Phytotaxa 189 (1): 137–146
www.mapress.com/phytotaxa/

Article

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

http://dx.doi.org/10.11646/phytotaxa.189.1.9

New Graphidaceae from northern Argentina

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Abstract

Six new species of Graphidaceae are described from northern Argentina: *Graphis tetracarbonisata*, with apical carbonization and additional patchy carbonization at the basis of the labiae, ascomata of the *anguilliradians*-morph, ascospores submuriform, 15–19-septate and with a few longitudinal septa, 73–87 × 13–16 µm, and thallus containing substances of the stictic acid complex; *Leucodecton pustulatum*, with gnarled confluent pustules and substances of the stictic acid complex; *Ocellularia marmorata*, which is close to *O. auberianoides* but with maculate thallus, blackened columella and without secondary chemistry; *O. misionensis*, differing from *O. obturascens* in the more complex, carbonized columella and lack of secondary substances; *O. papillifera*, with a thick thallus covered with papillae resembling pseudocyphellae and with large, columnar crystal clusters; and *Rhabdodiscus argentinensis*, similar to *R. auberianus* but with erumpent ascomata, smaller, consistently 3-septate ascospores, and stictic acid in addition to psoromic acid.

Key words: Iguazú, Chaco, Corrientes, Jujuy, Misiones, Salta, taxonomy

Introduction

The forests in northern Argentina are the most tropical part of the country, including the area of the well-known Iguazú waterfalls on the border with Brazil. The region comprises evergreen tropical rain forests in the eastern part (Province of Misiones) and semi-deciduous subtropical forest to the West, for instance in the Chaco province. The lichens in this area are still incompletely known, except for foliicolous taxa (Sérusiaux & De Sloover 1986; Ferraro 1997), selected crustose groups (Ferraro & Michlig 2011, 2013), and some groups in Parmeliaceae (Ferraro & Elix 1993; Michlig & Ferraro 2010). During a ten-day field trip by three of the authors in February 2013, special attention was paid to Graphidaceae, focusing on the core groups that include both graphidoid and thelotremoid species, but excluding subfamily Gomphilloideae (Hodkinson 2012; Rivas Plata et *al.* 2012a). Here we summarize our findings on some of the new species found, including results of taxonomic studies on earlier collections during a workshop held in 2009 at IBONE (Instituto de Botánica del Nordeste) in Corrientes.

Material and methods

Descriptive work was carried out at ABL in Soest using an OLYMPUS SZX7 dissecting microscope and an OLYMPUS BX50 compound microscope with interference contrast, connected to a NIKON Coolpix digital camera, as well as at The Field Museum, Chicago, using a LEICA MS5 dissecting microscope and a ZEISS Axioskop 2 compound microscope. Sections were mounted in tap water, in which all measurements were taken.

Accepted by Mohammad Sohrabi: 20 Jun. 2014; published: 19 Dec. 2014

Thallus corticolous, epiperidermal, up to 5 cm diam., continuous; surface smooth, olive-green; prothallus absent. Thallus in section 80–120 µm thick, with prosoplectenchymatous cortex, 10–15 µm thick, photobiont layer 15–25 µm thick, and irregular medulla, 70–100 µm thick, strongly encrusted with numerous small, grey crystals that partially dissolve in K, and clusters of calcium oxalate crystals. Photobiont *Trentepohlia*; cells rounded to irregular in outline, in irregular groups, yellowish green, 6–12 × 6–10 µm. Ascomata rounded, erumpent, 0.4–0.9 mm diam., 0.2–0.3 mm high; disc covered by 0.1–0.3 mm wide pore, almost filled with the white-topped columella; columella at first plug-shaped but becoming irregular and forming bridges in older ascomata; proper margin thin distinct, visible as white rim around the pore; thalline margin smooth, olive-green. Excipulum entire, completely carbonized down to below the hypothecium, 30–60 µm wide, fused with covering thalline layer; laterally covered by algiferous, corticate thallus containing orange-brown, amorphous periderm layer, 100–200 µm thick; columella present, initially plug-shaped but becoming irregular in older ascomata, completely carbonized but upper part with thick cover incrusted with numerous, small, grey crystals, 200–300 µm wide, carbonized part up to 120 µm high, with white cover up to 200 µm high; hypothecium prosoplectenchymatous, 10–20 µm high, hyaline; hymenium 90–110 µm high, hyaline, clear; epithecium indistinct, 5–10 µm high, hyaline. Paraphyses unbranched, apically smooth; periphysoids absent; asci cylindrical to narrowly clavate, 90–110 × 10–12 µm. Ascospores 8 per ascus, ellipsoid, 3-septate, 12–15 × 5–7 µm, 2–3 times as long as wide, brown, distoseptate with lens-shaped lumina, young I+ violet-blue, mature I–.

Secondary chemistry:—Psoromic (major), subpsoromic, and 2'-*O*-demethylpsoromic (minor) acids (medulla P+ yellow) as well as stictic acid (medulla in section with K+ persistently yellow efflux).

Distribution and ecology:—On bark of trees in evergreen forest; known only from northeastern Argentina.

Remarks:—This new species combines typical features of the genus *Rhabdodiscus* Vainio (1921: 184) and is most similar in overall morphology to *R. auberianus* (Nyl.) Vainio (1921: 184). It differs by the less prominent ascomata and smaller, consistently 3-septate ascospores from the latter. In addition, it produces stictic acid besides psoromic acid, the typical substance for this genus. Thus far, only three other species are known with such chemistry: *Ocellularia gerardii* Sipman in Sipman *et al.* (2012: 128), *Myriotrema mammillare* (Hale) Hale (1980: 134) and *M. uniseptatum* (Hale) Hale (1980: 135). The first has a non-carbonized excipulum, lacks a columella, and has hyaline ascospores. *Myriotrema mammillare* has annulate ascomata with narrow pore, a dark brown excipulum, and also lacks a columella and has hyaline ascospores. *Myriotrema uniseptatum* has completely immersed ascomata with narrow pore and a hyaline excipulum and (irregular) columella, and also differs by its 1-septate, hyaline ascospores.

Acknowledgements

Data obtained for this study were gathered as part of several projects funded by the National Science Foundation: *Phylogeny and Taxonomy of Ostropalean Fungi, with Emphasis on the Lichen-forming Thelotremataceae* (DEB 0516116 to The Field Museum; PI H. T. Lumbsch; Co-PI R. Lücking), *Neotropical Epiphytic Microlichens—An Innovative Inventory of a Highly Diverse yet Little Known Group of Symbiotic Organisms* (DEB 715660 to The Field Museum; PI R. Lücking), and *ATM—Assembling a taxonomic monograph: The lichen family* Graphidaceae (DEB-1025861 to The Field Museum; PI T. Lumbsch, CoPI R. Lücking). The Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) is also thanked for a research grant to MESC (Processo 311706/2012-6). The curators at herbaria from which type specimens and other collections were studied are thanked for their collaboration. The Stichting Hugo de Vries-Fonds is warmly thanked for a travel grant to AA. Leo Spier is thanked for performing TLC.

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