



A new cauliflorous white-flowered species of *Ouratea* (Ochnaceae) from the Brazilian Atlantic Forest

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Abstract

The new species *Ouratea cauliflora* is described, illustrated, and comments on its ecology, geographical distribution, and conservation status are provided. This species is morphologically similar to *O. verticillata*, but can be easily distinguished by its white flowers and the inflorescences cauliflorous or emerging from short and patent branches on the stem. The new species is endemic to a single locality in the central region of Espírito Santo, in the Brazilian Atlantic Forest, and according to the criteria of the IUCN Red List of endangered plant species, it is regarded as “vulnerable”.

Key words: Brazil, endemism, Espírito Santo, new species, taxonomy

Introduction

The pantropical plant family Ochnaceae represents one of the well-supported subclades of the large order Malpighiales retrieved so far in molecular phylogenetic studies, which agrees with floral morphology, anatomy and histology (Matthews *et al.* 2012). The center of diversity of the family in the Neotropics is in the Amazon Basin, with some genera exclusive to this phytogeographic domain, and with a few with extra-Amazonian distributions, being restricted to the Andean Forests or to the Brazilian Cerrado and Atlantic Forest (Fiaschi *et al.* 2010). There are 19 native genera recognized in the Neotropics (Fiaschi *et al.* 2010), with 17 genera and 238 species occurring in Brazil (Chacon *et al.* 2010, Rocha & Alves-Araujo 2010).

In the last 30 years, with the intensification of collections throughout the country, 34 species of Ochnaceae have been described from different vegetation types (Sastre 1981, 1994, 1995, 1997, 2001, 2005, Yamamoto 1995, Zappi & Lucas 2002, Harley *et al.* 2005, Fraga & Saavedra 2006, Salvador *et al.* 2006, Fraga & Feres 2007, Yamamoto *et al.* 2008, Cardoso & Conceição 2008, Feres 2010, Cardoso 2011, Chacon *et al.* 2011). In the Atlantic Forest, there are 62 species (with 36 endemics) within the following six genera (Fraga & Oliveira-Filho 2009): *Elvasia* Candolle (1811: 422), (4/4); *Lacunaria* Ducke (1925: 139), (1/1); *Luxemburgia* Saint-Hilaire (1822: 352), (8/4); *Ouratea* Aublet (1775: 397), (38/23); *Quiina* Aublet (1775 suppl.: 19), (2/2); and *Sauvagesia* Linnaeus (1753: 203), (9/2).

Ouratea is the most diverse genus of Ochnaceae, with ca. 300 species (Fiaschi *et al.* 2010) distributed in Mesoamerica and South America. In Brazil it occurs in the Amazonian and Atlantic Forests and in the Cerrado, and comprises shrubs and trees that grow in lowland or highland forests or savannas, and sometimes in maritime thickets (Yamamoto *et al.* 2008). The genus has remarkable leaves with the secondary veins strongly curving upwards near the usually serrate margin and continuing almost as submarginal veins, the petals are frequently yellow, the gynoecium is pseudo-apocarpic, with a gynobasic style and a usually reddish carpophore derived from the enlargement of the basal portion of the carpels, and this carpophore carries 1–10 seeds and usually erect blackish mericarps, each with a single seed (Maguire & Steyermark 1989, Yamamoto 1989, Yamamoto *et al.* 2008, Fiaschi *et al.* 2010).

The last taxonomic revision of Brazilian *Ouratea* was that by Engler (1876). Since then, several new species, new synonyms, and new geographical records have been published. Among these there are 15 recently described species of *Ouratea*: four from the Atlantic Forest (Sastre 1981, 2001); five from the Cerrado (Sastre 1981, Yamamoto 1995, Salvador *et al.* 2006, Yamamoto *et al.* 2008, Chacon *et al.* 2011); and six from Amazonian Forests (Sastre 1994, 1995,

each one is hapaxanthic, because of terminal flowering, and produces a subsequent module from a meristem in the axil of one of the distal leaves. Meanwhile, *Ouratea cauliflora* and *O. verticillata* never have terminal inflorescence: the inflorescences emerge from the stem (cauliflorous) or from short and patent branches on the stem or subterminal at the distal leaf axils, in all cases derived from a lateral bud.

However, in addition to the white flowers in cauliflorous inflorescences, *O. cauliflora* may be distinguished from *O. verticillata* by its chartaceous leaves, pendant thyrses with smooth branchlets, flowers with smooth pedicels, white to cream sepals that are externally smooth and uncinata at the apex, petals reflexed only at the apex, and the pink, 0.8–1 mm long gynophore. In contrast, *O. verticillata* has coriaceous leaves, erect thyrses with rugose branchlets, flowers with rugose pedicels, green-yellowish sepals that are externally rugose in the middle and not uncinata at the apex, petals strongly revolute, and a white, 1.2–1.4 mm long gynophore. The geographic distributions of these species do not overlap: *O. cauliflora* was collected at a locality in the central region of Espírito Santo, in elevations of 600–700 m (Fig. 3), while *O. verticillata* occurs in the southern coast of the state of Rio de Janeiro and São Paulo, near the border between the two states, from 70 to 300 m above sea level (Table 1).

TABLE 1. Comparison of diagnostic morphological characters and geographical distribution between *Ouratea cauliflora* and *O. verticillata*.

Character	<i>Ouratea cauliflora</i> Fraga & Saavedra	<i>Ouratea verticillata</i> (Vell.) Engl.
Stem	Erect, unbranched or short and patent branches, 1.8–2.7 m tall	Erect, unbranched, (0.2–)0.6–1.7 m tall
Leaves	Chartaceous (15–)30–52 × (2–)4–7.4 cm	Coriaceous 32–49(–22) × (6–)8.5–15 cm
Inflorescence	Cauliflorous or subterminal, thyrses pendent with smooth branchlets, 3–6.5 cm long	Subterminal at the distal leaf axils, thyrses erect with rugose branchlets, 15–28 cm long
Flower	Predominantly white to cream	Predominantly yellow to green-yellowish
Pedicel	Smooth, 5–8 mm long	Rugose, 3.6–6.5 mm long
Sepals	Abaxially smooth in the middle, uncinata, white to cream, 4.3–5.1 × 1.8–2.4 mm	Abaxially rugose in the middle, not uncinata, green-yellowish, 4.5–4.9 × 2.4–2.9 mm
Petals	Reflexed only at the apex, white, 5.2–5.7 × 2.4–3 mm	Strongly revolute, yellow, 4.8–5.4 × 2.5–2.9 mm
Gynophore	Pink, 0.8–1 mm long	White, 1.2–1.4 mm long
Geographical distribution	Mountains in Central Espírito Santo, 600–700 m elev.	South Coast of Rio de Janeiro and northern São Paulo, 70–300 m elev.

Acknowledgments

We thank André M. Amorim, André Paviotti Fontana, Ludovic Kollmann, Paulo Labiak, Rafaela C. Forzza, and Renato Goldenberg for their company and help during fieldwork, Maria Alice Rezende for the line drawings, Leandro Jorge Telles Cardoso for the pictures and comments on the ecology of *Ouratea verticillata*, and Fabiano Zamprogno Novelli (IEMA—Instituto Estadual de Meio Ambiente) for the collecting permits and support during fieldwork in the “Reserva Biológica de uas Bocas”. We greatly appreciate critical comments from Renato Goldenberg and Cássio van den Berg. The first author is the recipient of a grant from “Fundação O Boticário de Proteção a Natureza” (Proc. 0756-20072).

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