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A new species of *Metrodorea* (Rutaceae) from Brazil: morphology, molecular phylogenetics, and distribution

PEDRO DIAS[1], RENATA GIASSI UDULUTSCH[2] & JOSÉ RUBENS PIRANI[3]

[1]*Escola de Artes, Ciências e Humanidades, Universidade de São Paulo (USP), Rua Arlindo Bettio 1000, 03828-000, São Paulo, SP, Brazil. Email: ppdias@gmail.com (corresponding author)*
[2]*Faculdade de Ciências e Letras, Universidade Estadual Paulista "Júlio de Mesquita Filho" (UNESP), Campus de Assis, Departamento de Ciências Biológicas, Av. Dom Antônio, 2100, 19806-900, Assis, SP, Brazil. Email: udulutsch@assis.unesp.br*
[3]*Instituto de Biociências, Universidade de São Paulo (USP), Departamento de Botânica, Rua do Matão 277, 05508-900, São Paulo, SP, Brazil. Email: jrpirani@usp.br*

Abstract

A new species of *Metrodorea* (Rutaceae), *M. concinna*, is described and illustrated, and morphological, molecular phylogenetic, and distributional support for the new taxon and its relationships with morphologically similar species, as well as with sympatric ones, are explored. The new species is endemic to semideciduous forests of southeastern Bahia, eastern Brazil. It is distinct from other species of the genus mainly by the combination of shrubby to treelet habit, (sub)sessile leaves, sessile leaflets without conspicuous, dark glands on the abaxial surface, and by each carpel bearing one dorsal apophysis. In addition to the diagnostic morphological features, molecular data provide further support to the new taxon.

Introduction

The genus *Metrodorea* Saint-Hilaire (1825: 81) was established with only one species, *M. nigra* Saint-Hilaire (1825: 81), and is one of four genera forming the neotropical subtribe Pilocarpinae, tribe Galipeae (former Cusparieae), of subfamily Rutoideae, Rutaceae. A monograph of the subtribe Pilocarpinae was published by Kaastra (1982), who recognized five species in *Metrodorea*. The genus is confined to South America, and its species diversity is concentrated in Brazil, where all species are found. Of the five previously described species, *M. flavida* Krause (1914: 146), *M. maracasana* Kaastra (1977: 484), *M. mollis* Taubert (1892: 5), *M. nigra*, and *M. stipularis* Martius (1837: 124), only *M. flavida* is found outside of Brazil, as shown on Figure 1 (largest insert on the upper left corner).

Metrodorea species vary from small shrubs to tall trees, and their leaves are opposite, sessile (in *M. stipularis*) or petiolate, and 1–3-foliolate. The most striking morphological feature of the genus is the presence of leaf sheaths (Figure 2C and D), which are unique among the Rutaceae (Engler 1931, Kaastra 1982). To date, *M. nigra* seems to be the only species that has been studied in detail, from different approaches such as phytochemistry (Müller *et al.* 1995), anatomy (Souza *et al.* 2004, 2005), pollination biology (Pombal & Morellato 2000), and population genetics (Schwarcz *et al.* 2010, Guidugli *et al.* 2012). In a recent study by Dias *et al.* (submitted), the authors present a molecular phylogeny of *Metrodorea* based on ITS and *trnS-G* sequences, and provide the phylogenetic background for evolutionary inference in the genus. In this paper, we describe and illustrate a new species of *Metrodorea*, and explore the molecular phylogenetic, morphological, and geographical support for the new taxon and its relationships with morphologically similar species, as well as with sympatric ones.

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