



Two new species of *Miconia* (Melastomataceae: Miconieae) from the cloud forests of Panama

RICARDO KRIEBEL^{1,3} & FRANK ALMEDA²

¹The New York Botanical Garden, 200th St. & Southern Blvd., Bronx, NY 10458, USA, email: rkriebel@nybg.org)

²Department of Botany, California Academy of Sciences, 55 Music Concourse Drive, Golden Gate Park, San Francisco, California 94118, USA email: falmeda@calacademy.org)

³The Graduate Center, City University of New York, New York, NY, USA

Abstract

Two new species, *Miconia galdamesiae* and *M. papillopetala* are described from cloud forests of western Panama. Both species belong to a clade of Costa Rican and Panamanian taxa that typically have asymmetric leaf venation, flowers with calyces that are fused in bud but rupture into irregular lobes at anthesis, geniculate staminal filaments, five locular ovaries that are glandular-puberulent apically, exerted styles (herkogamous), and angulate seeds. The affinities of the new taxa are discussed and compared with presumed closest relatives and a comparative table is provided. Photographs of live plants and Scanning Electron Micrographs of foliar trichomes, flower buds, and whole flowers at anthesis are included for the new taxa as well as for *Miconia brenesii* and *M. friedmaniorum*, two closely related species that have been confused with the new taxa described here.

Resumen

Dos nuevas especies, *Miconia galdamesiae* y *M. papillopetala* se describen de los bosques nubosos del oeste de Panamá. Ambas especies pertenecen a un clado de taxa de Costa Rica y Panamá las cuales usualmente tienen la venación de las hojas asimétrica, flores con los calices fusionados en la antésis y rompiéndose en lóbulos irregulares, filamentos de los estambres geniculados, ovarios cinco locales con el ápice glandular puberulento, con el estilo exerto (hercógamas) y semillas anguladas. Se discuten las afinidades de las nuevas especies y se provee una tabla comparativa con las mismas. Adicionalmente se incluyen fotografías de plantas vivas y micrografías tomadas con un microscopio electrónico de barrido (SEM) de los tricomas de las hojas, botones florales, flores enteras y sus partes de las especies nuevas así como de las cercanamente relacionadas *Miconia brenesii* y *M. friedmaniorum*, especies con las cuales se han confundido los nuevos taxa descritos acá.

Recent collecting trips to Costa Rican and Panamanian cloud forests for the Miconieae Planetary Biodiversity Inventory project (<http://sweetgum.nybg.org/melastomataceae/>) made possible the collection of flowering material of two undescribed species of *Miconia* as well as flowering material of close relatives for comparison. The two new taxa described here can be assigned to Cogniaux's (1891) section *Amblyarrhena* because of their more or less oblong anthers with a minute pore and based on molecular data fall in a clade of species that are essentially endemic to the Pacific and Caribbean regions of Costa Rica and Panama (Kriebel & Michelangeli, in prep.). All of the taxa in this clade share, among other characteristics, predominantly asymmetric leaf venation in which the primary innermost leaf veins diverge from each other in alternate fashion. Pronounced asymmetric foliar venation of this kind is not common in the Melastomataceae. In most of the species in this clade not all leaves are asymmetric within an individual. This pattern seems to fit the concept of fluctuating asymmetry, where there are small random deviations from bilateral symmetry in a given structure that is evidently due to random perturbations during development (Klingenberg 2010). In some taxa like *Miconia grayumii* Almeda (1989: 209) however, asymmetry is present in almost every leaf