Phytotaxa 166 (1): 077–084
www.mapress.com/phytotaxa/

Article

ISSN 1179-3155 (print edition)
PHYTOTAXA
ISSN 1179-3163 (online edition)

http://dx.doi.org/10.11646/phytotaxa.166.1.5

Two new species of *Pleroma* (Melastomataceae) from Espírito Santo, Brazil

CLAUDIO NICOLETTI DE FRAGA[1*] & PAULO JOSÉ FERNANDES GUIMARÃES[1]

[1]*Instituto de Pesquisas Jardim Botânico do Rio de Janeiro, Rua Pacheco Leão, 915, 22.460-030, Jardim Botânico, Rio de Janeiro, Brazil.*

[*]*Corresponding authors: cnfraga@jbrj.gov.br; paulojose.guimaraes@gmail.com*

Abstract

Pleroma marinana and *P. penduliflora*, two new species of *Pleroma* (Melastomataceae) from the dry seasonal Atlantic forest of Espírito Santo, Brazil, are described and illustrated, with their affinities and diagnostic characters discussed. *Pleroma marinana* is similar to *Tibouchina radula* and *T. oreophila* while *Pleroma penduliflora* is similar to *Pleroma heteromalla*, *Tibouchina bahiensis* and *T. formosa*. According to the criteria of the IUCN Red List, *T. marinana* must be included in the vulnerable and *T. penduliflora* in the endangered category.

Key words: Atlantic forest, endemism, inselbergs, taxonomy, *Tibouchina*.

Introduction

The eastern Brazilian Atlantic coastal forest extends for about 3000 km as an almost uninterrupted band along Mountain ranges parallel to the Atlantic Ocean. It is separated from the moist forests of the Amazon basin by vast areas of drier *Cerrado* and *Caatinga* vegetation, and is characterized by a high proportion of plant endemism (Mori *et al.* 1981).

Plant communities associated with inselbergs are of special interest within the Atlantic forest biome in Espírito Santo. Their high species richness is exceptional when compared to other tropical areas (Porembski 2007; Goldenberg *et al.* 2012). Because rocky sites are not of much agricultural interest, they are frequently preserved from human impact and kept relatively undisturbed (Porembski *et al.* 1998). Rock outcrop communities have received little scientific attention even though they may present higher species diversity when compared to the surrounding areas, with high beta diversity among different sites (Meirelles *et al.* 1999). In the course of our fieldwork in the dry seasonal forest of Espírito Santo we have found two new species of *Pleroma* D.Don (1823: 279) that are described and illustrated below.

The genus *Pleroma* has traditionally been treated as part of *Tibouchina s.l.*, but a recent molecular phylogenetic analysis of the tribe Melastomeae Bartling (1830: 329) (*sensu* Renner 1993: 521) showed that *Tibouchina* Aublet (1775: 445) *sensu* Cogniaux (1883-85, 1891) is polyphyletic (Michelangeli *et al.* 2012). Species of *Tibouchina* belong to four clades that are well supported by the molecular evidence (nuclear and chloroplast sequences) and morphological data, as well as by geographic distribution. These results support the recognition of earlier genera that were previously synonymized under *Tibouchina*, among them *Pleroma*. The species of *Pleroma* belong to the Eastern Brazilian clade (Michelangeli *et al.* 2012) and are shrubs or trees with the calyx caducous in fruit, stamens with purple to lilac (rarely cream or white) anthers, and well-developed pedoconnectives provided with ventral appendages often covered with gland-tipped hairs and frequently with hairy filaments.

Pleroma has about 160 species distributed mostly in Atlantic forest and *Cerrado* biomes (rarely in the *Caatinga*) of eastern Brazil, with only five species reaching western and northwestern South America and occurring from Paraguay to Venezuela (P. J. F. Guimarães & F. A. Michelangeli, unpubl. data). The reinstatement of *Pleroma*, and the consequent transfer of several species from *Tibouchina* to *Pleroma* is still under course, by the same authors mentioned above. However, we opted to describe these two new species in *Pleroma*, in order to avoid future taxonomic transfers.

Accepted by Renato Goldenberg: 25 Mar 2014; published: 17 Apr. 2014

Acknowledgments

We thank Hélio de Queiroz Boudet Fernandes, Director of the Mello Leitão Biological Museum and its herbarium curator, for providing access to the type material, and Paulo Ormindo for the drawings. We also greatly appreciate the critical comments from Renato Goldenberg and two anonymous reviewers.

References

Aublet, J.B.C.F. (1775) *Histoire des plantes de la Guiane Françoise* – Tome I. Didot, Libraire de la Faculté de Médecine, London, pp. 402–455.

Bartling, F.G. (1830) *Ordines naturales plantarum eorumque characteres et affinitates; adjecta generum enumeratione*. Dieterich, Göttingen, 498 pp.

Cogniaux, A. (1883–85) *Tibouchina*. *In:* Martius, C. F. P. & Eichler, A. W. & Urban, I. (eds.). *Flora brasiliensis*. Vol. 14. F. Fleischer, Lipsiae, pars 3, pp. 288–418; pars 4, pp. 598–602.

Cogniaux, A.C. (1891) Melastomataceae. *In:* Candolle, A. P. & Candolle, C. (eds.), *Monographiae Phanerogamarum*. Vol. 7., G. Masson, Paris, pp. 1–1256.

Don, D. (1823) An illustration of the natural family of plants called Melastomaceae. *Memoirs of the Wernerian Natural History Society* 4: 276–329.

Freitas, J.G. (2011) Estudos florísticos e taxonômicos em *Tibouchina* Aubl. (Melastomataceae, Melastomeae) no Estado da Bahia, Brasil. Dissertação de Mestrado. Universidade Estadual de Feira de Santana, Feira de Santana, Bahia. 190 pp.

Goldenberg, R., Fraga, C.N., Fontana, A.P., Nicolas, A.N. & Michelangeli, F.A. (2012) Taxonomy and phylogeny of *Merianthera* (Melastomataceae). *Taxon* 61(5): 1040–1056.
http://www.ingentaconnect.com/content/iapt/tax/2012/00000061/00000005/art00010

Guimarães, P.J.F. (1997) *Tibouchina* sect. *Pleroma* (D.Don.) Cogniaux. (Melastomataceae). Tese de Doutorado, Universidade Estadual de Campinas, Campinas, São Paulo. 191 pp.

IUCN. (2001) *IUCN Red List Categories and Criteria: Version 3.1*. IUCN Species Survival Commission. Gland, Switzerland and Cambridge, IUCN, UK, 32 pp.

Markgraf, F. (1930[1927]) Melastomataceae. Plantae luetzelburgianae brasiliensis VII. *Notizblatt des Botanischen Gartens und Museums zu Berlin-Dahlem. Berlin-Dahlem* 10: 43–54.
http://dx.doi.org/10.2307/3994816

Meirelles, S.T., Pivello, V.R. & Joly, C.A. (1999) The vegetation of granite rock outcrops in Rio de Janeiro, Brazil, and the need for its protection. *Environmental Conservation* 26: 10–20.
http://journals.cambridge.org/article_S0376892999000041

Michelangeli, F.A., Guimarães, P.J.F., Penneys, D.S., Almeda, F. & Kriebel, R. (2012) Phylogenetic relationships and distribution of New World Melastomeae (Melastomataceae). *Botanical Journal of the Linnean Society* 171 (1): 38–60.
http://dx.doi.org/10.1111/j.1095-8339.2012.01295.x

Mori, S. A., Boom, B.M. & Prance, G.T. (1981) Distribution patterns and conservation of Eastern Brazilian coastal forest tree species. *Brittonia* 33: 233–245.
http://dx.doi.org/10.2307/2806330

Porembski, S., Martinelli, G., Ohlemuller, R. & Barthlott, W. (1998) Diversity and ecology of saxicolous vegetation mats on the inselbergs in the Brazilian Atlantic rainforest. *Diversity and Distributions* 4: 107–119.
http://www.jstor.org/stable/2999817

Porembski, S. (2007) Tropical inselbergs: habitat types, adaptive strategies and diversity patterns. *Revista Brasileira de Botânica* 30: 579–586.
http://dx.doi.org/10.1590/s0100-84042007000400004

Renner, S.S. (1993) Phylogeny and classification of the Melastomataceae and Memecylaceae. *Nodic Journal of Botany* 13: 519–540.
http://dx.doi.org/10.1111/j.1756-1051.1993.tb00096.x

Wurdack, J.J. (1980) Certamen Melastomataceis XXXI. *Phytologia* 45: 321–336.

Wurdack, J.J. (1981) Three species of *Tibouchina* (Melastomataceae) from Bahia, Brazil. *Brittonia* 33: 304–308.
http://dx.doi.org/10.2307/2806420