
Pseudogymnoascus turneri

Fungal Planet 1028 – 18 December 2019

Pseudogymnoascus turneri Rea, Smyth & Overton, *sp. nov.*

Etymology. Named after Gregory G. Turner from the Pennsylvania Game Commission for his many contributions to the study and conservation of hibernating bats affected by White-nose Syndrome, a wildlife disease caused by the invasive fungal pathogen *Pseudogymnoascus destructans*.

Classification — *Pseudeurotiaceae, incertae sedis, Leotiomycetes*.

On Sabouraud dextrose acidified with 120 µL 85 % lactic acid for optimal pigment production: *Conidia* borne singly at the tips, globose to obovate, smooth, with one abscission scar 2.5–4.3 (3.3, n = 30) µm in length. Intercalary conidia with two abscission scars, globose to truncate, measuring 3–5.5 (3.8, n = 30) µm in length. On oatmeal salt sediment agar: *Ascomata* gymnothecial, solitary, globose, measuring 103–263 (173, n = 20) µm diam; greyish orange (5B6; Kornerup & Wanscher 1978); developing rapidly and ripening within 10 d at 25 °C, (12 h white fluorescent light / 12 h dark). *Ascomatal* initials coiled to irregular; peridium is a gymnothecium composed of *textura intricata*, the peridial hyphae darkly pigmented brownish yellow (5C7), smooth to minutely roughened with distinct appendages measuring 4.6–11.4 (7.0, n = 10) × 2.2–2.8 (2.4, n = 10) µm. *Asci* globose to ovoid, 8-spored, 5–7.7 (6.5, n = 84) × 3.2–6 (4.6, n = 84) µm in size. *Ascospores* aseptate, fusoid, smooth, greyish orange (5B6); 2.9–4.8 (3.5, n = 216) × 1.8–2.9 (2.1, n = 216) µm in size.

Culture characteristics — (12 h white fluorescent light / 12 h dark at 25 °C): Colonies at first pastel yellow to light yellow (3A3–5), in age changing to reddish golden to brown-orange (6C7–8) after 10 d.

Typus. USA, Pennsylvania, Clearfield County, Sabula railroad tunnel, from sediment, 2017, *Dr. Barrie Overton* LHU 121 (holotype in Cornell University Plant Pathology Herbarium (CUP-070715), ITS, *RBP2* and *TEF-1α* sequences MN542213, MN541380 and MN541379; MycoBank MB832738).

Additional material examined. USA, Pennsylvania, Blair County, Canoe Creek State Park, Canoe Creek Hartman Mine, from sediment, 2016, *Dr. Barrie Overton*, paratype LHU Ps5 in Cornell University Plant Pathology Herbarium (CUP-070716), ITS, *RBP2* and *TEF-1α* sequences MN542214, MN541382 and MN541381.

Colour illustrations. Background photo of Sabula Railroad Tunnel, Pennsylvania, USA. Conidia on SAB; ascospores on oatmeal agar; SEM image of asci and peridial hyphae from oatmeal agar; DIC image of asci and peridial hyphae on oatmeal agar; colony back colour on SAB at 10 d; gymnothecia on oatmeal agar; ascomatal initials on oatmeal agar at 10 d. Scale bar = 100 µm (gymnotheicia), 10 µm (SEM image), 5 µm (all others).

Notes — Morphological analyses suggest that *P. turneri, P. lindneri* and *P. bhattii* could be sister taxa. They are similar in the morphological characteristics of gymnothecial ascomata production and colony colouration. Samson (1972) described *P. bhattii* as being characterised by yellow ascomata and the absence of distinct peridial appendages. However, *P. turneri* can be distinguished from *P. bhattii* based on conidiogenesis (*P. bhattii* does not produce conidia) and the presence of distinct peridial appendages. *Pseudogymnoascus turneri* can be distinguished from *P. lindneri* based on ascospore dimensions (*P. lindneri* ascospores are smaller in size: 2.6–4 × 1.6–3 (3.2 × 2.1 µm, n = 216) and gymnothecial dimensions (*P. lindneri* gymnothecia are larger, 181–311 µm diam (220, n = 20). Minnis & Lindner (2013) were the first to analyse many *Pseudogymnoascus* taxa using modern phylogenetic methods using a multigene approach. In their work, they identified multiple clades of *Pseudogymnoascus*. The new species described here is identical in the three genes analysed to the same three genes from Minnis & Lindner's 23342-1-I1 isolate. Isolate 23342-1-I1 has remained an undescribed homothallic species since the publication of their work. In addition to the morphological differences elucidated between *P. turneri* and *P. lindneri*, there is strong bootstrap support separating these species based on a three-gene-phylogeny. This work is the first to unite the morphological characters used by Samson (1972) with molecular data.

For phylogenetic tree see FP 1027.

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