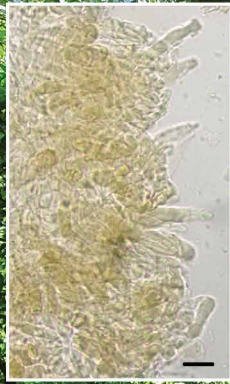
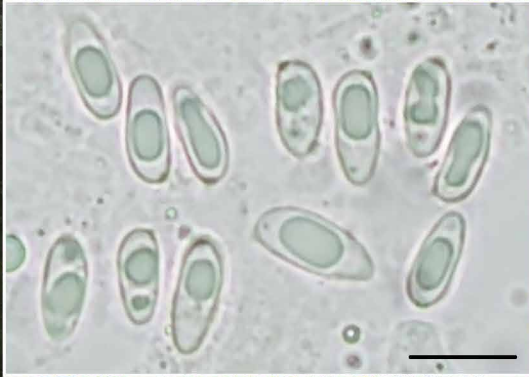


*Tylophilus subotsuensis*



Fungal Planet 1177 – 19 December 2020

***Tylophilus subotsuensis*** T.H.G. Pham, A.V. Alexandrova & O.V. Morozova, *sp. nov.*

*Etymology.* The epithet refers to macromorphological similarity of the new species to *Tylophilus otsuensis*.

Classification — *Boletaceae*, *Boletales*, *Agaricomycetes*.

*Basidiomata* medium to large sized, boletoid. *Pileus* 30–90 mm diam, firstly hemispherical, then convex and pulvinate-flattened; fleshy; margin initially involute, then curved downwards, finally plane, not or only slightly extending beyond the tubes, surface matt, dry, slightly slimy in moist weather, firstly finely pruinose or felted, then smooth and glabrous; the colour varies from beige and pale ochraceous brown with minute olive tinge to light brown and brown (4A3–4, 4B3–4, 5C3–5, 5D4–8, 6E4–6; Kornerup & Wanscher 1978). *Hymenophore* depressed around the apex of stipe, up to 10 mm thick, thinner than the context, whitish, becoming pinkish; pores round or slightly angular, up to 1 mm diam. *Stipe* 80–120 × 10–25 mm, almost cylindrical or broadened towards the base, solid; minutely tomentose, without distinct reticulum; dry, slightly slimy in moist weather, concolorous with the pileus or slightly lighter. *Context* firm, white, unchanging or slowly yellowing in the stem base and in the areas damaged by insects. *Smell* weak, *taste* bitter. *Spores* (7.5–)9–10(–11.5) × (3–)3.5(–4.5) μm, Q = (2.2–)2.6(–3), fusoid, ellipsoid-fusoid, tapering towards the apex, inequilateral in side view, without or with weak suprahilar depression, sometimes substrangulate, hyaline in KOH, smooth. *Basidia* 23–28 × 6–9 μm, 4-spored, narrowly clavate to clavate, clampless. *Cheilocystidia* lageniform or fusoid, 29–66 × 9–15 μm, often thin-walled, with granulose content, forming sterile or heterogeneous tube edge. *Pleurocystidia* 45–72 × 10–15 μm, same as cheilocystidia. *Hymenophoral trama* divergent, boletoid. *Pileipellis* a trichoderm, made up of strongly interwoven filamentous, frequently branched yellowish hyphae 5–8 μm wide. *Stipitipellis* a caulohymenium of basidiolae-like narrowly clavate cells, 25–35 × 7–10 μm, with scattered caulobasidia. *Caulocystidia* 25–60 × 6–10 μm, lageniform, fusoid or subcylindrical. *Clamp connections* absent.

*Habit, Habitat & Known distribution* — Solitary, in groups or caespitose on soil in montane evergreen tropical forests. Known from Vietnam.

*Typus.* VIETNAM, Dak Lak Province, Krong Bong District, Chu Yang Sin National Park, Krong Kmar, 7 km northwest of Chu Yang Sin Mt., N12.42656° E108.36633°, 985 m alt., middle montane evergreen broadleaf forest, 18 May 2014, A.V. Alexandrova & T.H.G. Pham (holotype LE312534; ITS, *tef1a* and LSU sequences GenBank MW009074, MW014268 and MW009073, MycoBank MB837493).

*Colour illustrations.* Vietnam, Dak Lak Province, Krong Bong District, Chu Yang Sin National Park, type locality. Spores, cheilocystidium; pleurocystidium; pileipellis; stipitipellis with caulocystidia (all from holotype). Pileus, basidioma in situ (from holotype); group of fasciculate basidiomata with a longitudinal section through one of them. Scale bars = 10 μm (spores and microstructures), 1 cm (basidiomata).

*Additional materials examined.* VIETNAM, Dak Lak Province, Krong Bong District, Chu Yang Sin National Park, Krong Kmar, 7 km northwest of Chu Yang Sin mountain, N12.39497° E108.34823°, 1000 m alt., middle montane evergreen mixed riparian forest, 21 Mar. 2013, A.V. Alexandrova & T.H.G. Pham (LE312526; *tef1a* sequence GenBank MW014271); *ibid.*, 22 Mar. 2013, A.V. Alexandrova & T.H.G. Pham (LE312525; ITS and *tef1a* sequences GenBank MW009075 and MW014269); Lam Dong Province, Bao Lam District, 21 km NW of the town of Bao Loc, Loc Bac Forestry, N11.74449° E107.70647°, 1006 m alt., 6 Apr. 2013, lower montane evergreen broadleaf forest (*Magnoliaceae*, *Myrtaceae*, *Theaceae*, *Lauraceae*, *Fagaceae*, *Annonaceae*), A.V. Alexandrova & T.H.G. Pham (LE312528; *tef1a* sequence GenBank MW014270); Gia Lai Province, K'Bang District, Son Lang Commune, Kon Chu Rang Nature Reserve, N14.50042° E108.56338°, 1000 m alt., on soil in middle montane evergreen mixed forest, 27 May 2016, A.V. Alexandrova (LE312527; *tef1a* sequence GenBank MW014272).

*Notes* — *Tylophilus subotsuensis* is characterised by the brownish basidiomata, usually lacking distinct olivaceous or purplish tinges. *Tylophilus otsuensis*, described from Japan (Hongo 1966), is superficially similar. It is distinguished by the oblong spores, presence of distinct olivaceous tinge and reddish-brown discolouration when bruised. Long, fusoid, tapering towards the apex spores, unchanging or slightly yellowish context and lack or almost lack of olivaceous tinge in the colour of basidiomata are characteristic for the new species. Micromorphologically, due to spores and cystidia, the new species resembles *T. neofelleus* (Hongo 1973). But for the latter species the presence of a more or less pronounced purplish tinge and thin reticulum on the upper part of stipe surface is characteristic. In fact, colour variations are not a very reliable way to distinguish species in the genus *Tylophilus*. Gelardi et al. (2014b) and Wu et al. (2016) have shown with molecular evidence that the presence of a purplish tinge in basidiomata of *T. neofelleus* (including *T. microsporus*) can vary greatly from a pronounced colour to its complete absence. In the last case *T. subotsuensis* and *T. neofelleus* are almost inseparable, distinguished only by the absence of a reticulum in the apex of the stipe, slightly longer spores and wider cystidia in the new species. However, molecular data support the *T. subotsuensis* as distinct.

**Supplementary material**

**FP1177** Phylogenetic tree derived from Bayesian analysis based on *tef1a* data. The analysis was performed under a GTR model of evolution for 3 M generations using MrBayes v. 3.2.1 (Ronquist et al. 2012). Posterior probability (PP > 0.95) values from the Bayesian analysis are shown at the nodes. The scale bar represents the expected number of nucleotide changes per site.

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