MYCOTAXON

Volume 100, pp. 5–9 *April–June 2007*

South American polypores: first annotated checklist from Argentinean Yungas

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Abstract — A preliminary checklist of the polypore mycota of "Yungas", subtropical mountain forests of northwestern Argentina, is presented. An intensive search of records in literature was done, and polypore exsiccatae from that phytogeographic province kept at the main Argentinean herbaria were studied. A total of 850 specimens were revised and 111 species were determined. *Phellinus laevigatus* and *Skeletocutis stellae* are recorded for the first time in South America; 8 species are new records for Argentina and 31 new records for the region. The new combination *Dichomitus hexagonoides* is proposed. The complete checklist is available on:
http://www.mycotaxon.com/resources/weblists.html.

Key words — fungal diversity, wood decay fungi, neotropic montane forests

Introduction

Yungas ecosystem

A system of tropical and subtropical cloud montane forests is developed on the oriental slope along the Andes in South America. This system, called Andean Yungas Forests, is mainly defined by its occurrence on the slopes in an altitudinal range where the weather is characterized by a persistent or seasonal fog and cloud cover (Brown et al. 2005).

Andean Yungas Forests have their southern limit in NW Argentina where they are called Yungas and also known as "Selva Tucumano-Boliviana" or "Selva Tucumano-Oranense". Biogeographically, Argentinean Yungas are in the Andean corridor and constitute practically the southeast expression of the Amazonic Domain (Cabrera 1994). About 50% of Argentina's biodiversity can be found in this ecosystem (Brown et al. 2005). Tree diversity is high and preliminary estimations include more than 230 tree species with particular

elements of Holarctic (*Alnus*, *Berberis*, *Juglans*, *Sambucus*), Gondwanic (*Podocarpus*, *Escallonia*, *Weinmannia*), Pantropical (*Eugenia*, *Ocotea*) and Neotropical (*Myrcianthes*) origins (Grau & Brown 2000, Brown et al. 2005).

Argentinean Yungas are characterized by a high altitudinal gradient characterized by different environmental conditions such as periods of drought, high temperatures, high humidity levels, frosts and snow in winter, a fact that reflects a particular floristic composition. As result of the environmental gradient, three main forest types can be distinguished (Brown et al. 2005), namely: premontane lowland forests (400-700 m asl); lower montane forests (700-1500 m asl); and upper, temperate montane forests (1500-2500 m asl).

Argentinean Yungas have been under strong anthropogenic pressure for many decades (Grau & Brown 2000). In the meantime, the biodiversity of Argentinean Yungas is threatened by global climate changes and human activity such as agricultural frontier expansion, intense logging, and oil and gas prospecting (Grau & Brown 2000). These activities cause a variation in occurrence and abundance of woody substrates, thus possibly producing direct effects on the populations and communities of wood decomposers, as has been shown in forests of the Northern Hemisphere (Sippola & Renvall 1999). Despite the high endemic value of plants of Argentinean Yungas (Zuloaga et al. 1999), important ecological groups as wood-rotting fungi have not yet been surveyed.

Mycological knowledge state of Yungas

The heterogeneity and diversity of woody substrates of Argentinean Yungas forests suggest a rich wood-decaying fungal diversity and a complex community structure, with taxonomic novelties, including taxa awaiting to be described (Robledo et al. 2003). In the case of polypores, the study of their diversity in Argentina has been concentrated in: the subtropical rainforests and gallery forests of E and NE in the so-called (Argentinean) Mesopotamia and the capital city surrounding areas, Buenos Aires (Popoff 2000 and references therein), the humid and subxerophytic Chaco forests of north central Argentina and southern Paraguay (Popoff 2000), and the *Nothofagus*-dominated forests of Southern Argentina (Rajchenberg 2006). Several endemic and cosmopolitan taxa have been described recently from the particular *Polylepis* (*Rosaceae*) forests of central Argentina reviewed in Robledo et al. (2006). But the research undertaken in NW Argentina has been more sporadic. Spegazzini (1919) made the first studies and deposited collections in LPS, and during the following 80 years polypore studies in this region have been restricted to field trips headed by the mycologists Rolf Singer and Jorge E. Wright. Their collections are kept mainly at BAFC, LIL and LPS. Several works published in the last 25 years have dealt with specific polypore taxa and genera, or with particular substrates

(Bazzalo & Wright 1982, Gottlieb et al. 1998, 2002; Rajchenberg & Bianchinotti 1991, Rajchenberg 1982, 1985; Robledo et al. 2003, Ryvarden et al. 1982, Silveira & Wright 2005, Urcelay & Robledo 2004, Wright 1966, 1976) but, as yet, there is no comprehensive study on the polypores of that area.

The aim of this study was to establish a baseline of knowledge of polypore diversity in Argentinean Yungas, through the construction of an annotated checklist.

Material and methods

An intensive search of fungal records in literature was done. When possible we updated and/or corroborated the records (mainly those of Spegazzini) through the study of original specimens. Also, we revised all collections deposited in the herbaria CORD, LPS, LIL, CTES, and BAFC. Type and reference materials deposited in international herbaria were also checked. Herbarium acronyms are from Holmgren et al. (1990). Morphological features of basidiocarps were observed. Microscopic examinations and measurements were made from freehand sections mounted in 3-5% KOH plus 1% phloxine and in Melzer's reagent.

Results

We checked, studied, and/or revised a total of 850 collections. Together with the literature search we established the presence of **111** species. The current annotated checklist for the polypore species from Argentinean Yungas can be downloaded from http://www.mycotaxon.com/resources/weblists.html.

Masuka & Ryvarden (1999) have shown that the tropical genus *Megasporoporia* Ryvarden & J.E. Wright does not differ from the temperate *Dichomitus* D.A. Reid sufficiently enough to merit separate status. Therefore, we propose here the following new combination:

Dichomitus hexagonoides (Speg.) Robledo & Rajchenb. **comb. nov.**
MycoBank # MB10615

Bas.: *Poria hexagonoides* Speg., An. Mus. Nac. Buenos Aires 6: 170, 1899 (LPS!).
≡ *Megasporoporia hexagonoides* (Speg.) J.E. Wright & Rajchenb., Mycotaxon 16: 176, 1982.

A 37 % (41 out of 111) of the species constitute novelties in distribution. The most interesting ones are the new records for South America of ***Phellinus laevigatus*** (Fr.) Bourdot & Galzin and ***Skeletocutis stellae*** (Pilát) Jean Keller. These species are well known in the North Hemisphere, viz., North America (Gilbertson & Ryvarden 1987), Europe (Ryvarden & Gilbertson 1994) and Asia (Núñez & Ryvarden 2000, 2001). No differences were observed with reference materials.

Eight rare species constitute new records for Argentina: ***Amauroderma macrosporum*** J.S. Furtado, ***Amylosporus campbellii*** (Berk.) Ryvarden,

Fomitopsis meliae (Underw.) Gilb., ***Phellinus johnsonianus*** (Murrill) Ryvarden, ***Phellinus shaferi*** (Murrill) Ryvarden, ***Phylloporia capucina*** (Mont.) Ryvarden, ***Polyporus biskeletalis*** Corner and ***Skeletocutis nivea*** (Jungh.) Jean Keller. All these taxa are known from other neotropical areas of South America.

Finally, 31 species are new records for the region, and a **Nomina incerta** of 25 names published by Spegazzini that require re-evaluation was established. Some combinations were not traced, representative materials were not found at the herbaria and there is no mention regarding their placement. In other cases the herbarium materials could not be identified because they were sterile or deteriorated.

Acknowledgements

Authors are grateful to the Curators of BAFC, CTES, LIL and LPS for the loan of materials under their keeping. Dr O. Popoff (CTES) is kindly acknowledged for his hospitality during the visit to his institution. Dr Leif Ryvarden and Dr Julieta Carranza are kindly acknowledged for their valuable suggestions and Dr S. Pennycook for his detailed review of nomencaltural problems. GLR is Fellow and MR Researcher of CONICET (National Research Council of Argentina). Research funded through grant CONICET-PIP 6195/05.

Literature cited

Bazzalo ME, Wright JE. 1982. Survey of the Argentine species of the *Ganoderma lucidum* complex. Mycotaxon 16: 293–325.

Brown AD, Pacheco S, Lomáscolo T, Malizia L. 2005 Ecorregión Yungas: Situación ambiental en los Bosques andinos Yungueños. In: Situación Ambiental Argentina 2005 (eds. A. Brown, U. Martinez Ortiz, M. Acerbi and J. Corcuera). Fundación Vida Silvestre Argentina, Argentina: 53–72.

Cabrera AL. 1994. Regiones Fitogeograficas Argentinas. Enciclopedia Argentina de Agricultura y Jardinería. Tomo II. Editorial ACME S.A.C.I., Buenos Aires.

Gilbertson RL, Ryvarden L. 1987. North American Polypores Vol. 2. Fungiflora, Oslo.

Gottlieb AM, Saidman B, Wright JE. 1998. Isoenzymes of *Ganoderma* species from southern South America. Mycological Research 102: 415–426.

Gottlieb AM, Wright JE, Moncalvo J. 2002. *Inonotus* s.l. in Argentina-morphology, cultural characters and molecular analyses. Mycological Progress 1: 299–313.

Grau A, Brown A. 2000. Development threats to biodiversity and opportunities for conservation in the Muntain Ranges of the Upper Bermejo River Basin, NW Argentina and SW Bolivia. Ambio 29: 445–450.

Holmgren P, Holmgren NL, Barnett LC. 1990. Index herbariorum. Part I: The herbaria of the world. New York Botanical Garden, New York: 1–693.

Masuka AJ, Ryvarden L. 1999. *Dichomitus* in Africa. Mycological Research 103: 1126–1130.

Núñez M, Ryvarden L. 2000. East Asian polypores 1. *Ganodermataceae* and *Hymenochaetaceae.* Synopsis fungorum 13: 1–168.

Núñez M, Ryvarden L. 2001. East Asian polypores 2. *Polyporaceae* s. lato. Synopsis fungorum 14: 170–522.

Popoff O. 2000. Novedades sobre "Corticioides" y "Políporos" (*Basidiomycetes*) xilófilos del nordeste argentino y Paraguay. Tesis de Doctorado. Universidad Nacional de Córdoba, Argentina.

Rajchenberg M. 1982. El género *Coriolus* (*Polyporaceae*) en la República Argentina. Boletín de la Sociedad Argentina de Botánica 21: 17–57.

Rajchenberg M. 1985. On *Trametes aethalodes* and other species of *Daedalea* (*Polyporaceae*). Canadian Journal of Botany 64: 2130–2135.

Rajchenberg M. 2006. Los Políporos (*Basidiomycetes*) de los bosques Andino Patagónicos de Argentina. Bibliotheca Mycologica 201: 1–300.

Rajchenberg M, Bianchinotti MV. 1991. *Trametes fumoso-avellanea* (*Aphyllophorales*, *Basidiomycetes*): a taxonomic study. Nordic Journal of Botany 11: 225–230.

Robledo G, Urcelay C, Rajchenberg M, Domínguez L. 2003. Políporos (*Aphyllophorales*, *Basidiomycota*) parásitos y saprófitos de *Alnus acuminata* en el noroeste argentino. Boletín de la Sociedad Argentina de Botánica 38: 207–224.

Robledo G, Urcelay C, Domínguez L, Rajchenberg M. 2006. Taxonomy, ecology and biogeography of polypores (Basidiomycetes) from Argentinian *Polylepis* woodlands. Canadian Journal of Botany 84: in press.

Ryvarden L, Gilbertson RL. 1994. European Polypores Vol. 2. Fungiflora, Oslo.

Ryvarden L, Wright JE, Rajchenberg M. 1982. *Megasporoporia*, a new genus of resupinate Polypores. Mycotaxon 16: 172–182.

Silveira RM, Wright JE. 2005. The taxonomy of *Echinochaete* and *Polyporus* s. str. in southern South America. Mycotaxon 93: 1–59.

Sippola A, Renvall P. 1999. Wood-decomposing fungi and seed-tree cutting: A 40-year perspective. Forest Ecology and Management 115: 183–201.

Spegazzini C. 1919. Los Hongos de Tucumán. 1º reunión Nacional de la Sociedad Argentina de Ciencias Naturales 1916, 254–274.

Urcelay C, Robledo G. 2004. Community structure of polypores (Basidiomycota) in Andean alder wood in Argentina: Functional groups among wood-decay fungi? Austral Ecology 29: 471–476.

Wright JE. 1966. The genus *Phaeotrametes*. Mycologia 58: 529–540.

Wright JE. 1976. *Loweporus*, a new genus of pore fungi. Memoirs of the New York Botanical Garden 28: 225–231.

Zuloaga F, Morrone O, Rodríguez D. 1999. Análisis de la biodiversidad en plantas vasculares de la Argentina. Kurtziana 27: 17–167.