



NEW RECORDS OF MICROPELTIDACEAE (ASCOMYCOTA) ON *PODOCARPUS PARLATOREI* (PODOCARPACEAE) IN THE YUNGAS, ARGENTINA

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Abstract. Gallo, M. C. F.; A. I. Romero & M. del V. Catania. 2018. New records of Micropeltidaceae (Ascomycota) on *Podocarpus parlatorei* (Podocarpaceae) in the Yungas, Argentina. *Darwiniana*, nueva serie 6(2): 144-150.

New records of Micropeltidaceae are reported on leaves of *Podocarpus parlatorei* leaves in the Yungas, Argentina. A new variety, *Micropeltis albomarginata* var. *macrospora* is proposed. *Dictyopeltis applanata* is recorded for the first time in Argentina. Descriptions, illustrations, data on geographical distribution, habitat, and notes are provided.

Keywords. Argentina; *Dictyopeltis*; foliar fungi; Micropeltidaceae; *Micropeltis*; *Podocarpus*; taxonomy.

Resumen. Gallo, M. C. F.; A. I. Romero & M. del V. Catania. 2018. Nuevos registros de Micropeltidaceae (Ascomycota) en *Podocarpus parlatorei* (Podocarpaceae) en las Yungas, Argentina. *Darwiniana*, nueva serie 6(2): 144-150.

Se reportan nuevos registros de Micropeltidaceae sobre hojas de *Podocarpus parlatorei* en las Yungas, Argentina. Se propone una nueva variedad, *Micropeltis albomarginata* var. *macrospora*. Se registra por primera vez para la Argentina a *Dictyopeltis applanata*. Se proporcionan descripciones, ilustraciones, datos de distribución geográfica y hábitat.

Palabras clave. Argentina; *Dictyopeltis*; hongos foliares; Micropeltidaceae; *Micropeltis*; *Podocarpus*; taxonomía.

INTRODUCTION

During a survey of microfungi on bark and wood of *Podocarpus parlatorei* Pilg. in the northwestern subtropical area of Argentina, two species, one of *Micropeltis* Mont. and another of *Dictyopeltis* Theiss. were collected. Both genera are members of the poorly studied family Micropeltidaceae Clements & Shear (Wu et al., 2011; Hyde et al., 2013; Hongnan et al., 2014, 2015), within the Microthyriales G. Arnaud (Batista, 1959; Lumbsch & Huhndorf, 2010).

The family is characterized by flattened and scutate ascomata (thyriothechia), which are usually ostiolate and develop superficially or in the cuticle of the living host's leaves; the peridium is dark coloured, mostly bluish-green, bluish-black or brown, and has a non-radiate, often meandrous interwoven cells structure (*textura epidermoidea*); the asci are bitunicate, clavate to cylindrical, ovate or saccate, and the ascospores are hyaline, long clavate with mostly more than two transverse septa; the

pseudoparaphyses are narrowly cellular and tend to deliquesce in mature specimens and are not always present (Batista, 1959; von Arx & Müller, 1975; Wu et al., 2011; Hyde et al., 2013; Hongsanan et al., 2014).

Batista (1959) published a monograph of the members of Micropeltidaceae (as Micropeltaceae) in South America with morphological and taxonomic studies on specimens from Brazil and the Neotropics. He recognized 89 species and 2 varieties in *Micropeltis* and 6 species in *Dictyopeltis*. Currently, 244 taxa in *Micropeltis* and 11 in *Dictyopeltis* are listed for the family in Index Fungorum (<http://www.indexfungorum.org>).

Few investigations have been conducted on these two genera in Argentina. The only known records are those of Spegazzini, who described *Micropeltis albomarginata* Speg. (Spegazzini, 1912) and *M. caunae* Speg. (Spegazzini, 1909), both from Misiones province; and *M. leptosphaerioides* Speg. (Spegazzini, 1912) from Jujuy province. There are no records for *Dictyopeltis* in the country.

This is an additional contribution to an extensive project aiming to describe the biodiversity of fungal species associated with the native gymnosperm *Podocarpus parlatorei* (“pino del cerro”), in Argentina (Catania, 2004; Catania & Romero, 2001, 2011, 2014, 2017). The present study includes new records of *Micropeltis* and *Dictyopeltis* species found on leaves of *P. parlatorei* in the Yungas Biome region Argentina.

MATERIALS AND METHODS

Leaves of *Podocarpus parlatorei* were collected in the forest of Taficillo (Dep. Tafí Viejo) and Sierra de Medina (Dep. Burruyacu) in Tucumán province, and in Las Juntas (Dep. Ambato) in Catamarca province, Argentina. The forests belong to the phytogeographic province of the Yungas of the Amazonian Domain (Cabrera & Willink, 1980). The material was dried and preserved at LIL (Thiers, 2018). Specimens were studied macroscopically using a stereoscope (Leica MZ6). For microscopic examinations, free-hand sections

of ascomata were mounted in water, 5% KOH, 1% phloxine or cotton blue, and observed under light microscope (Olympus CX31). Microscopic structures (ascomata, asci, and ascospores) were measured and photographed.

RESULTS AND DISCUSSION

Dothideomycetes O.E. Erikss. & Winka
 Incertae sedis
 Microthyriales G. Arnaud
 Micropeltidaceae Clem. & Shear
 (as Micropeltaceae)

Micropeltis albomarginata Speg. var. **macrospora** Gallo, A.I. Romero & Catania, **var. nov.** Type: Argentina, Tucumán, Taficillo, in forest of *P. parlatorei*, XI-2014, R. Delgado *s.n.* (holotype LIL). Figs. 1A-H. IF N° 555708

Differs from Micropeltis albomarginata var. albomarginata by its larger ascospores 19-32 x 4.5-7 µm.

Teleomorph: Epiphytic on the upper surface of leaves, appearing as small black dots. Thyriothecia scattered, superficial, easily removed, rounded, blue-green to olive green, 280-400 µm diam., with a central, irregular, dark ostiole. Peridium composed of an irregular meandering arrangement of hyphae, from the centre outwards, brownish green to olive green, flattened cells. Hamathecium with evanescent pseudoparaphyses, asci embedded in mucilage, inclined towards the central ostiole. Asci bitunicate, obclaviform, apically rounded, shortly pedicellate, 8-spored, 50-75 x (-13.5) 15-19 µm. Ascospores 2-seriate, clavate, middle cells rounded, lower end cell long, 3-4 (-5-6) septate, slightly constricted at the septa, hyaline, smooth, 19-32 (-47.5) x 4.5-7 µm (\bar{x} = 28.3 x 6.0 µm; s = 5.0 x 0.8).

Anamorph: unknown.

Etymology. Referring to the large ascospores.

Distribution and habitat. *Micropeltis albomarginata* was collected in Brazil (Apiahy), on leaves of an undetermined *Eugenia* L. (Spegazzini, 1887)

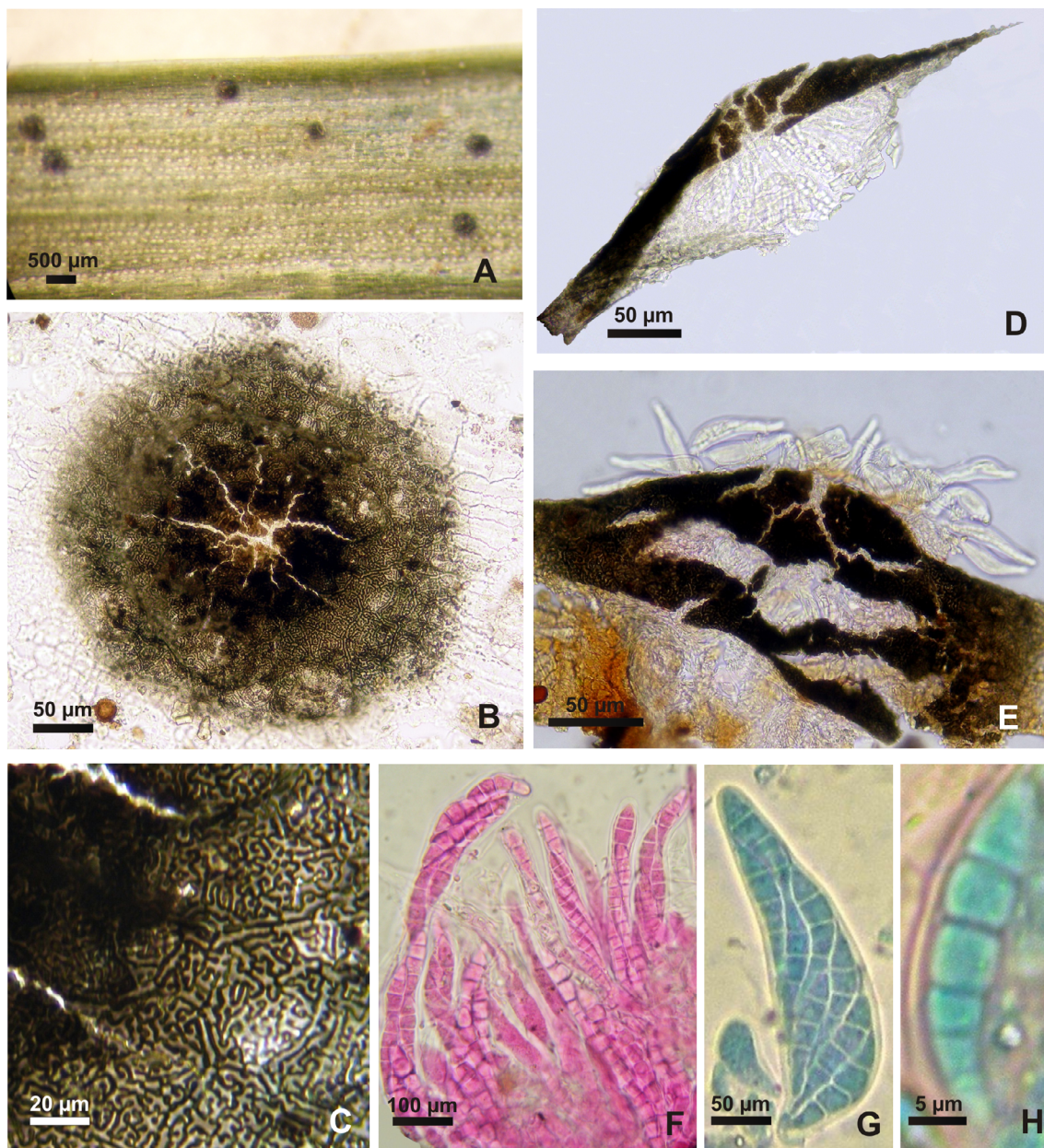


Fig. 1. *Micropeltis albomarginata* var. *macrospora*. **A**, appearance of thyriothecia on the host surface. **B-C**, Thyriothecium squash mounting, view of the meandering arrangement of hyphae. **D-E**, section of thyriothecium. **F**, asci (in phloxine). **G**, obclavate ascus (in cotton blue). **H**, ascospore 5-septate (in cotton blue). A-H, from *Delgado, R. s.n.* (holotype LIL). Color version at <http://www.ojs.darwin.edu.ar/index.php/darwiniana/article/view/804/781>

and in Argentina (Misiones province) on leaves of *Eugenia edulis* Vell. (Spegazzini, 1912). It was also reported on *Hoya meliflua* Merr. in Philippines (Farr & Rossman, 2018).

In this work, we report *Micropeltis albomarginata* var. *macrospora* on leaves of *P. parlatorei* as a new host plant. The distribution area of the species in northwestern Argentina is

extended and the species is cited again, over one hundred years after the first time it was reported for the country by Spegazzini (1912).

Observations. *Micropeltis* is the type genus of Micropeltidaceae (Wu et al., 2011, 2014), and was established by Montagne (1842) with *M. applanata* Mont. as the type species. The genus is characterized by dark brown to black or bluish to greenish thyriothechia, with the peridium composed of an irregular meandering arrangement of compact hyphae, and multiseptate ascospores (Wu et al., 2011, 2014; Hyde et al., 2013).

Micropeltis albomarginata was erected by Spegazzini (1887) on the basis of a material collected in Apiahy, Brazil. Later he also recorded this species in Misiones, northeastern Argentinian (Spegazzini, 1912). Batista (1959) included it in *Micropeltella* as *M. albomarginata* (Speg.) Batista, based on the absence of paraphyses. Müller & von Arx (1962) suggested that the genera of Micropeltidaceae differentiated by the presence or absence of paraphysoid tissue should be grouped again, because paraphyses are always present, although they disappear at maturity. In this study we follow Müller & von Arx (1962). On the other hand, Gómez Acosta (1995), after revising the specimens of *Micropeltis albomarginata* from the Greater Antilles, consider it as a synonym of *Micropeltis marginata*. We do not, however, accept Gómez Acosta's conclusions because the number of ascospores septa allows separating the two species, and we accept *Micropeltis albomarginata* as a separate species. The collected material agree with the morphological characteristics of the species, but the size of the ascospores that are larger in our specimens: 19-32 x 4.5-7 µm vs 18-20 x 4 µm, and we thus propose a new variety.

Specimens examined

ARGENTINA. **Tucumán.** Depto. Burruyacu, Sierra de Medina, provincial route 310, at 31 Km from Villa Padre Monti, Aguas Negras, Finca Mansilla, in forests of *P. parlatorei*, 26°22'06"S, 65°03'46"W, 12-XII-1998, *Catania 1020, 1023* (LIL).

Dictyopeltis applanata Bat., Mycopath. Mycol. Appl. 5 (2-3): 169. 1951. Type: Brazil, Pernambuco, Recife, Jardim Zoo Botânico-Dois Irmãos, ad folia viva *Achras sapota*, A. C. Batista s.n. (holotype IPA 1225). Fig. 2 A-G.

Teleomorph: Epiphytic on the lower surface of leaves. Thyriothechia scattered, circular, light brown to dark brown, lighter at the edges, 210-260 µm diam., opening unevenly at maturity. Peridium with a reticulate arrangement of compact hyphae, with textura epidermoidea that becomes lax to the periphery. Asci bitunicate, globose, subglobose, to elliptic, sessile, 8-spored, 13.5-18 x (-8) 11.5-15 (-17) µm. Ascospores ellipsoidal, 1 septate, constricted at the septa hyaline, smooth, (10-) 12.5-13 (-13.5) x 3-4 µm (\bar{x} =12.7 x 3.4 µm; s = 0,5 x 0.4).

Anamorph: unknown.

Distribution and habitat. *Dictyopeltis applanata* has been reported from Brazil on *Achras sapota* L. and *Bauhinia forficata* Link (Batista, 1951, 1959; Mendes et al., 1998; Farr & Rossman, 2018). *Podocarpus parlatorei* is reported as a new host in Argentina.

Observations. The genus *Dictyopeltis* is a member of the family Micropeltidaceae (Clements & Shear, 1931) and the type species is *Dictyopeltis vulgaris* (Racib.) Theiss. Currently, eleven taxa are accepted in the genus (Index Fungorum, 2018; MycoBank, 2018).

Dictyopeltis is characterized by black, dark gray or brown thyriothechia, with reticulated peridium or wall that can be fimbriated. When mature, the ascomata open irregularly to expose the bitunicate, globose to subglobose asci, elliptic to claviform, sessile. Typically, paraphyses are absent and the ascospores are bicellular, with or without constriction at the septum (Batista, 1959). *Dictyopeltis applanata* was originally described by Batista (1951) from material collected in Brazil. Our material agrees with that described by Batista, but the ascospores found in Argentina are slightly larger than those described by Batista: (10-) 12.5-13 (-13.5) x 3-4 µm vs 10-12.5 x 2.5-3 µm. *Dictyopeltis applanata* is reported for the first time from Argentina.

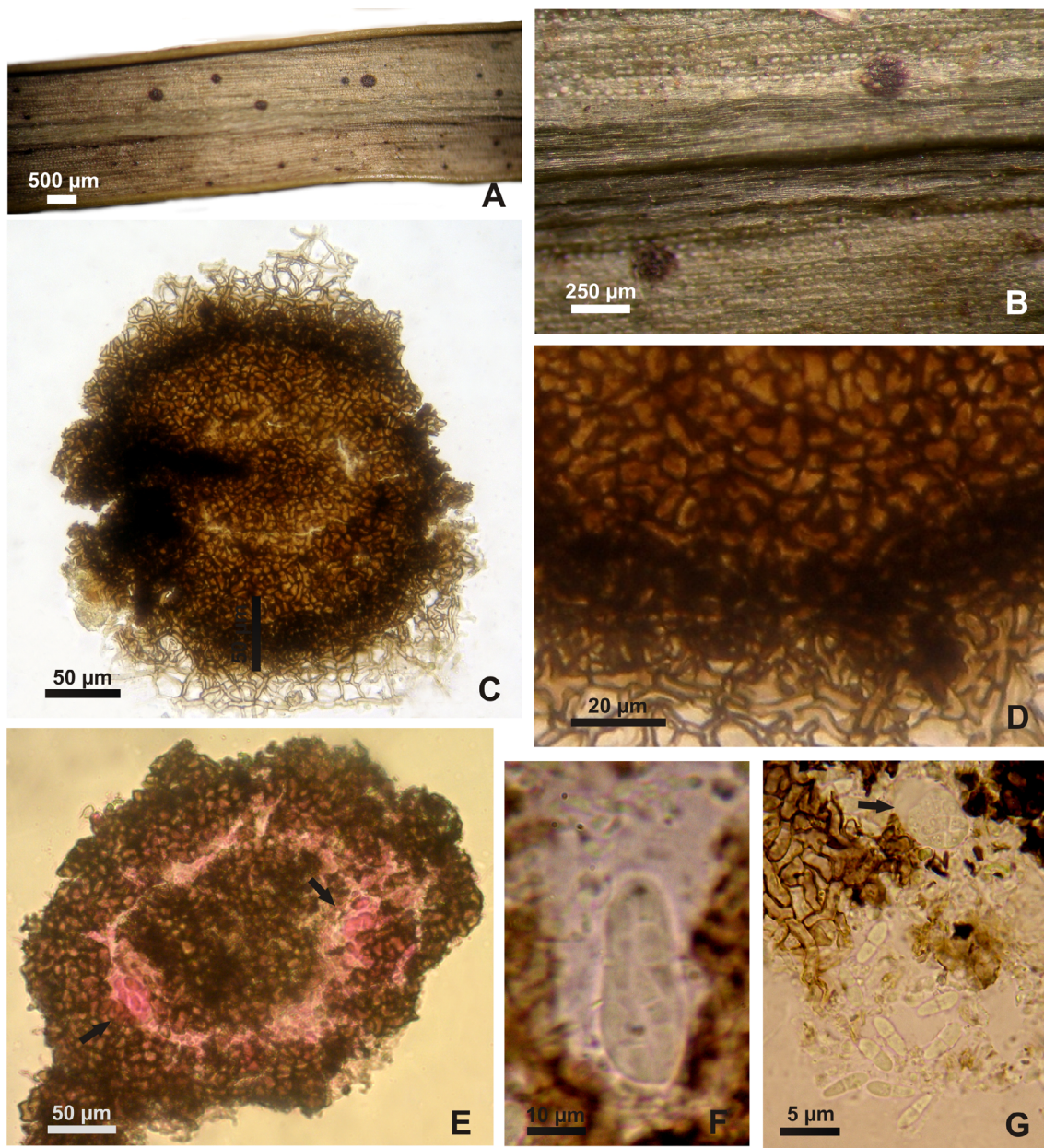


Fig. 2. *Dictyopeltis applanata*. A-B, appearance of thyriotheceia on the host surface. C-D, Thyriotheceium squash mounting, view of the reticulate arrangement of hyphae (textura epidermoidea). E, Thyriotheceium squash mounting, note the globose asci (arrows). F, a subglobose to elliptic ascus. G, a globose ascus (arrow) and ascospores. A-G, from Delgado, R. s.n. (LIL). Color version at <http://www.ojs.darwin.edu.ar/index.php/darwiniana/article/view/804/781>

Specimens examined

ARGENTINA. **Tucumán**. Depto. Tafí Viejo, Parque Sierra de San Javier, Taficillo, in forest of *P. parlatorei*, 26°42'08"S, 65°19'53"W, XI-2014, R. Delgado s.n. (LIL). Depto. Burruyacu,

Sierra de Medina, provincial route 310, at 31 Km from Villa Padre Monti, Aguas Negras, Finca Mansilla, in forest of *P. parlatorei*, 26°22'06"S, 65°03'46" O, 1600 m s.m., IV-2008, *Catania 3037* (LIL).

ACKNOWLEDGEMENTS

The authors gratefully acknowledge the financial support by Miguel Lillo Foundation. Andrea I. Romero thanks the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET-Argentina), PROPLAME-PRHIDEB. Our special gratitude to Dr. María Virginia Bianchinotti, for her critical reading of the manuscript, and her valuable suggestions.

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