

A NEW SPECIES OF *CALYPTRANTHES* (MYRTACEAE) FROM COSTA RICA

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ABSTRACT

Previous collections of *Calyptanthes guanacastensis* have been misidentified as *C. chytraculia* (L.) Sw., which is the most closely similar species, but the two differ greatly in habitat type and morphological characters (see below). While carrying out field work and research activities by INBio-KRIBB-2015's project in the Área de Conservación Guanacaste (ACG), we were able to collect abundant flowering material of this species. After studying its habitat and collections (including previous collections), we conclude that represents a distinct and previously undescribed species.

RESUMEN

Colecciones previas de *Calyptanthes guanacastensis*, habían sido mal identificadas bajo la especie *C. chytraculia* (L.) Sw., la cual es la especie más relacionada, sin embargo, ellas difieren significativamente en el tipo de hábitat y otros caracteres morfológicos (ver adelante). Mientras realizábamos trabajo de campo y actividades de investigación por el proyecto INBio-KRIBB-2015 en el Área de Conservación Guanacaste (ACG), logramos recolectar suficiente y buen material con flores de esta especie. Posterior a un estudio, de las características de su hábitat y el material recolectado (incluido unas pocas colecciones previas), concluimos que representa una especie nueva distinta y sin describir.

Calyptanthes is a tropical American genus of Myrtaceae that is distributed from the southeast USA (South Florida) down to northern Argentina, the Antilles, and the Bahamas. The genus comprises about 100 species; 6 of them occur in Costa Rica (Holst & Kawasaki 2007). It is distinguished from other Myrtaceae genera by its conspicuously calyptriform, circumsessile, and deciduous calyx that falls as a unit or stays attached to the hypanthium on a single point (Holst & Kawasaki 2007). Also, *Calyptanthes* are mainly shrubs or trees, vegetatively characterized by persistent dichotomously branching twigs.

We describe *Calyptanthes guanacastensis* as a new species, illustrate it, and compare it with closely related species.

CALYPTRANTHES GUANACASTENSIS N. Zamora, S. Kim, & R. Espinoza, **sp. nov.** **TYPE: COSTA RICA.** **Guanacaste.** Cantón La Cruz, Área de Conservación Guanacaste, Sector El Hacha, Estación Los Almendros, sendero al cerro El Hacha, rumbo a la Quebrada El Tigre, 11° 01' 43.2" N, 85° 31' 31.6" W, 300 m, 18 Mar 2015 (fl), *Zamora et al.* 7559 (holotype: CR; isotype: KRIB). Figures 1-2.

Confused with *Calyptanthes chytraculia* by its reddish or ferruginous-pilose inflorescences but differing markedly by its much smaller leaves [(1.4–) 3–10(–12.1) x (1.5–) 2–5.3 cm] with obscure or weakly evident secondary veins (in vivo), the inflorescences less or sparsely yellowish or ferruginous-pilose pubescence with angulate main axes and laxiflorous branches. Moreover, it differs greatly in its habitat type, which is strongly dry to humid seasonal, semideciduous to evergreen, gallery or riparian forest.

Shrub or small tree of 4–5 m tall; old twigs essentially glabrous, young parts with dense, very short, appressed, ferruginous-sericeous pubescence. **Leaves:** petiole 5–10 mm long, caniculate, appressed ferruginous-sericeous beneath; lamina (1.4–)3–10(–12.1) x (1.5–)2–5.3 cm, elliptic, apex obtuse, acute to short-acuminate, sometimes apiculate, base obtuse, both surfaces glabrous when mature, only sparsely ferruginous-sericeous beneath along the costa near the base, lateral veins 10–16 per side, weakly impressed and flat above, brochidodromous and weakly elevated underneath, reticulation obscure on both sides. **Inflorescence** axillary panicles, in pairs or 3–4 per axil, 5.7–8.7 cm long, peduncle 2.5–4.3 cm long, axes angulate to quadrangular, densely appressed ferruginous-sericeous to densely pilose; bracts 0.5 mm long, deciduous. **Flowers** white, sessile, hypanthium 2 mm long, pyriform to cupuliform, densely ferruginous-pilose; **calyx** calyptriform, circumscissile, calyptra 1.5 x 1.5 mm, laterally attached, concave, deciduous; **flower buds** obovoid, apiculate; **petals** 0; **stamens** many, white; pistil ca 5 mm long, glabrous. **Fruits** rounded to globose or ovoid, 7 mm long, 7 mm wide, glabrous, surface minutely papillose, apex shallowly urceolate, dark purple when ripe; pedicel 1–2 mm long. **Seeds** not seen.

Flowering material has been collected from January to March; fruiting in June and August.

Studying collections at the National Herbarium of Costa Rica, we found that some previous collections (see *exsiccatae* below) of *Calyptanthes guanacastensis* were misidentified as *C. chytraculia* (L.) Sw. But they can easily be distinguished because the leaves of *C. guanacastensis* are much smaller with obscure or weakly evident secondary veins (in vivo) (Fig. 2, C-D), the inflorescences are less or sparse yellowish or ferruginous-pilose pubescence with angulate main axes and laxiflorous branches (Fig. 2, A-B). In contrast, in *C. chytraculia* the leaves are normally much bigger (10–17 x 4–7 cm) with strongly prominent venation (below), inflorescence tend to be larger (7–14 cm) with cylindrical, densely dark-ferruginous or dark reddish-pilose axes and with densiflorous or multiflorous branches.

Both species also differ greatly in habit types. *Calyptanthes guanacastensis*, so far as known, is restricted to the northwestern part of the Cordillera of Guanacaste, growing at the lower-middle (300-700 m) Pacific slope, in strongly dry to humid seasonal, semideciduous to evergreen, gallery or riparian forest patches (Fig. 3). *Calyptanthes chytraculia* occurs mainly at the lowland-middle (0-850 m) Caribbean slope (except, for a population in the Osa Peninsula, Southern Pacific slope). It is distributed in wet or rain forest habitats, sometimes along coastal flat swampy forests.

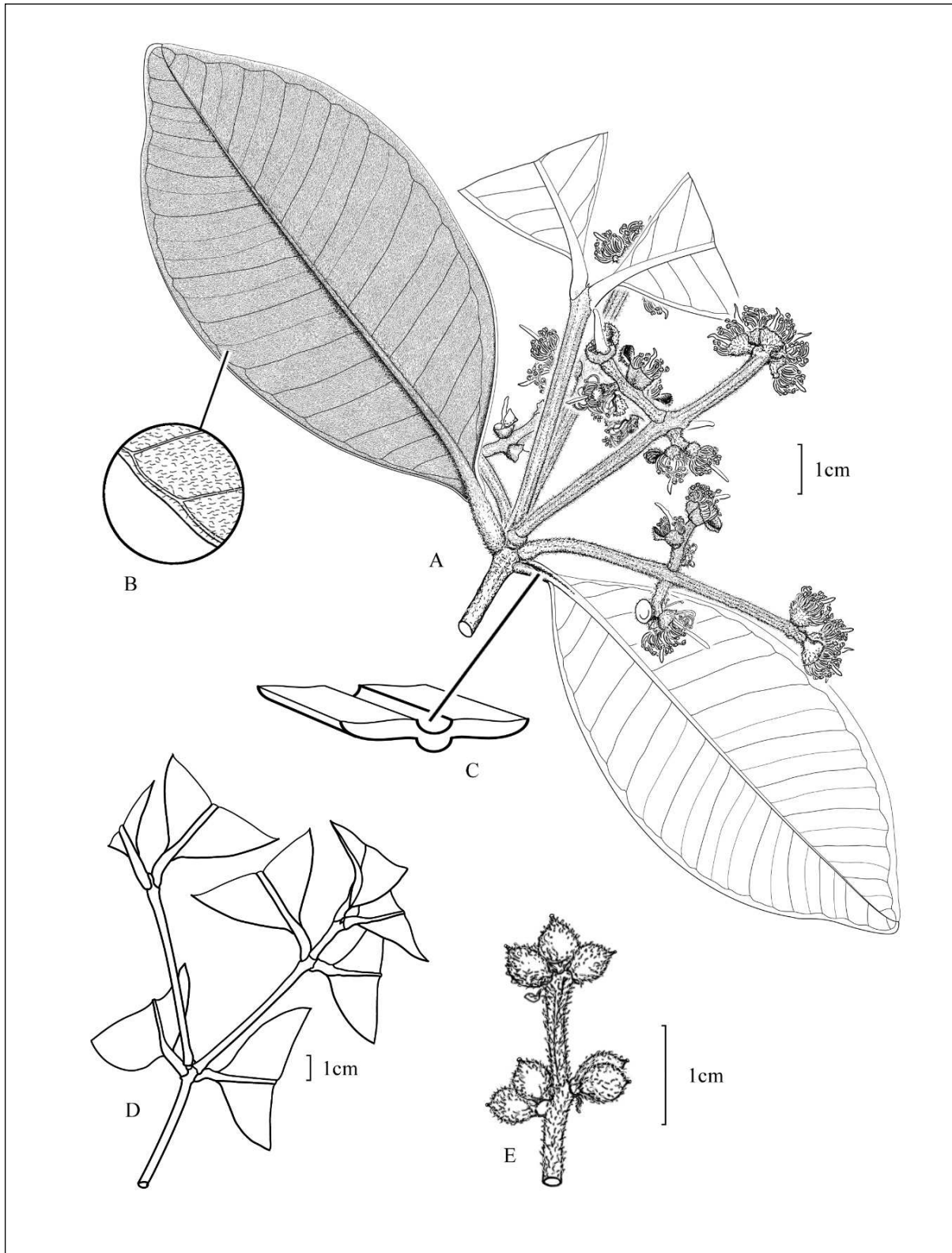


Figure 1. *Calyptranthes guanacastensis*. A. Twig with inflorescences. B. Submarginal vein and pubescence of lower surface. C. Petiole, channelled above. D. Dichotomously branching twig. E. Buds, showing apiculum and pubescence. Drawing by Claudia Aragón.

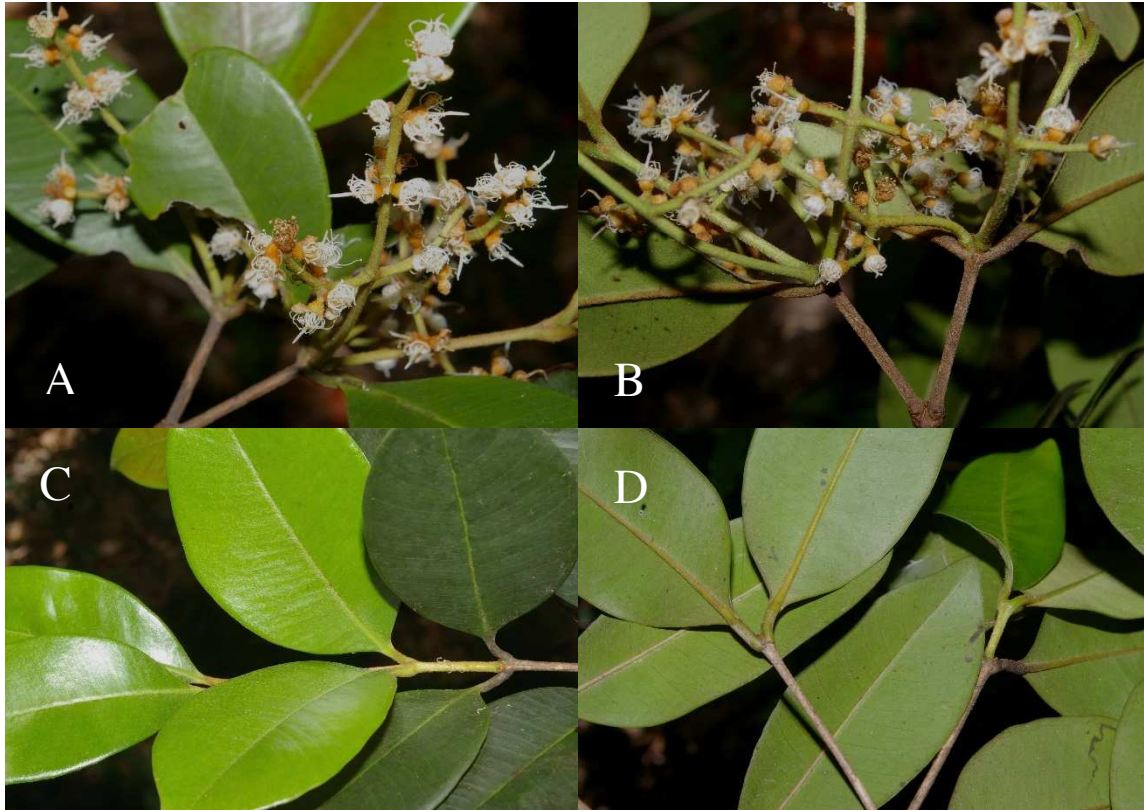


Figure 2. *Calyptranthes guanacastensis*. A. Terminal inflorescence showing the flowers. B. Inflorescences showing grouping at the twig's apex. C. Leaves - upper surface. D. Leaves -lower surface. All from Zamora et al. 7559.



Figure 3. Landscape view of *Calyptranthes guanacastensis* habitat: dry semideciduous to evergreen seasonal forests patches along a watershed. Photograph by N. Zamora.

Additional material examined. COSTA RICA. Guanacaste: Liberia. Área de Conservación Guanacaste, Estación Cacao, Sendero Casa Frank, 10° 57' 20" N, 85° 29' 21" W, 620 m, 12 Ago 2014 (fr), *Zamora* et al. 7105 (CR, KRIB). Liberia. Parque Nacional Guanacaste, cuenca del Río Tempisque, Estación Maritza, Sendero a Cacao, 10° 57' 06" N, 85° 28' 09" W, 600 m, 12 Jun 1996 (fr). La Cruz. Parque Nacional Guanacaste, cuenca del Río Sapoá, Sector Los Almendros (El Hacha), sendero la Bejuquilla, 11° 02' 00" N, 85° 31' 40" W, 300 m, 21 Ene 1998 (fl), *Espinoza* et al. 1759 (CR). Liberia. Parque Nacional Rincón de la Vieja, cuenca del Río Tempisque, sector Los Almendros, 10° 45' 30" N, 85° 19' 04" W, 700 m, 2 Feb 1997 (fl), *Espinoza* 1664 (CR). Liberia, Parque Nacional Guanacaste, cuenca del Río Tempisque, Volcán Orosi, Estación Biológica Maritza, 10° 57' 19" W, 85° 29' 29" W, 650 m, 12 Mar 2003 (fl), *Boyle* et al. 7080 (CR).

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