Staminodianthus, a new neotropical Genistoid legume genus segregated from Diplotropis

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Abstract

Morphological and molecular phylogenetic evidence strongly demonstrated the paraphyly of the Genistoid legume genus Diplotropis with respect to the recently described monospecific Guianodendron (a segregate of Acosmium sensu lato). In order to achieve a phylogenetically based classification of the group, the new Amazonian genus Staminodianthus D.B.O.S. Cardoso, H.C. Lima & L.P. Queiroz is described and illustrated to accommodate three species previously placed in Diplotropis sect. Racemosae. We present a synopsis for Staminodianthus, including geographical distribution, lectotypification, and new species circumscriptions of the following three new combinations: Staminodianthus duckei (Yakovlev) D.B.O.S. Cardoso & H.C. Lima, Staminodianthus racemosus (Hoehne) D.B.O.S. Cardoso & H.C. Lima, and Staminodianthus rosae (H.C. Lima) D.B.O.S. Cardoso & H.C. Lima. Staminodianthus differs most notably from its sister genus Guianodendron by having bilaterally symmetrical flowers, calyces with a curved hypanthium, a well-differentiated standard petal, lateral and lower petals without auricles, and the androecium with a combination of five fertile stamens and five short staminodes, a unique feature within the Genistoid legumes.

Key words: Genistoid clade, lectotypification, Leguminosae, Papilionoideae, phylogeny, Sophoreae, taxonomy

Introduction

The neotropical genus Diplotropis Bentham (1837: 24) (Leguminosae, Papilionoideae) as traditionally circumscribed has about 12 species that occur mainly in tropical rain forests of the Amazon region (Pennington et al. 2005, Lima et al. 2010), with only two species endemic to the Atlantic Forest in eastern Brazil (Cardoso 2008, Lima et al. 2009). Diplotropis has been circumscribed by the combination of crimped petals, standard petal with inflexed, fleshy auricles, undifferentiated lateral and lower petals, and overgrown seeds (Polhill 1981). The morphological diversity within Diplotropis has long been recognized (e.g., Lima 1985, who established a sectional classification of the genus). In that treatment, the species of Diplotropis sect. Racemosae Lima (1985: 63), namely Diplotropis racemosa (Hoehne) Amshoff (1939: 43) and D. duckei Yakovlev (1971: 694), were distinguished from Diplotropis sect. Diplotropis mainly because of their androecium composed of 5 fertile stamens and 5 short staminodes.

Phylogenetic analyses of plastid matK and trnL intron data concurred in resolving Diplotropis within the quinolizidine-accumulating Genistoid clade, in which the genus appeared in a lineage identified as the Bowdichia clade (Cardoso et al. 2012a). This clade was recently subjected to a comprehensive phylogenetic analysis that combined data from morphology and nuclear and plastid DNA sequences (Cardoso et al. 2012b). The analysis resolved generic relationships in the group and strongly supported the nesting of the radially-symmetrical-flowered Guianodendron Rodrigues & Tozzi (2006: 129) within a paraphyletic bilaterally-