
MYCOTAXON

<http://dx.doi.org/10.5248/118.251>

Volume 118, pp. 251–256

October–December 2011

A new species of *Marasmius* from northern Argentina

BERNARDO LECHNER* & LEANDRO PAPINUTTI

PROPLAME-PRHIDEB (CONICET), DBBE, Facultad de Ciencias Exactas y Naturales,
Ciudad Universitaria, (C1428EHA) Ciudad de Buenos Aires, Argentina.

*CORRESPONDENCE TO: blechner@bg.fcen.uba.ar

ABSTRACT — *Marasmius tyrius* is proposed as a new species. It is characterized by collariate lamellae, insititious stipe, violet pileus, pileipellis with Siccus-type broom cells, and clavate to fusoid spores. Detailed description and illustrations of macro- and microscopic characters are provided.

KEY WORDS — Argentinean mycobiota, *Marasmiaceae*, taxonomy

Introduction

The genus *Marasmius* (*Marasmiaceae*, *Agaricales*) is represented by a large number of species, especially in the tropics (Singer 1976, 1986). It is characterized by a hymeniform pileipellis composed of broom cells of Siccus- or Rotalis-type, or of exclusively smooth cells. Siccus-type cells are characterized by apical appendages or more or less erect setulae, while the Rotalis-type usually have short appendages and that descend from the apex down towards the middle of the cell (Singer 1986).

Spegazzini (1880a,b, 1883, 1887, 1891, 1898, 1902, 1909, 1925, 1926a,b), Singer (1950, 1959, 1965, 1969, 1976, 1989), and Singer & Digilio (1953) described species of *Marasmius* from Argentina, Chile, and Paraguay. Singer (1953) later studied several types of species described by Spegazzini and included his observations in the exhaustive monographs on *Marasmius* in South America and Neotropics (Singer 1959, 1965, 1976). After these reports, mycological literature on the genus in the region has been scant. Recently, there has been a renewed worldwide interest in *Marasmius* (Desjardin et al. 2000, Antonín 2003, 2004a,b, 2007, Wannathes et al. 2004, 2009, Antonín & Buyck 2006, Desjardin & Ovrebo 2006, Puccinelli & Capelari 2006, Tan et al. 2009, Antonín & Noordeloos 2010). In Argentina, Lechner et al. (2006) reported new records of *Marasmius* collected in the northern region, and several species have

been described and illustrated in the Pictorial Atlas of Iguazú National Park (Wright et al. 2008).

According to our knowledge, one specimen collected during an expedition in northern Argentina does not match any described *Marasmius*. Thus, we propose *Marasmius tyrius* as a new species.

Materials & methods

The specimen was photographed and its macroscopic features were recorded when fresh. Tissues were mounted in 5% KOH + 1% aqueous phloxine or Melzer's reagent and observed under a Nikon E-600 microscope. For basidiospore measurements, the length : width quotient (Q) was calculated, with Qm indicating the mean value of Q quotients. Line drawings were made with the aid of a light tube. Basidiomata were dried, kept frozen for a week, and deposited in the BAFC herbarium (Department of Biodiversity and Experimental Biology, Faculty of Exact and Natural Sciences, Universidad de Buenos Aires).

Taxonomy

Marasmius tyrius B.E. Lechner & Papinutti, **sp. nov.**

FIGS. 1–2

MYCOBANK MB 518617

Pileo 4–5.5 mm lato, 2–2.7 mm alto, hemisphaerico, centro depresso, violaceo, glabro, sulcato. *Lamellis* albis, subdistantibus (proxime 17), collariatis. *Stipite* castaneo, glabro, 31–37 × 0.2–0.5 mm. *Basidiosporis* 11.1–14.1 × 2.5–3.7 µm, clavatis ad fusiformibus, laevibus, hyalinis, inamyloideis. *Basidiis* clavatis, 23–28 × 4–6 µm, 1–3 sterigmata. *Cheilocystidiis* difformibus: (1) *elementis* typi *Marasmii* sicci, 17.3–20.5 × 3.7–9.5 µm, *setulis* 2–4 µm longis, tenuitunicatis vel crassitunicatis, castaneis in KOH, et (2) *clavatis*, 22.5–27.4 µm longis, tenuitunicatis, hyalinis. *Elementis* epicuticularibus plerumque typi *Marasmii* sicci, 11.9–22.5 × 11.2–13.1 µm, *setulis* 4–5 µm longis.

TYPE: Argentina, Chaco, Colonia Benítez, 27°26'19.20"S 58°50'51.39"W, on fallen leaves, 19-IX-2007, col. L. Papinutti, G. Rolón (**HOLOTYPE** BAFC 51726).

ETYMOLOGY: The epithet refers to the similarity of the pileus color to Tyrian purple, the dye famously produced in the ancient Phoenician city of Tyre (Latin: *Tyrus*).

PILEUS 4–5.5 mm in diam × 2–2.7 mm high, hemispheric, depressed at the centre, glabrous, deeply sulcate, violet (Plate 42, K10K11, Maerz & Paul 1930), centre light brown with an outer light violet ring. **PILEUS CONTEXT** white, very thin (less than 1 mm). **LAMELLAE** (Fig. 1c) collariate, subdistant (ca. 17), whitish, entire, lamellulae absent; edge broad, concolorous with the pileus. **STIPE** 31–37 × 0.2–0.5 mm, chestnut-brown, creamy to whitish at the apex, glabrous, insititious, cylindrical. **RHIZOMORPHS** frequently present, thin, black. **STIPE CONTEXT** thin, white.

BASIDIOSPORES (9.3–)11.1–14.1(–15.4) × 2.5–3.7 µm, Q = 3.24–4.97, Qm = 4.23, n = 30, clavate to fusoid, hyaline, inamyloid, smooth, thin-walled. **BASIDIA** clavate, 23–28 × 4–6 µm, 1–3 spored. Basidioles clavate, 19.2–25.0 µm long. **PLEUROCYSTIDIA** absent. **LAMELLA EDGE** sterile, with crowded cheilocystidia.

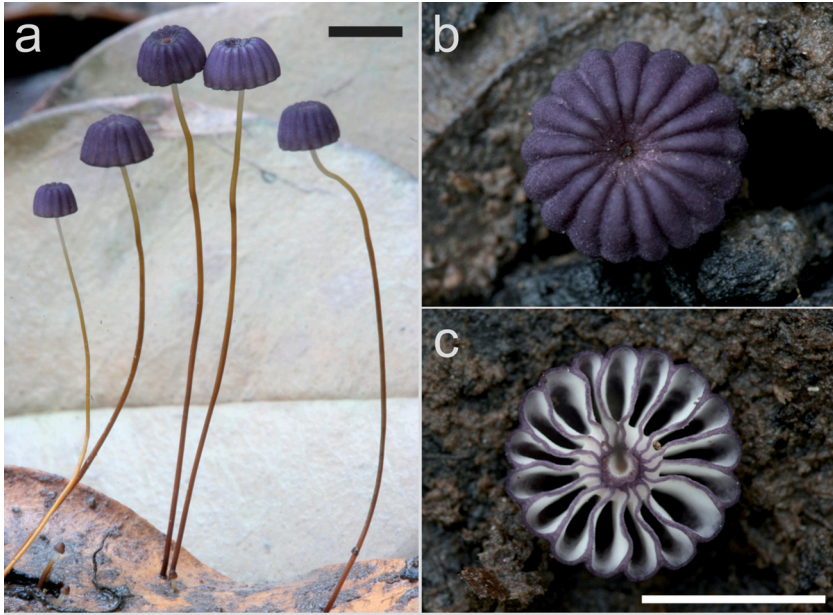


FIG. 1. Basidiomes of *Marasmius tyrius*.
Scale bar = 1 cm.

CHEILOCYSTIDIA of two types: (1) Siccus-type broom cells, body $17.3\text{--}20.5 \times 3.7\text{--}9.5 \mu\text{m}$, setulae $2\text{--}4 \mu\text{m}$ long, thin- to thick-walled, castaneous in KOH, and (2) clavate, $22.5\text{--}27.4 \mu\text{m}$ long, thin-walled, hyaline. HYMENOPHORAL TRAMA regular to subregular; hyphae hyaline, clamped, $2.1\text{--}6.0 \mu\text{m}$ diam. PILEPELLIS composed of Siccus-type broom cells, body $11.9\text{--}22.5 \times 11.2\text{--}13.1 \mu\text{m}$, setulae $4\text{--}5 \mu\text{m}$ long, thin- to thick-walled, castaneous in KOH, mostly subvesiculose; and of clavate, some bifurcate, $20.1\text{--}34.1 \times 5.4\text{--}7.0 \mu\text{m}$, thin- to thick-walled elements (wall up to $2.3 \mu\text{m}$ thick), castaneous in KOH. HYPHAE OF PILEUS CONTEXT hyaline, thin-walled, clamped, $2.6\text{--}6.0 \mu\text{m}$ diam, weakly dextrinoid. HYPHAE OF STIPE CONTEXT generative, hyaline, clamped, thin-walled, $2.6\text{--}5.2 \mu\text{m}$ diam, and thick-walled (up to $1.5 \mu\text{m}$), $4.2\text{--}6.3 \mu\text{m}$ diam, scant in upper zones of the apex; non-dextrinoid.

ECOLOGY AND DISTRIBUTION — Gregarious, abundant in wet forest soil and litter at Colonia Benítez. Growing on fallen leaves of *Phoebe porphyria* (Griseb.) Mez (*Lauraceae*). Known only from type locality.

COMMENTS — *Marasmius tyrius* belongs to sect. *Marasmius*, subsect. *Sicciformes* Antonín based on the presence of a collarium, the insittitious stipe, and Siccus-type broom cells in the pilepellis. In his monograph on Neotropical

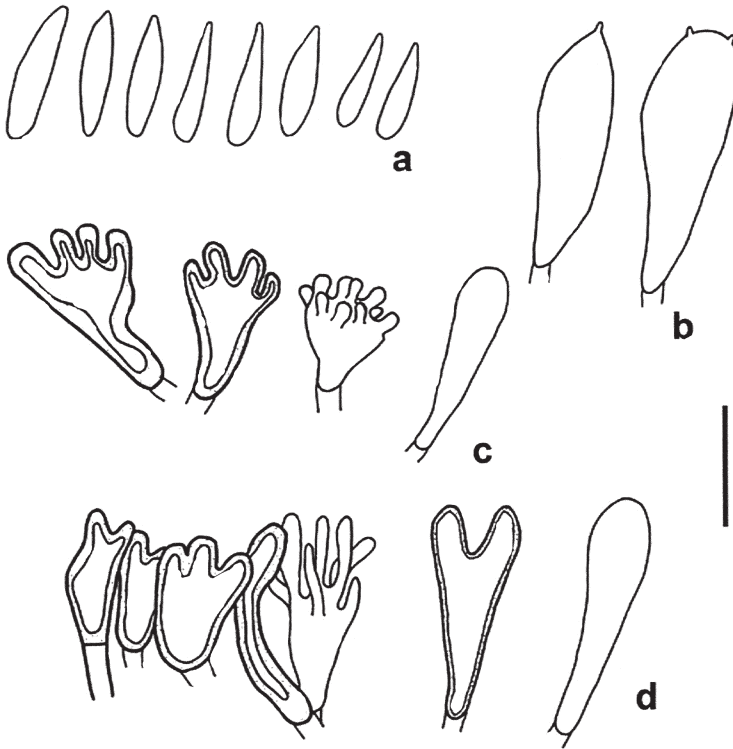


FIG. 2. *Marasmius tyrius*, micromorphology.
 a: Spores. b: Basidia. c: Cheilocystidia. d: Elements of the pileipellis.
 Scale bar = 10 μ m.

marasmioid fungi, Singer (1976) did not present any violet-colored species with the characteristics of the subject. *Sicciformes*, but several purple colored ones. We will mention the three most similar species. *Marasmius marthae* Singer has a purple-red pileus, black stipe at maturity, somewhat longer spores, and grows on wood pieces; *M. rubromarginatus* Dennis has a carmine-purple to brown-red pileus, more distant lamellae (11–15), and longer spores; and *M. sanguireotalis* Singer has a dark purple pileus, distant lamellae (11–13), much longer spores, and grows on branches and woody matter. Among the few other purple or purple tinged species not treated by Singer (1976), the most similar is *M. purpureobrunneolus* Henn. from Indonesia. It differs by reddish-brown to purplish-brown pileus and more distant lamellae (9–14).

The only two violaceous species in subsect. *Sicciformes* were described by Singer (1989) from Brazil, both with significantly smaller spores: *M. iodactylus* Singer (spores 6–7.5 \times 2.5–3.3 μ m) and *M. izonetae* Singer (spores 5 \times 2.2 μ m).

In sect. *Marasmius*, subsect. *Marasmius* (= *Pararotulae* Singer), Singer (1976) described *M. violeorotalis* Singer with a violet-lilac pileus. It has the same habitat as *M. tyrius* (on leaves of dicotyledonous trees) but differs in smaller spores ($6.2\text{--}9.5 \times 2.5\text{--}3 \mu\text{m}$), Rotalis-type broom cells in the pileipellis, and more distant lamellae (ca. 12). Other *Marasmius* species with violaceous or violaceous tinged pileus belong to other sections of the genus.

Acknowledgments

We wish to express our gratitude to Dr. Zdenko Tkalčec and Dra. Marina Capelari for reviewing the manuscript and offering useful comments. We thank Guillermo Rolón for the technical assistance with the figures. This work was supported by CONICET (Consejo Nacional de Investigaciones Científicas y Técnicas) Argentina and Universidad de Buenos Aires.

Literature cited

- Antonín V. 2003. New species of *Marasmius* (*Basidiomycetes*, *Tricholomataceae*) from tropical Africa – I. Sect. *Epiphylli*, *Fusicystides*, *Globulares*, *Hygrometrici* and *Neosessiles*. *Mycotaxon* 85: 109–130.
- Antonín V. 2004a. New species of marasmiod genera (*Basidiomycetes*, *Tricholomataceae*) from tropical Africa – III. *Marasmius* sect. *Sicci*. *Mycotaxon* 89: 399–422.
- Antonín V. 2004b. New species of marasmiod genera (*Basidiomycetes*, *Tricholomataceae*) from tropical Africa – IV. Four new taxa of the genus *Marasmius* and one new combination. *Mycotaxon* 89: 423–431.
- Antonín V. 2007. Monograph of *Marasmius*, *Gloiocephala*, *Palaeocephala* and *Setulipes* in tropical Africa. *Fungus flora of tropical Africa* 1. Meise, National Botanic Garden (Belgium). 177 p.
- Antonín V, Buyck B. 2006. *Marasmius* (*Basidiomycota*, *Marasmiaceae*) in Madagascar and the Mascarenes. *Fungal Diversity* 23:17–50.
- Antonín V, Noordeloos ME. 2010. A monograph of marasmiod and collybioid fungi in Europe. Eching, IHW Verlag. 480 p.
- Desjardin DE, Ovrebo CL. 2006. New species and new records of *Marasmius* from Panamá. *Fungal Diversity* 21: 19–39.
- Desjardin DE, Retnowati A, Horak E. 2000. *Agaricales* of Indonesia. 2. A preliminary monograph of *Marasmius* from Java and Bali. *Sydowia* 52: 92–194.
- Lechner BE, Wright JE, Popoff O. 2006. New taxa and new records for Argentina of fungi from Iguazú National Park, Misiones. *Fungal Diversity* 21: 131–139.
- Maerz A, Paul M. 1930. *Dictionary of color*. New York. 207 p.
- Puccinelli C, Capelari M. 2006. Two new species of *Marasmius* (*Basidiomycota*, *Marasmiaceae*) from Brazil. *Mycotaxon* 95: 295–300.
- Singer R. 1950. Die höheren Pilze Argentinien. *Bulletin Suisse de Mycologie* 28: 181–196.
- Singer R. 1953. Type studies on agarics III. *Lilloa* 25: 463–514.
- Singer R. 1959. Studies toward a monograph of South American species of *Marasmius*. *Sydowia* 12: 54–148.
- Singer R. 1965. Monographic studies on South American *Basidiomycetes*, especially those of the east slope of the Andes and Brazil 2. The genus *Marasmius* in South America. *Sydowia* 18: 106–358.
- Singer R. 1969. *Mycoflora australis*. *Nova Hedwigia* 29: 1–405.

- Singer R. 1976. *Marasmieae (Basidiomycetes – Tricholomataceae)*. Flora Neotropica 17: 1–347.
- Singer R. 1986. The *Agaricales* in modern taxonomy. 4th edition. Koenigstein, Koeltz Scientific Books. 981 p.
- Singer R. 1989. New taxa and new combinations of *Agaricales* (Diagnoses fungorum novorum Agaricalium IV). Fieldiana Botany 21: 1–133.
- Singer R, Digilio APL. 1953. Prodomo de la flora agaricina Argentina. Lilloa 25: 5–461.
- Spegazzini CL. 1880a. Fungi Argentini. Pugillus 1. Anales de la Sociedad Científica Argentina 9: 158–192.
- Spegazzini CL. 1880b. Fungi Argentini. Pugillus 3. Anales de la Sociedad Científica Argentina 10: 122–142.
- Spegazzini CL. 1883. Fungi Guaranitici. Pugillus I. Anales de la Sociedad Científica Argentina 16: 272–284.
- Spegazzini CL. 1887. Fungi Fuegiani. Boletín de la Academia Nacional de Ciencias de Córdoba 11: 135–311.
- Spegazzini CL. 1891. Fungi Guaranitici nonnulli novi vel critici. Revista Argentina de Historia Natural 1: 101–111.
- Spegazzini CL. 1898. Fungi Argentinici novi vel critici. Anales del Museo de Historia Natural de Buenos Aires 6: 81–288.
- Spegazzini CL. 1902. Mycetes Argentinenses. Series 2. Anales del Museo de Historia Natural de Buenos Aires 8: 49–89.
- Spegazzini CL. 1909. Mycetes Argentinenses. Series 4. Anales del Museo Nacional de Historia Natural de Buenos Aires 19: 257–458.
- Spegazzini CL. 1925. Séptima contribución a la micología Chilena. Revista Chilena de Historia Natural 29: 58–64.
- Spegazzini CL. 1926a. Contribución al conocimiento de la flora micológica de las Sierras de Córdoba. Boletín de la Academia Nacional de Ciencias de Córdoba 29: 113–190.
- Spegazzini CL. 1926b. Observaciones y adiciones a la micología argentina. Boletín de la Academia Nacional de Ciencias de Córdoba 28: 267–406.
- Tan Y-S, Desjardin DE, Perry BA, Vikineswary S, Noorlidah A. 2009. *Marasmius sensu stricto* in Peninsular Malaysia. Fungal Diversity 37: 9–100.
- Wannathes N, Desjardin DE, Retnowati A, Tan YS, Lumyong S. 2004. A redescription of *Marasmius pellucidus*, a species widespread in South Asia. Fungal Diversity 17: 203–218.
- Wannathes N, Desjardin DE, Hyde KD, Perry BA, Lumyong S. 2009. A monograph of *Marasmius (Basidiomycota)* from Northern Thailand based on morphological and molecular (ITS sequences) data. Fungal Diversity 37: 209–306.
- Wright JE, Lechner BE, Popoff O. 2008. Atlas pictórico de los hongos del Parque Nacional Iguazú. Editorial LOLA, Buenos Aires. 227 p.