

DICLIPTERA FRANCODAVILAE (ACANTHACEAE): A NEW SPECIES FROM THE COASTAL DRY FORESTS OF THE PROVINCE OF GUAYAS, ECUADOR

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Abstract. *Dicliptera francodavilae* a new species of Acanthaceae from the remnant deciduous coastal dry forests, mainly from the area of Guayaquil, in the province of Guayas, western Ecuador, is here described and illustrated. It is distinguished from the 10 remaining species of the genus in Ecuador by having an inflorescence of terminal, rather loose racemes of umbels, cymule bracteoles narrowly elliptic-oblancoolate and pilose without and lilac to purple corollas, 15–25 mm long. *Dicliptera francodavilae* is assessed as Vulnerable (VU B1a, b, iii).

Resumen. Se describe e ilustra *Dicliptera francodavilae*, una nueva especie de Acanthaceae de los remanentes de los bosques secos deciduos costeros, principalmente del área de Guayaquil, en la provincia del Guayas, en el occidente de Ecuador. Esta nueva especie se distingue de las 10 restantes en este género que se encuentran en Ecuador por poseer una inflorescencia terminal, bracteolas de las cúmulas angostas, elíptico-lanceoladas y externamente pilosas y corolas de color lila hasta púrpura, 15–25 mm long. A *Dicliptera francodavilae* se le asigna el estatus Vulnerable (VU B1a, b, iii).

Keywords: Acanthaceae, *Dicliptera francodavilae*, dry forests, Ecuador, endemic, Guayas

During fieldwork for the forthcoming Flora of Guayaquil (Cornejo, en prep.), a persistent herb of *Dicliptera* Juss. (Acanthaceae), was found in few remnants of disturbed coastal dry forest in the city of Guayaquil and surroundings, in western Ecuador. The species was firstly collected in May 1892 by Henrik Franz Alexander Barón von Eggers, while visiting the Puná island, also in the province of Guayas. The Eggers' collection was named by Gustav Lindau as *D. aequitoriensis*, a name that has remained unpublished for approximately one hundred years. However, as the epithet "aequitoriensis" refers to Quito, the Andean city and capital of Ecuador that has nothing in common to the coastal habitat and pattern of distribution of the new species of *Dicliptera*, a different new name is formally proposed here for this interesting novelty.

Dicliptera francodavilae Cornejo, Wassh. & Bonifaz, sp. nov. TYPE: ECUADOR. Guayas: Área Nacional de Recreación Parque Samanes, Rocódromo, disturbed deciduous dry forest, 2°06'S, 79°54'W, 10 m, 28 August 2016 (fl), X. Cornejo, M. Gallardo & V. I. Cornejo 8838 (Holotype: GUAY; Isotypes: MO, NY, US). Fig. 1.

Species nova affinis Dicliptera unguiculata Nees in Benth. bracteis major cymarum anguste ellipticis ad ellipticis-oblancoolatis, 2–2.5 mm latis minute apiculatus, dense pilosis, apice spina parva terminatus; inflorescentiis terminalis laxis racemus umbellis ad 12 cm longis; corolla 15–25 mm longis, extra pilosis, lilacinus ad purpureus distinguita.

Herb to 1 m tall, mostly deciduous to semideciduous; main stem erect to decumbent, hexagonal, abundantly pilose, glabrescent at base. *Leaves* decussate; blades thin-foliaceous to membranous, shortly lanceolate to ovate or

ovate-elliptic, 2.5–7 × 1–3.5 cm, widely cuneate to obtuse at base, acuminate to sharply-acuminate at apex, the blade pilose and with midvein and secondary ones prominent on both sides, the margins ciliate; main lateral veins 3 to 5 on each side, the tertiaries reticulate; petioles 1–20 × 0.4–1 mm, pilose. *Inflorescences* terminal, a raceme of umbels to digitate, to 12 cm long, and axillary umbels on short peduncles turning to digitate. Outer pair of bracts, narrowly-elliptic to elliptic-oblancoolate, 7–12 × 2–2.5 mm, sessile at base, rostrate at apex, green, densely pilose. *Calyx* ca. 3.5 mm long, withish, sepals 5, the lobes narrowly-lanceolate, mostly free, fused at base. *Corolla* bilabiate, 15–25 mm long, lilac to purple, pilose without, the tube 6–10 mm, the lower lip with a white spot at lower half, inconspicuously 3-lobed at apex, the lobes ca. 0.3 mm long (fresh), the upper lip obtuse, entire. *Ovary* conical, ca. 1 mm (fresh), glabrous. *Stamens* 2, the filaments more or less equal to corolla, adnate in throat at base of upper lip, lilac to purple, loosely pilose, anther thecae 2, unequally inserted, white. *Capsule* ca. 5 × 2 mm, seeds suborbicular, keeled, laterally somewhat compressed, dark-brown (dry), papillate, glabrous.

Additional specimens examined: Guayas. Terminal Pascuales, Petrocomercial, 1°57'S, 79°53'W, 20 m, Oct 1995 (fl), *Maridueña 003* (GUAY). Nobol, 1°54'S, 80°02'W, 5 m, 21 July 2001 (fl), *Bonifaz & Elao 4233* (GUAY). Samborondón, 1°57'S, 79°53'W, 5 m, 30 September 2001 (fl), *Bonifaz & Elao 4262* (GUAY). Área Nacional de Recreación Parque Samanes, rocódromo, 2°06'S, 79°54'W, 8 m, 21 August 2016 (fl), *Cornejo, Gallardo & Cornejo 8836* (AAU, GUAY, NY, US). Facultad de Ciencias Naturales de la Universidad de Guayaquil, campus Mapasingue, 2°08'S, 79°55'W, 20 m, 27 September 2016 (fl), *Cornejo 8858* (GUAY, NY). Insula Puna, May 1892 (fl), *Eggers 14754* (B).

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FIGURE 1. *Dicliptera francodavilae* Cornejo, Washh. & Bonifaz. **A**, terminal inflorescence, lateral view; **B**, bilabiate corolla, lateral-adaxial view; **C**, geniculate rachis, lateral view; **D**, detached petals; **E**, leaf blade, abaxial view; **F**, phyllotaxy and branching pattern. **G**, herbaceous habit. A–G: From the holotype (Cornejo *et al.* 8838).

Habitat and distribution: *Dicliptera francodavilae* is known from few localities, all found in the disturbed remnants of coastal dry forests in the area of Guayaquil city and surroundings, in the province of Guayas, between 0 and 20 meters above sea level.

Conservation status: *Dicliptera francodavilae* has been collected few times, all in disturbed remnant areas in which some native species have persisted after the devastating effect of the urban expansion of the city of Guayaquil. Another threat is the antropogenic fire that is produced every year during the dry season (June to December), in the disturbed seasonal dry areas of the coast of Ecuador. *Dicliptera francodavilae* is apparently conserved in the Área Nacional de Recreación Parque Samanes, that belongs to the National System of Protected Areas of the country, that is known as PANE; however, despite the status, that protected area sometimes could be also under risk of antropogenic fire. Therefore, the preliminary status of Vulnerable VU B1a, b, iii (IUCN, 2012), is assigned to this species.

Dicliptera francodavilae is morphologically similar to *D. unguiculata* Nees in Benth. Also from the province of Guayas in Ecuador. The new species is distinguished by having cymule bracteoles narrowly elliptic to elliptic-oblancoolate, 2–2.5 mm wide, minutely apiculate at apex and densely pilose, inflorescence of terminal rather loose racemes of

umbels to 12 cm long and corollas lilac to purple, 15–25 mm long, pilose without. In contrast, in *D. unguiculata* the cymule bracteoles are obovate to oblanceolate to spatulate, distinctly unequal, 3–5.5 mm wide, spinose-aristate at apex with a mucro 2–3 mm long and pubescent, the inflorescence is of axillary cymes, these often clustered at the branch apices in axils of distal leaves, to 7.5 cm long and corollas rose-pink, 12–17 mm long, pubescent with both glandular and eglandular trichomes.

Etymology: The epithet of this taxonomic novelty honors Pedro Franco Dávila (1711–1786), an Ecuadorian naturalist born in Guayaquil, where *Dicliptera francodavilae* occurs, and perhaps the earliest collector of specimens of natural history in the country. Pedro Franco Dávila founded and was the first Director of the *Real Gabinete de Historia Natural* that became the Museum of Natural History in Madrid, Spain. He wrote a guide to collecting plants and other specimens of natural history, that guide was distributed to all officials of the crown in Latin America, that greatly help in the documentation the Neotropical natural richness during the colonial period (Jørgensen and León, 1999; Arellano, 2012).

Biological interactions: The flowers are occasionally visited by three species of bees and Lepidoptera during the mornings (Cornejo *et al.* 8838).

LITERATURE CITED

- ARELLANO, V. H. 2012. Don Pedro Franco Dávila. *Boletín del Municipal de Guayaquil*, 12: 30–43.
- IUCN, 2012. IUCN Red List Categories and Criteria Version 4. IUCN Gland, Switzerland, and Cambridge, United Kingdom.
- JØRGENSEN, P. M. AND S. LEÓN, EDS. 1999. *Catalogue of the Vascular Plants of Ecuador*. Monographs in Systematic Botany from the Missouri Botanical Garden 75: 1–118.
- WASSHAUSEN, D. C. 2013. Acanthaceae. Pages 1–328 in C. PERSSON AND B. STAHL, EDS. Flora of Ecuador Volume 89. Department of Biological and Environmental Science, University of Gothenburg, Goteborg, Sweden.