

***Aleurocystis gloeocystidiata* sp. nov. on *Polylepis australis* in Argentina**

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Abstract—The new taxon *Aleurocystis gloeocystidiata* is described, growing on living branchlets of *Polylepis australis* in Central Argentina. It is characterized by a discoid-cupuloid basidiome, ellipsoid basidiospores 17–24 x 12–15 μm , metuloid cystidia, sulfonegative gloeocystidia, clamped, non-gelatinized generative hyphae, and encrusted skeletocystidia that are present in the context, form the white, hairy margin of the basidiome, and become grayish in Melzer's reagent.

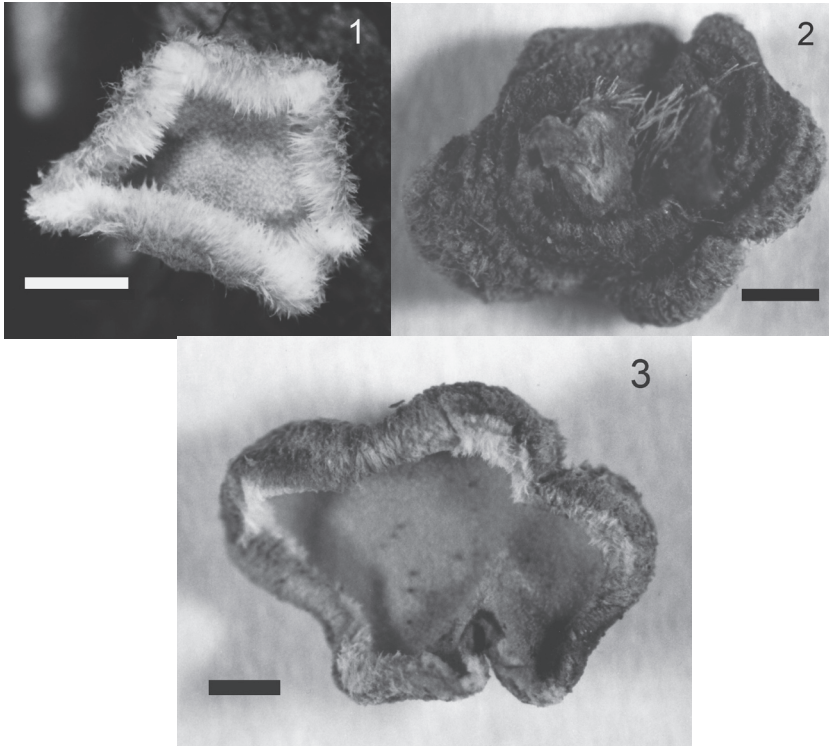
Key words—*Aphyllphorales*, *Corticaceae*, taxonomy

Introduction

In recent years the authors and co-workers began studies of aphyllphoraceous fungi (Hymenomycetes, Basidiomycota) found in *Polylepis* Ruiz & Pavón (*Rosaceae*) woodlands of Argentina. The latter form altitudinal forests in northwest and central Argentina at elevations between 1300–2600m above other forest formations. They are often found in deep canyons and ravines and along water courses, forming patches of vegetation generally isolated from other vegetation types (Simpson 1979). *Polylepis* forests are characterised by a relatively high number of endemic animal species (see review for birds, lepidoptera, and mammals by Fjeldså & Kessler 1996), as is also the case for polypores (Robledo et al. 2003, Urcelay et al. 2000). During our collecting trips we found a cupuloid, corticioid fungus growing on living, terminal branchlets of *Polylepis australis* Bitt., that we distinguish as a new taxon. The aim of this paper is to describe this species and to discuss its distinguishing morphological features.

Material and methods

The study area comprises *Polylepis australis* woodlands of the Sierras Grandes mountains in Córdoba province, Central Argentina (see Robledo et al. 2003 for a map and description of forests).



Figs. 1-3, *Aleurocystis gloeocystidiata* (Robledo 267, holotype): macroscopic aspect of the basidiome. Fig. 1, showing hairy margin. Fig. 2, abhymenial surface. Fig. 3, hymenial surface.

Bars= 1 mm.

Morphological features of the fungus were observed with a Wild M3Z dissecting microscope and a Zeiss Axioplan compound microscope. Sections of the basidiome were mounted in 3-5% KOH plus 1% phloxine and in Melzer's reagent. The holotype and other collections were deposited in the Herbarium, Museo Botánico, Facultad de Ciencias Exactas, Físicas y Naturales, Universidad Nacional de Córdoba, Argentina (CORD).

Taxonomy

Aleurocystis gloeocystidiata Rajchenb. & Robledo sp. nov.

Figs. 1-5

Basidiocarpo cupulato, hymenio salmono vel roseo, contextus monomiticus, hyphae generatoriae fibulatae, gloeocystidiae praesentes, cystidiae hymeniales vel subhymeniales cylindricae vel subulatae, incrustatae, crassitunicatae, skeletocystidiae incrustatae, in IKI schistaceae, dendrohyphidiae desunt; basidia claviformibus, 80-110 x 18-20 μm , basidiosporae ellipsoideae, laeves, inamyloideae, 17-24 x 12-15 μm .

Holotypus hic designatus: Argentina, Córdoba, Parque Nacional Quebrada del Condorito, G.L. Robledo 267, 6.Sep.2004, in ramula terminalis vivae Polylepis australis; in herbarium CORD conservatus est.

Basidiocarp annual, pileate, cupulate, discoid to stereoid, dorsally and centrally attached, up to 8 x 6 mm, ellipsoid to more or less circular-discoid, coriaceous, basidiomes growing isolated (i.e. not coalescing), margin curved inward when dry. Abhymenial surface with appressed hairs towards the center, scrupose or strigose towards the margin, hairs tomentose and white in the margin, light brown elsewhere. Hymenial surface light salmon pink, hymenophore smooth, not creviced. Context cream to very light salmon pink colored.

Basidiome \pm to 400 μ m thick, consisting of two layers. 1) Upper cortex layer



Fig. 4. *Aleurocystis gloeocystidiata* (Robledo 267, holotype), cross section of the basidiome. At the right, detail of the margin. Bar = 50 μ m.

forming the felt of pilear surface, 50-70 μm thick, macroscopically seen as a brownish to blackish line, consisting of thick-walled, yellowish to brownish hyphae arranged very intricately and appearing as if embedded in a resinous substance; from this layer hair hyphae protrude forming a tomentum. Hair hyphae thick-walled, aseptate, 4-5 μm diam, yellowish to light brown. 2) Lower, context layer, to 250 μm thick, formed by clamped, hyaline, branched, thin to thick-walled, non-gelatinized, generative hyphae, 4-9 μm diam. Hyphal system monomitic but apparently dimitic (pseudodimitic) because of the presence of tramal, encrusted skeletocystidia, the latter scarce to numerous in the trama. Marginal hairs formed by finely encrusted skeletocystidia, appearing white due to crystals in the middle to apical portion of the hyphae; hyphae thick-walled, aseptate but secondary septa present, the walls developing a distinct greyish blue coloration in Melzer's reagent. No hyphae reacting in sulfovanilline.

Euhymenium present, up to 125 μm thick. Basidia claviform, 80-110 x 18-20 μm , with 4 sterigmata. Basidiospores ellipsoid, 17-24 x 12-15 μm , with slightly thickened, smooth, IKI- walls. Metuloids as hymenial to subhymenial cystidia abundant, mostly cylindrical but some subulate, encrusted in the apex, with thickened walls, 5-10 μm diam. apically, narrower at the base, 65-85 μm long, not protruding beyond the hymenium. Gloeocystidia subulate, apically diverticulate or not, sulfonegative, with or without oily-like contents, with thin to thick, hyaline walls, 90-110 x 6-15 μm . Dendrohyphidia or dendrophysoid structures lacking.

Habitat: saprophytic, growing on *Polylepis australis* on: a) the external layers of rhytidome of thin, living branchlets and b) the sheath formed by the stipules fused around the branch of clustered and dead leaves. Fruiting in spring.

Associated wood-rot white.

Material studied: Argentina, Córdoba, Depto. Punilla, Parque Nacional Quebrada del Condorito, leg. G.L. Robledo 267, 6.Sep.2004 (Holotype CORD). Ibid., leg. Menoyo & Becerra, s.n., 17.May.2004 (CORD). Ibid., Los Gigantes, Quebrada de Anselmo, leg. G.L. Robledo s.n., 26.Jun.2004 (CORD). Depto. San Alberto, Los Gigantes, Quebrada Nipur, leg. G.L. Robledo 380, 8.Feb.2005, 31° 24' 41" W 64° 48' 26" S.

Additional material studied. *Aleurocystis magnispora*, Colombia, Cundinamarca, km 20 road from Mosquera to La Mesa, 2300 masl, leg. L. Ryvarden 15573, 6.Jun.1978 (O).

Discussion

The cupuloid-discoïd basidiome, large, non-amyloid basidiospores, metuloids, and clamped, thick-walled hyphae in the trama warrant the inclusion of this taxon in *Aleurocystis* G. Cunn. (Cunningham 1956, 1963; Ryvarden 1998). The species is characterized by the presence of hymenial, sulfonegative gloeocystidia, finely encrusted skeletocystidia whose walls turn greyish blue in IKI, the lack of dendrohyphidia in the hymenium, and the plant host. Two species are currently accepted in the genus (Parmasto 1997, Ryvarden 1998). *Aleurocystis habgallae* (Berk. & Broome) G. Cunn., the type species, differs from *A. gloeocystidiata* by fusiform to conic, metuloid cystidia, subglobose to broadly oval basidiospores, dendrohyphidia, and the formation of a conidial stage with globose spores; it probably has a pantropical distribution (Cooke 1951, Cunningham 1963, Hjortstam & Larsson 1995). *Aleurocystis magnispora* (Burt) P.A. Lemke differs in its broadly attached (i.e., stereoid) basidiocarp, with several units

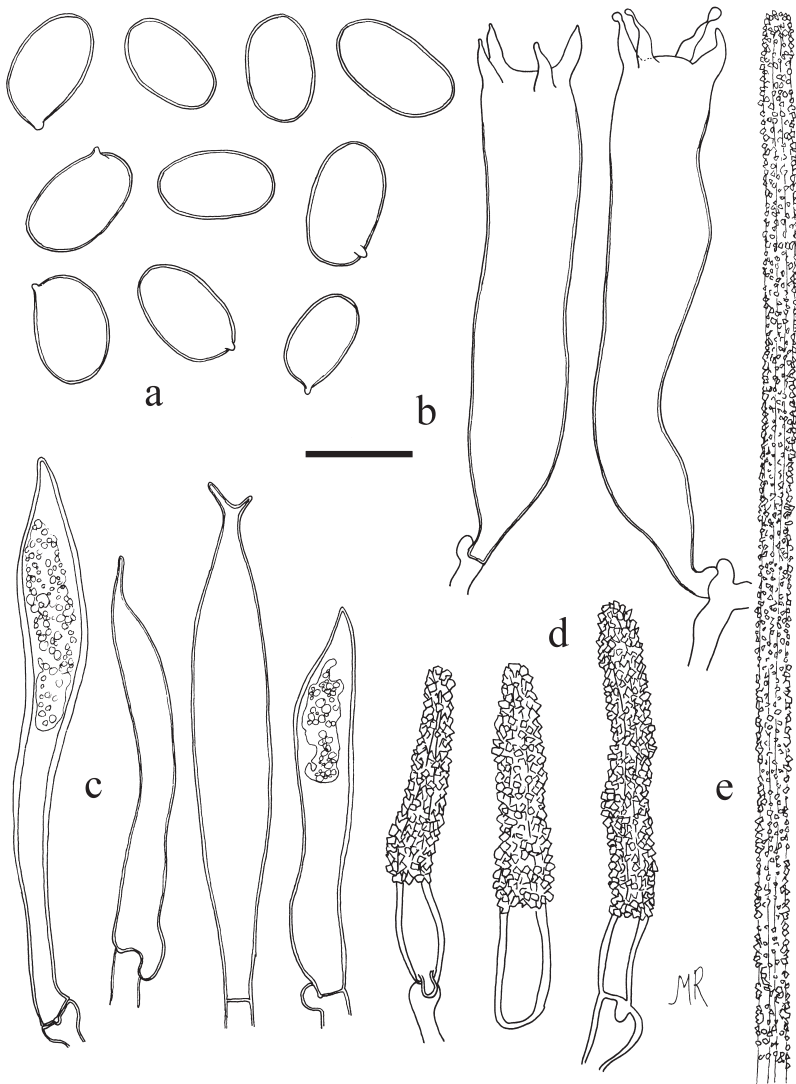


Fig. 5. *Aleurocystis gloeocystidiata* (Robledo 267, holotype), microscopic features: a, basidiospores. b, basidia. c, gloeocystidia. d, metuloids. e, incrustated skeletocystidia from the margin.

Bar = 20 μ m.

coalescing and forming a relatively large basidiome (i.e., several cm wide), coarsely encrusted, subulate to conic metuloid cystidia, and dendrohyphidia; it has a neotropical distribution being recorded from Jamaica, Colombia and southern Brazil (Welden 1958, Lemke 1964, Hjortstam & Larsson 1995, Ryvarden 1998).

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Literature cited

- Cooke W.B. 1951. The genus *Cytidia*. *Mycologia* 43: 196–210.
- Cunningham G.H. 1956. Thelephoraceae of New Zealand III: the genus *Corticium*. *Transactions of the Royal Society of New Zealand* 82: 271–327.
- Cunningham G.H. 1963. The *Thelephoraceae* of Australia and New Zealand. *New Zealand Department of Scientific and Industrial Research Bulletin* 145: 1–359.
- Fjeldså J. & Kessler M. 1996. Conserving the biological diversity of *Polylepis* woodlands of the Highland of Peru and Bolivia. A contribution to sustainable natural resource management in the Andes. Copenhagen, Denmark: NORDECO, 250 p.
- Hjörtstam K. & Larsson K.-H. 1995. Annotated check-list to genera and species of corticioid fungi (*Aphylophorales*, Basidiomycotina) with special regards to tropical and subtropical areas. *Windahlia* 21: 1–75.
- Lemke P.A. 1964. The genus *Aleurodiscus* (sensu lato) in North America. *Canadian Journal of Botany* 42: 723–768.
- Parmasto E. 1997. Cortbase, a nomenclatural taxabase of corticioid fungi (Hymenomycetes). *Mycotaxon* 61: 467–471.
- Robledo G., Urcelay C. & Rajchenberg M. 2003. New species causing decay on living *Polylepis australis* in Córdoba, central Argentina. *Mycologia* 95: 347–353.
- Ryvarden L. 1998. The genus *Aleurocystis*. *Cryptogamie mycologie* 19: 93–97.
- Simpson B. 1979. A revision of the genus *Polylepis* (*Rosaceae*, *Sanguisorbeae*). *Smithsonian Contributions in Botany* 43: 1–62.
- Urcelay C., Robledo G. & Rajchenberg M. 2000. *Phellinus tabaquilio* sp. nov. from Córdoba Mountains, Central Argentina. *Mycotaxon* 76: 287–291.
- Welden A.L. 1958. Two unrecognized species of *Cytidia*. *Mycologia* 50: 304–306.