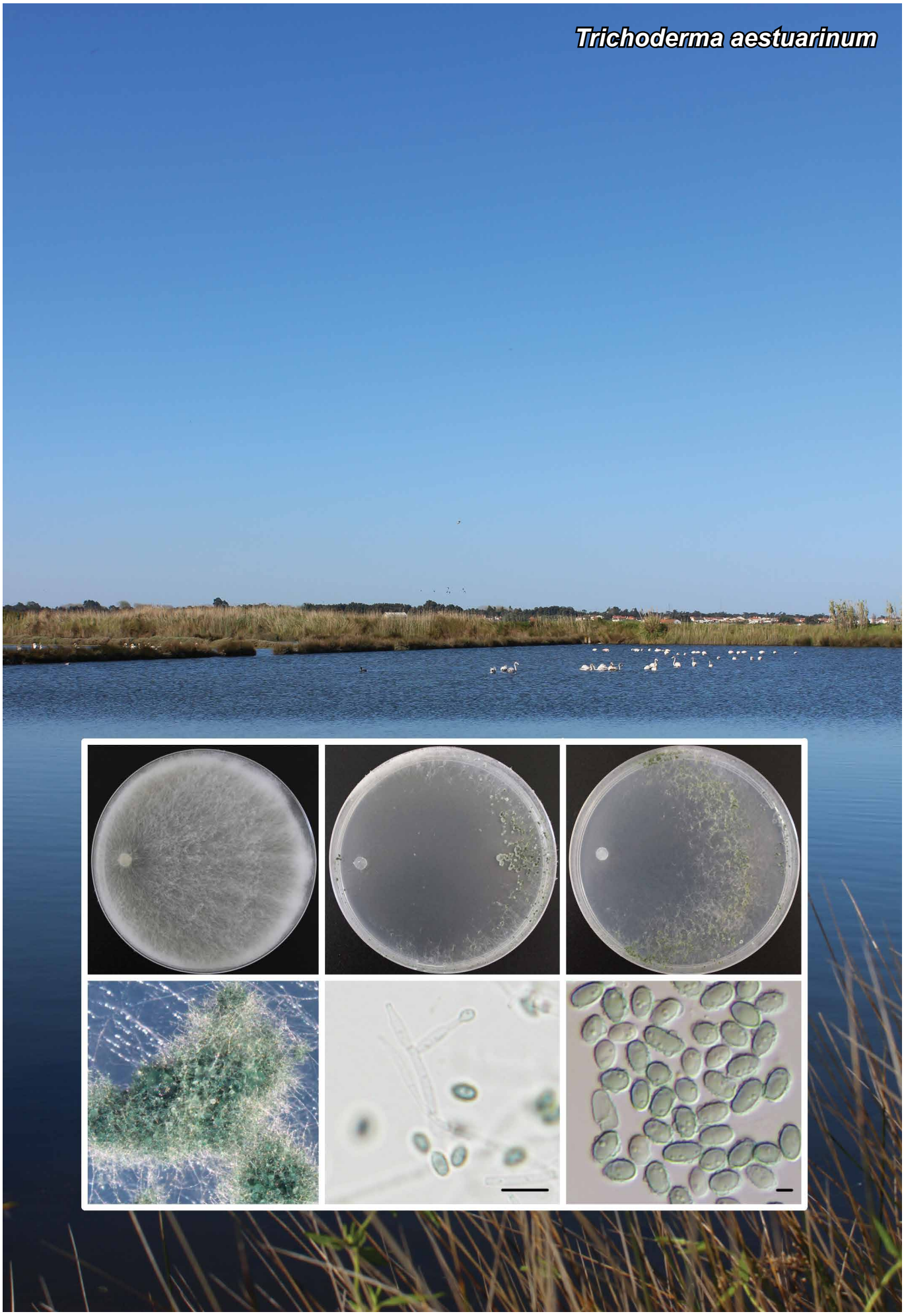

Trichoderma aestuarinum

Fungal Planet 1037 – 18 December 2019

Trichoderma aestuarinum M. Gonçalves & A. Alves, *sp. nov.*

Etymology. Named after the environment where the species was collected, namely an estuary.

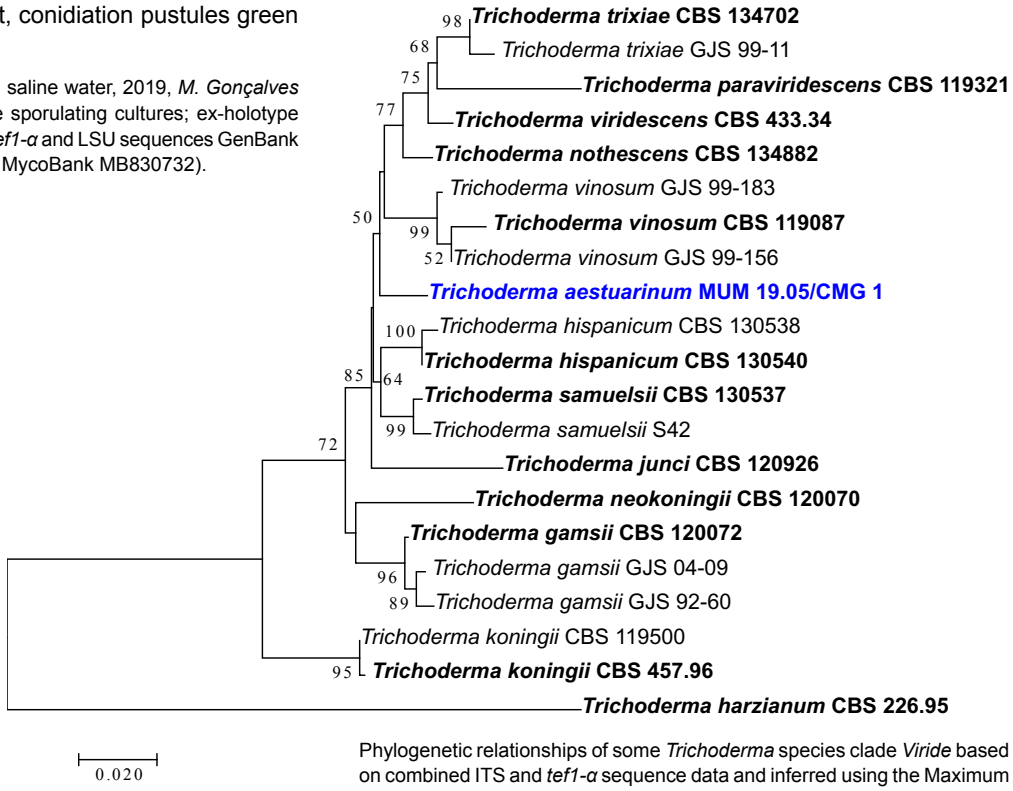
Classification — *Hypocreaceae*, *Hypocreales*, *Hypocreomycetidae*, *Sordariomycetes.*

Mycelium on synthetic low nutrient agar (SNA) smooth, hyaline with aerial hyphae. *Chlamydospores* infrequent. Conidiation starting after 7 d, short effuse and predominantly in small pustules 1–2 mm diam formed mostly in the middle plate. *Conidiophores* variable, irregular. *Phialides* solitary or divergent, (7.7–)13.7(–20.1) × (1.9–)2.5(–3.2) µm (n = 50). *Conidia* ellipsoid to oblong, green, rough, (4.4–)6.1(–7.4) × (2.6–)3.4(–4.4) µm (n = 100).

Culture characteristics — Optimum temperature for growth 25 °C. No growth at 35 °C in potato dextrose agar (PDA), corn meal agar (CMA) and SNA. Colony radius after 2 wk: on PDA, colonies have 75 mm at 25, 20 and 15 °C; 15 mm at 10 °C and 3 mm at 30 °C; colony circular, dense, margin wavy, surface whitish, abundant aerial hyphae, absent autolytic excretions, conidiation pustules and diffusing pigment, odour indistinct, reverse turning slightly yellowish. On CMA, colonies have 75 mm at 25, 20 and 15 °C; 26 mm at 10 °C and 2 mm at 30 °C; colony circular, hyaline, dense, aerial hyphae scant, absent autolytic excretions and diffusing pigment, odour indistinct, conidiation pustules mainly in periphery, green or grey-green. On SNA, colonies have 75 mm at 25, 20 and 15 °C; 6 mm at 10 °C and 3 mm at 30 °C; colony circular, hyaline, dense, with some aerial hyphae from the middle, absent autolytic excretions and diffusing pigment, odour indistinct, conidiation pustules green beginning to form in the centre.

Typus. Portugal, Ria de Aveiro, from saline water, 2019, *M. Gonçalves* (holotype MUM H-19.05, a dried culture sporulating cultures; ex-holotype living culture MUM 19.05 = CMG 1, ITS, *tef1-α* and LSU sequences GenBank MK770830, MK770831 and MN535286, MycoBank MB830732).

Notes — Phylogenetic analysis of *Trichoderma* species based on the ITS and *tef1-α* genes provides highest resolution for identification of species of the genus, particularly in the distinction of species within the *Viride* clade (Jaklitsch et al. 2006, Samuels et al. 2006). Based on a megablast search of NCBIs GenBank nucleotide database, the closest hits using the ITS sequence are *Trichoderma koningii* (GenBank KY788329; Identities = 568/570 (99 %), no gaps), *Trichoderma koningiopsis* (GenBank MF116301; Identities = 567/570 (99 %), no gaps) and *Trichoderma sp.* (GenBank KP172544; Identities = 567/570 (99 %), no gaps). Closest hits using the *tef1-α* sequence had highest similarity to *Trichoderma paraviridescens* (GenBank MF782846; Identities = 608/646 (94 %), 18 gaps (2 %)), *Trichoderma trixiae* (GenBank MF782847; Identities = 605/646 (94 %), 21 gaps (3 %)) and *Trichoderma vinosum* (GenBank DQ841719; Identities = 587/624 (94 %), 22 gaps (3 %)). Alignment and tree were deposited in TreeBASE (TB2:S24289).



Phylogenetic relationships of some *Trichoderma* species clade *Viride* based on combined ITS and *tef1-α* sequence data and inferred using the Maximum Likelihood method under the Kimura 2-parameter model (MEGA7 v.7.0). The tree is drawn to scale, with branch lengths measured in the number of substitutions per site and rooted to *Trichoderma harzianum* (CBS 226.95). Bootstrap support values (> 50 %) are shown at the nodes. Ex-type strains are in **bold** and the isolate from the current study is in blue.

Colour illustrations. Estuary Ria de Aveiro (Portugal). Colony after 2 wk at 25 °C on PDA, CMA and SNA; conidiation pustules, phialides and conidia on SNA. Scale bars 10 µm (middle), 2.5 µm (right).

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