mite domatia** absent. **Inflorescence** mostly axillary on the two terminal nodes, sometimes terminal, cymose, nearly sessile; **flowers** 1–3–5(–10), usually forming a 3-flowered dichasium, sometimes 5-gلومeral, bracts persistent through anthesis, obovate, subulate to cylindrical, rarely foliaceous, 0.6–0.9 cm long, coriaceous; bracteoles paired, subulate, c. 2 mm long, persistent. **Flowers** 4-merous (Fig. 2E), sessile. **Hypanthium** (Fig. 2G) turbinate to campanulate, terete, c. 4 mm long, free portions c. 2.5 mm long, densely ferrugineous to rufous-tomentose on both faces. **Calyx** cup-shaped, with a 1–2 mm long tube; external calyx teeth 3–3.5 mm long, slightly keeled at base, terete toward the obtuse apex, ± parallel to flower axis, densely ferrugineous to rufous-tomentose; internal calyx lobes ovate to broadly rectangular, obtuse-triangular toward apex, 3–3.5 mm long, ferrugineous to rufous-tomentose inside. **Petals** (Fig. 2F) not unguiculate, obovate, oblong, slightly asymmetric, concave toward the truncate apex, with a cuneate base, 7.5–8 × c. 5 mm; margin entire, glabrous, purple. **Stamens** (Fig. 2H) 8, isomorphic, glabrous. **Filaments** c. 3.5 mm long, flattened, geniculate at the base. **Anthers** 2.2–2.5 mm long, smooth; connective thickened toward base, thinning out toward apex, slightly shorter than thecae, not bifurcate, eglandular; thecae 2, smooth; with a dorsal-apical pore. **Ovary** semiinferior, 3-locular, apically almost truncate to slightly sunken at the insertions with the style, densely ferrugineous-pubescent; locules extending into the free, conical distal portion (Fig. 2G); placentation axile, placetae not intrusive; **style** (Fig. 2I) terete, attenuate apically, glabrous, c. 7 mm long, stigma punctiform. **Berries** not seen, immature fruit c. 5 mm long, with ±30 seeds. **Seeds** 1.2–1.5 mm long, with papillate testa surface.

**Phenology.** — Plants with flowers have been collected in April, flowers and very young fruits in June.

**Distribution and habitat.** — Calycogonium floribundum is endemic to eastern Cuba (provinces of Guantánamo and Holguín), where it occurs in ± thorny xerophytic scrub and semidry montane rainforest on serpentine, at an altitude of c. 700 m.


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