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A new species of *Matsushimiella* from submerged leaves in the Brazilian Amazon Forest

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Abstract—*Matsushimiella paraensis* sp. nov. is described and illustrated from specimens collected on submerged leaves in a stream, from Pará, Brazil, in the Amazon rainforest. The fungus is characterized by polyblastic sympodially extending conidiogenous cells and ellipsoid, long ovoid to broadly oblong, 2–4-distoseptate medium to golden brown smooth conidia with a pale brown to subhyaline basal frill left by rhexolytic conidial secession.

Key words— taxonomy, freshwater fungi, tropics

Introduction

During a mycological survey of conidial fungi occurring on submerged decaying plant remnants from the Amazon rainforest in Brazil (Monteiro et al 2014a,b), an interesting fungus was collected on submerged leaves. Its conidiogenesis and conidial features clearly suggest a placement in the hitherto monotypic genus *Matsushimiella* R.F. Castañeda & Heredia (Castañeda-Ruiz et al. 2001). However, there are remarkable conidial differences distinguishing *Matsushimiella queenslandica* (Matsush.) R.F. Castañeda & Heredia, the type species of the genus, and the new collections from Brazil.

Material & methods

Samples of submerged litter were placed in paper and plastic bags, taken to the laboratory, and treated according to Castañeda-Ruiz (2005). Mounts were prepared in PVL (polyvinyl alcohol, lactic acid, and phenol) and measurements were taken at ×1000.

Micrographs were obtained with an Olympus microscope (model BX51) equipped with bright field and Nomarski interference optics. The holotype and an additional specimen are deposited in the Herbarium of Universidade Estadual de Feira de Santana, Brazil (HUEFS).

Taxonomy

Matsushimiella paraensis J.S. Monteiro, R.F. Castañeda & Gusmão, **sp. nov.** FIG. 1

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Differs from *Matsushimiella queenslandica* by its larger, ellipsoid, long ovoid to broad oblong, 2–4-distoseptate conidia.

TYPE: Brazil, Pará State, Belém, Parque Estadual do Utinga, 1°25′S 48°27′W, on submerged leaves of an unidentified plant in a stream, 9 Jan. 2013, coll. J.S. Monteiro (**Holotype**: HUEFS 210425).

ETYMOLOGY: Latin *paraensis* refers to Pará State, where the type specimen was collected.

COLONIES on the natural substrate effuse, hairy, smooth, golden brown. CONIDIOPHORES distinct, unbranched, erect, cylindrical below, geniculate above, 5–10-septate, smooth, wall somewhat thickened, up to 1.5 μm wide, dark brown at the base, pale brown toward the apex, smooth, 170–220 × 5–8 μm. CONIDIOGENOUS CELLS integrated, terminal, geniculate, with several sympodial extensions, polyblastic, pale brown, 40–70 × 4–5 μm. SEPARATING CELLS more or less cylindrical, subhyaline, 3–4 × 2–2.5 μm, fracturing and remaining as a persistent short peg. Conidial secession rhexolytic. CONIDIA solitary, acropleurogenous, ellipsoid, long ovoid to broadly oblong, 2–4-distoseptate, mostly 4-distoseptate, 20–25 × 8–10 μm, wall 1–1.5 μm thick, smooth, mid brown or golden brown, fimbriate at the base, frill subhyaline to pale brown, 1–2 μm long, 2–2.5 μm wide.

ADDITIONAL SPECIMEN EXAMINED: **BRAZIL, PARÁ**, Parque Estadual do Utinga, 1°25′S 48°27′W, on submerged leaves of an unidentified plant in a stream, 17 Oct. 2012, coll. J.S. Monteiro (HUEFS 210427).

NOTE: *Matsushimiella* is typified by *M. queenslandica* (Castañeda-Ruiz et al. 2001) based on *Pseudospiropes queenslandica* Matsush., which was collected from decaying leaves of an unidentified plant in Australia. The existence of the separating cells was mentioned in the brief discussion by Matsushima (1989), but not described in the original description of *Matsushimiella* (Castañeda-Ruiz et al. 2001). Seifert et al. (2011) characterized the conidiogenous cells as polytretic, which refers to the original description of *Matsushimiella* (Castañeda-Ruiz et al. 2001). However, conidiogenesis is holoblastic, with mostly polyblastic conidiogenous cells. *Matsushimiella queenslandica* is readily distinguishable from the new Brazilian species by its obovate, 1–3-, mostly 2-distoseptate, 9–16 × 6–8 μm, smooth, pale brown conidia that secede by rhexolytic fracture of cylindrical separating cells.

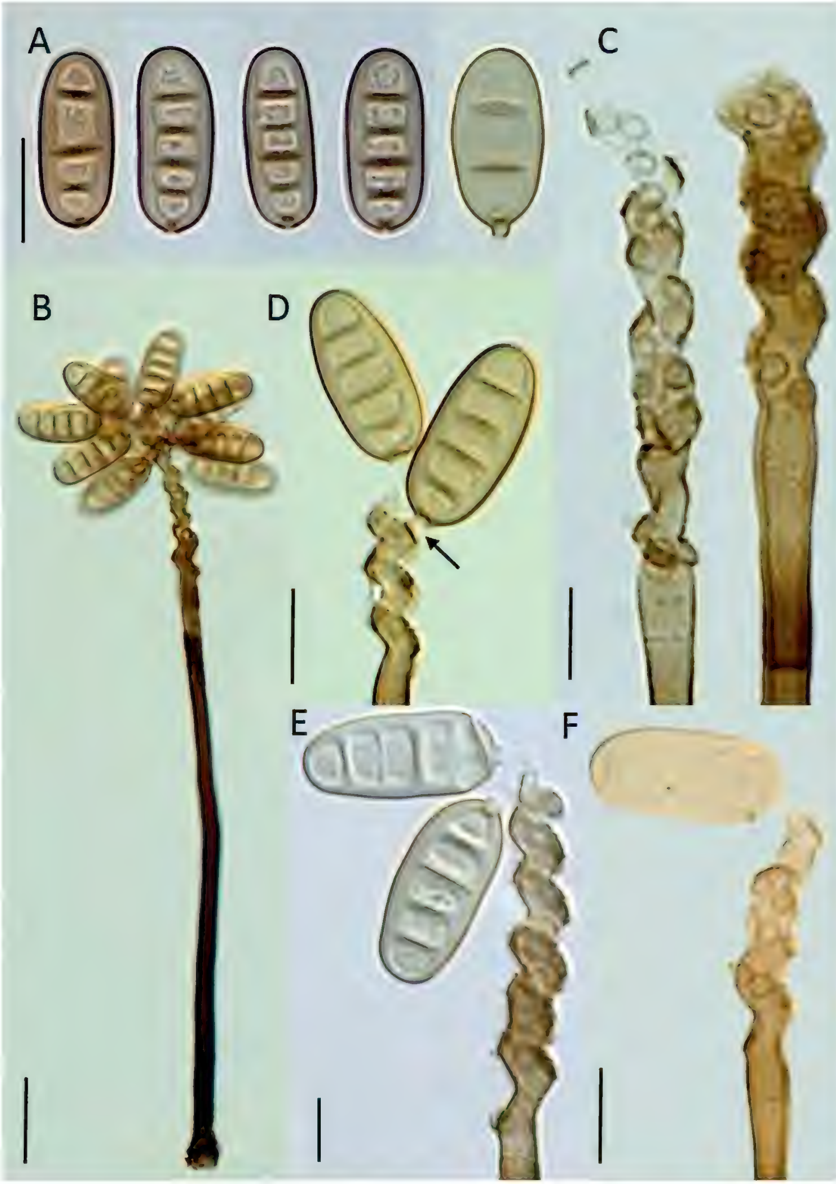

FIG. 1. *Matsushimiella paraensis* (holotype HUEFS 210425): A. Conidia. B. Conidiophore, conidiogenous cell, separating cells, and conidia. C. Conidiogenous cells. D–F. Conidiogenous cells, separating cells (arrow), and conidia. Scale bars = 10 µm.

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