Pleurothecium bicoloratum &
Sporidesmiopsis pluriseptata spp. nov. from Brazil

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Abstract — Two new species of microfungi, Pleurothecium bicoloratum and Sporidesmiopsis pluriseptata, found on decaying plant materials are described and illustrated. Pleurothecium bicoloratum, also collected in Venezuela, is distinguished by broad allantoid, bicolored, 3-septate, smooth conidia with dark olivaceous-brown central cells and hyaline ends; S. pluriseptata, thus far known only from Brazil, is characterized by obclavate, smooth, dirty brown conidia with up to 23 septa.

Key words — asexual fungi, taxonomy, leaf litter

Introduction

During a survey of hyphomycetes associated with plant litter from the Amazon forest (Amapá state) and semi-arid region (Bahia state), two undescribed Pleurothecium and Sporidesmiopsis species were collected. The specimens, which could not be assigned to any species currently accepted in those genera, are described here as new.

Materials & methods

Leaf and wood litter samples were transported to the laboratory where they were placed in Petri dish moist chambers and stored in a 170 L polystyrene box with 200 mL sterile water plus 2 mL glycerol, at 25°C for 30 days (Castañeda-Ruiz 2005). Mounts were prepared in polyvinyl alcohol, lactic acid, and phenol (PVL) and examined and
photographed using an Olympus BX51 microscope equipped with bright field and Nomarski interference optics. All measurements were made at a magnification of ×1000. The type specimens are deposited in the Herbarium of Universidade Estadual de Feira de Santana, Brazil (HUEFS).

**Taxonomy**

*Pleurothecium bicoloratum* R.F. Castañeda, J.S. Monteiro & Gusmão sp. nov.  

**Figs 1–3A**

**MYCOBank** MB 813040

Differs from all other *Pleurothecium* species by its bicolored conidia with dark olivaceous brown to black central cells and hyaline end cells.

**Type:** Brazil, Bahia State, Abaira, Distrito de Catolés, Mata do Cigano, 13°15’S 41°54’W, on decaying wood of an unidentified plant, 09.I.2015; coll. J.S. Monteiro (Holotype: HUEFS 215982).

**Etymology:** Latin, *bicoloratum*, referring to the bicolored conidia.

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**Fig. 1. Pleurothecium bicoloratum** (ex holotype HUEFS 215982). Conidiophores, conidiogenous cells, and conidia. Bar = 20 μm.
Fig. 2. *Pleurothecium bicoloratum* (ex holotype HUEFS 215982). A, H. Conidia; B–G, I. Conidiogenous cells and conidia. Bars = 10 μm.
Colonies effuse, hairy dark brown or black. Mycelium mostly immersed in substrate. Conidiophores macronematous, mononematous, erect, straight to slightly flexuous toward the apex, single, 5–10-septate, smooth, dark brown below, pale brown toward the apex, 300–470 × 5–7.5 μm. Conidiogenous cells polyblastic, integrated, terminal, sometimes becoming intercalary, 20–90 × 4–5 μm sympodially elongated, denticulate, denticles narrow cylindrical, hyaline, 3–4 × 1–1.5 μm. Conidial secession schizolytic. Conidia solitary, broad allantoid, smooth, 3-septate, bicolor, with dark olivaceous-brown to black central cells, hyaline end cells, smooth, 19–24 × 7–12 μm.


Note: Höhnel (1919) established Pleurothecium for P. recurvatum (Morgan) Höhn. The genus is characterized by distinct brown conidiophores and polyblastic sympodially extended denticulate conidiogenous cells. The conidia are solitary, unicellular or septate, hyaline or pigmented (Arzanlou et al. 2007, Cooper 2005, Goos 1969, Matsushima 1975, 1980, Matsushima & Matsushima 1996, Réblová et al. 2012, Subramanian & Bhat 1989, Wu & Zhang 2009). Pleurothecium leptospermi J.A. Cooper and P. recurvatum are superficially similar to P. bicoloratum in having paler end cells and darker central cells, but P. leptospermi has brown denticles and fusiform 3-septate brown smaller (15–18 × 4–5 μm) conidia, while the allantoid conidia of P. recurvatum are hyaline initially and narrower (18–23(–30) × 5–7 μm). The conidia of other described Pleurothecium species clearly differ from P. bicoloratum (see Fig. 3). Pleurothecium magnum Subram. & Bhat (Subramanian & Bhat 1989) should be excluded from Pleurothecium: it more closely resembles Klyndria species and is distinguished by sympodial extensions of the inner conidiogenous cell layers, some enteroblastic percurrent regenerations, and conidia eccentrically attached to flattened denticulate conidiogenous loci—none of which are characters assigned to Pleurothecium.

Key to Pleurothecium species

1. Conidia unilocular ................................................................. 2
2. Conidia ellipsoid to oblong or obovoid, hyaline, 5–8 × 2.5–3 μm. . . . P. semitectum
3. Conidia septate ................................................................. 3
4. Conidia narrowly ovoid, pale brown, 8.5–13.5 × 4–5 μm ............ P. obovoides
5. Conidia 1-septate ................................................................. 4
6. Conidia with more than one septum ........................................... 5
7. Conidia clavate, pale brown, 15–32 × 3–4 μm ............................ P. clavatum
8. Conidia cylindrical, hyaline to pale brown, 14–21 × 1.5–2 μm ........ P. malayense
5. Conidia 3-septate, always hyaline, cylindrical to fusiform, slightly curved, guttulate, 23–30 × 7–8 μm .......................... P. pulneyense
5. Conidia 3-septate, sometimes or always pigmented .......................... 6
6. Conidia fusiform, curved, brown with median cells darker than end cells, 15–18 × 4–5 μm .......................... P. leptospermi
6. Conidia allantoid .................................................. 7
7. Conidia always with dark olivaceous-brown to black median cells and hyaline end cells, 16–27 × 7–12 μm .......................... P. bicoloratum
7. Conidia at first hyaline, later pale brown with median cells darker than the end cells, 18–23(–30) × 5–7 μm .......................... P. recurvatum

Sporidesmiopsis pluriseptata J.S. Monteiro, Gusmão & R.F. Castañeda sp. nov.

FIG 4

MYCOBank MB 813041

Differs from all other Sporidesmiopsis spp. by its larger and multiseptate conidia.


ETYMOLOGY: Latin, pluri-, meaning many several, + -septata, refers to the septa.

Colonies effuse, hairy, black. Mycelium mostly immersed in substrate. Conidiophores macronematous, mononematous, erect, straight, branched above, cylindrical, ≤22-septate, sometimes with 1–2 enteroblastic regenerations, smooth, black, 160–320 × 6–10 μm, 0–7-septate, branches more or less cylindrical, sometimes slightly sinuate, dark brown, 7–30 × 4–5 μm. Conidiogenous cells monoblastic, mostly discrete, lateral, determinate, sometimes integrated, terminal, doliiform or shortly cylindrical, dark brown, smooth, 3–7 × 4–5 μm. Conidial secession schizolytic. Conidia solitary, obclavate, straight or curved, acropleurogenous, 11–23-euseptate, brown, pale brown toward the apex, smooth, 80–130 × 6–8.5μm, smooth, sometimes with a rudimentary, hyaline, mucous tunica at the apical cell.

Note: Subramanian & Bhat (1989) established Sporidesmiopsis for S. malabarica Subram. & Bhat. The genus is characterized by conidiophores that are distinct, erect, branched toward the apex, and conidiogenous cells that are monoblastic, discrete, and short cylindrical or doliiform (Xia et al. 2014). Sporidesmiopsis dennisi (J.L. Crane & Dumont) Bhat et al., which is superficially similar to S. pluriseptata, is distinguished by its 10–15-septate, smooth or verruculose, dark brown conidia, paler toward the apex, 69–92 × 11–13 μm (Bhat & Kendrick 1993, Crane & Dumont 1978).
Fig. 4. Sporidesmiopsis pluriseptata (ex holotype HUEFS 216009). A–G. Conidia; H–K Conidiophores, conidiogenous cells and conidium. Bars: A–J = 20 μm; K = 10 μm.
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