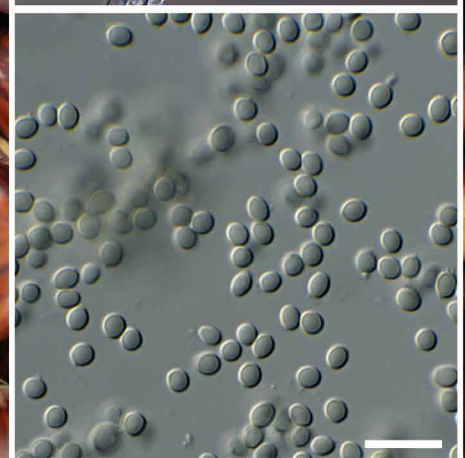
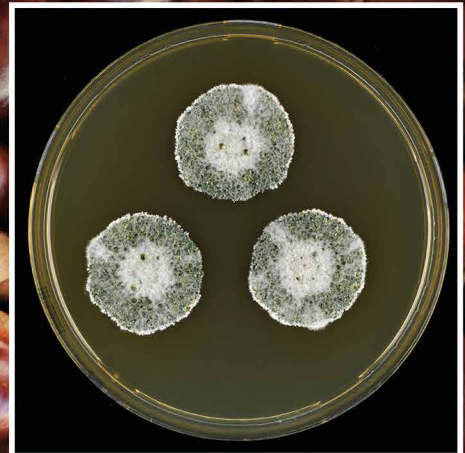


Penicillium taurinense



Fungal Planet 1101 – 29 June 2020

***Penicillium taurinense* S. Prencipe, Houbraeken & D. Spadaro, sp. nov.**

Etymology. Name refers to Turin, the city from which this type specimen was collected.

Classification — *Aspergillaceae*, *Eurotiales*, *Eurotiomycetes*.

Conidiophores terverticillate; stipes coarsely roughened, 180–350 × 3–4.5 µm; *synnemata* up to 1 mm long; *branches* 15–30 µm; *metulae* 3–8, 10–13 × 2.5–3.5 µm; *phialides* ampulliform, 4–8 per metula, 8–9.8 × 2–3 µm. *Conidia* smooth, broadly ellipsoidal, 3–3.5 × 2.5–3 µm.

Culture characteristics — (25 °C, 7 d) Czapek yeast autolysate agar (CYA): Colonies slightly radially sulcate in centre, low; mycelium white; margins irregular; texture fasciculate; soluble pigments brown, moderately produced; exudate droplets small, copious, brown; sporulation moderate; conidia *en masse* pale grey-green; reverse brown, dark brown in centre. Malt extract agar (MEA): Colonies plane, elevated in the centre; mycelium white; margins slightly irregular; texture fasciculate; soluble pigments absent; exudate droplets large, pale brown; sporulation strong; conidia *en masse* dull to grey-green; reverse brown in centre, pale brown at edge. Yeast extract sucrose agar (YES): Colonies slightly radially sulcate, raised; mycelium white; margins entire; texture floccose; soluble pigment present, brown, weakly produced; exudates absent; sporulation moderate to strong; conidia *en masse* dull to grey-green; reverse reddish brown (copper). Dichloran 18 % glycerol agar (DG18): Colonies plane, raised at the centre; margins entire or slightly irregular; mycelium white; texture fasciculate; soluble pigments present, light brown, weak; exudates absent; sporulation strong; conidia *en masse* dull green; reverse reddish brown (copper) or reddish brown in centre, yellowish brown at edge. Oatmeal agar (OA): Colonies plane, low; margins regular, thin; mycelium white; texture fasciculate; soluble pigments light brown present, moderately produced; exudates brown present, small; sporulation strong; conidia *en masse* dark green. Colony diam after 7 d, in mm – CYA 22–24; CYA 15 °C 17–19; CYA 30 °C 22–25; CYA 37 °C no growth; MEA 27–31; DG18 19–22; YES 38–42; OA 37–42; CREA 13–16. Ehrlich reaction: None. Creatine sucrose agar (CREA): good growth, acid production absent, base production present.

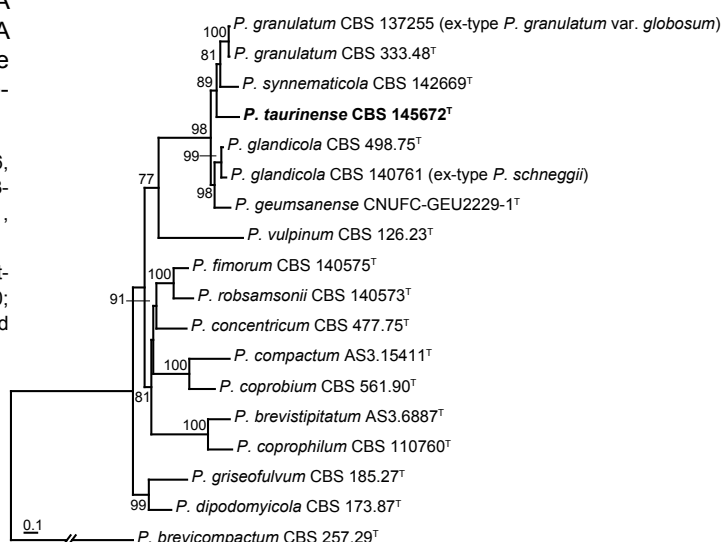
Typus. ITALY, Piedmont Region, from indoor chestnut mill, Nov. 2016, S. Prencipe (holotype CBS H-24332, culture ex-type CBS 145672 = DTO 333-B8 = CAS16; ITS, *BenA*, *CaM* and *RPB2* sequences GenBank MF595981, MF595977, MF595979 and MT253108; MycoBank MB834715).

Additional material examined. ITALY, Piedmont Region, from indoor chestnut mill, Nov. 2016, coll. S. Prencipe, CBS 145673 = DTO 333-B9 = CAS50; ITS, *BenA* and *CaM* sequences GenBank MF595982, MF595978 and MF595980.

Colour illustrations. Chestnut harvested in Piedmont region. Colonies (7 d, 25 °C) on MEA; conidiophores and conidia. Scale bars = 10 µm.

Notes — A BLAST search of *BenA*, *CaM* and ITS sequences of *P. taurinense* against an in-house reference sequence database containing data of all accepted *Penicillium* species, retrieved the highest similarities with *Penicillium glandicola*, *P. geumsanense* and *P. synnematicola*, clearly indicating that the species belongs to *Penicillium* sect. *Robsamsonia* ser. *Glandicolarum* (Houbraeken et al. unpubl. data). Phylogenetic analyses showed that *P. taurinense* is sister to a clade containing CBS 142669 (ex-type strain of *P. synnematicola*), CBS 333.48 (ex-type of *P. granulatum*) and CBS 137255 (ex-type of *P. granulatum* var. *globosum*). The latter two strains were identified as *P. glandicola*; however, the ex-type of *P. glandicola* is more distantly related. Frisvad & Samson (2004) treated *P. granulatum* as a synonym of *P. glandicola* based on morphology and extrolite patterns. However, our phylogenetic analysis shows that *P. granulatum* is an accepted species, with *P. granulatum* var. *globosum* being a synonym of that species. Furthermore, *P. schneegii* is confirmed to be a synonym of *P. glandicola*.

Penicillium taurinense is phylogenetically distinct from *P. synnematicola* and *P. glandicola* (Houbraeken et al. 2016, Guevara-Suarez et al. 2019). *Penicillium taurinense* grows faster than *P. synnematicola* on CYA (22–24 vs 33–37 mm), YES (38–42 vs 30–34 mm) and MEA (27–31 vs 11–13 mm) at 25 °C. Both grows at 30 °C while *P. glandicola* is not able to grow at this temperature (Frisvad & Samson 2004, Guevara-Suarez et al. 2019). Furthermore, *P. taurinense* produces brown exudates on CYA compared to hyaline exudate droplets of *P. synnematicola* and clear to pale yellow ones of *P. glandicola*. In addition, *P. taurinense* has a different colony reverse colour on CYA, MEA, DG18 and YES, no acid production on CREA and shorter phialides compared to *P. synnematicola*. A taxonomic study dealing with all accepted species in *Penicillium* ser. *Glandicolarum* is lacking, and could reveal more phenotypic differences.



Maximum likelihood tree of *Penicillium* strains belonging to sect. *Robsamsonia* based on 1 559 aligned nucleotides (combined *BenA*, *CaM* and *RPB2* sequences). Analysis performed using RAxML v. 8.2.12. Bootstrap support is based on 1 000 re-samplings; only bootstrap support values above 70 % are presented at the nodes. *Penicillium brevicompactum* was used as outgroup. The scale indicates the number of substitutions per site.