



A new species of *Maytenus* (Celastraceae) from the Brazilian Atlantic Forest, with evidence of molecular phylogeny, and two new synonyms for *Maytenus floribunda*

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Abstract

A new species of *Maytenus* has been discovered in the Brazilian Atlantic Forest. The new taxon, *Maytenus nemorosa*, occurs mostly in ombrophilous rain forests at an elevation of 500 m to 1200 m. *Maytenus nemorosa* resembles *M. gonoclada* but differs from it by possessing oblong-elliptical leaves with entire margins and larger fruits with thicker pericarp walls. A phylogenetic analysis was conducted with nrITS and plastid *matK* regions, including the new species and additional taxa available from the NCBI-GenBank. The results from the phylogenetic analysis places *Maytenus nemorosa* nested within a clade of species that have fruits possessing a coriaceous pericarp and close to both *Maytenus gonoclada* and *Maytenus salicifolia*, as expected from morphological similarities. Additionally, *M. cardenasii* and *M. erythrocarpa*, from Bolivia, are both recognized as new synonyms for *M. floribunda* after an examination of their descriptions, types, and diverse collections.

Key words: nrITS, *matK*, Neotropic, rain forest, taxonomy

Introduction

Celastraceae sensu lato (including Hippocrateaceae) are a primarily pantropical family of woody lianas, shrubs, and trees with several subtropical and fewer temperate members (Simmons & Hedin 1999). *Maytenus* Molina (1782: 177) is one of the largest genera in the family and, as circumscribed by McKenna *et al.* (2008), is essentially American with ca. 140 species. *Maytenus* species occur from subantarctic regions in Tierra del Fuego, Argentina, to the Southern United States of America (in the states of Florida and Texas), with a large altitudinal variation from sea level to ca. 3900 m elevation in the Andean mountains. The center of diversity for *Maytenus* is found in Brazil, with 49 species; 36 of which are endemic (Lombardi *et al.* 2015). The Brazilian species are widely adapted to varied ecological settings, with species present in all phytogeographic domains.

As currently understood, *Maytenus* is diagnosed by its flattened or carinate young twigs, alternate leaves with crenate, spinose or entire margins, conspicuous intrastaminal disk, capsules that open by two or three reflexing valves, with one or two seeds enveloped by a white aril (Biral & Lombardi 2014). The exception is *Maytenus megalocarpa* Groppo & Lombardi (Groppo *et al.* 2014: 480), which has fruits that are larger and tardily dehiscent, with upright valves when dehiscent and four larger seeds. Because *Maytenus* has a general uniformity in their floral structures and general inflorescence types, vegetative characters are commonly used for species identification (Steyermark 1988).

During the course of taxonomic studies of *Maytenus* in South America, the following species was identified from fieldwork and herbarium material, and two taxa were recognized as new synonyms for *Maytenus floribunda* Rissek (1861: 16). The new species had DNA samples collected and a phylogenetic analysis using the nrITS and plastid *matK* regions was conducted including sequences from other taxa available in the NCBI-GenBank.