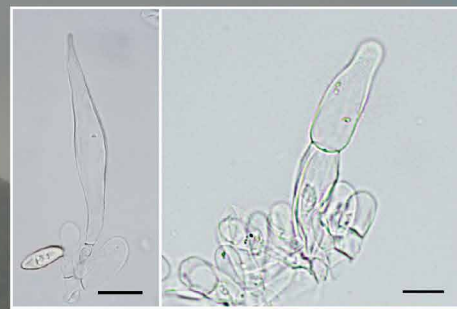
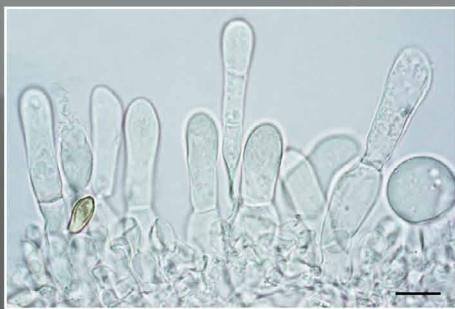
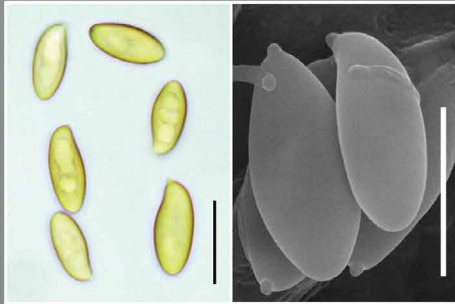


Velophyrellus vulpinus



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Veloporphyrellus vulpinus T.H.G. Pham, O.V. Morozova, A.V. Alexandrova & E.S. Popov, *sp. nov.*

Etymology. The epithet *vulpinus* (Latin for 'of or belonging to a fox') refers to the reddish brown colour of the basidiomata, like fox fur.

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

Basidiomata small to medium sized, boletoid. **Pileus** 25–60 mm diam, hemispherical to convex; reddish brown to orange brown (6C7–8, Kornerup & Wanscher 1978); surface dry, firstly completely fibrillose or tomentose, in mature covered with fibrillose reddish brown squamules on the paler background; the pileus margin slightly extending and does not embrace the apex of the stipe. **Hymenophore** tubular, adnate-emarginate, depressed around apex of stipe, 4–10 mm thick, whitish to creme (4A2–3), unchanging in colour when bruised, pinkish from spores in maturity; pores rounded to angular, 1–2/mm, with slightly fringed edge; tubes concolorous with the hymenophore surface. **Spore print** brownish pink. **Stipe** 40–90 × 5–10 mm, cylindrical, usually significantly broadened up to 20 mm in the basal part, concolorous with the pileal surface; slightly pubescent in the upper part, white tomentose near the stem base. **Context** white in pileus, unchanging, pinkish or turning pink in the stem. **Smell** faint, **taste** bitter. **Basidiospores** (12–)13–15(–16) × (4.5–)5–6(–6.5) µm, Q = (2.1–)2.4–2.8(–3.1), fusoid, subfusoid and inequilateral in side view with weak suprahilar depression, narrowly oblong to subfusoid in ventral view, yellowish to brownish yellow in KOH, smooth. **Basidia** 25–31 × 9–12 µm, 4-spored, sometimes 2-spored, clavate. **Cheilocystidia** 56–77 × 8–11 µm, forming a sterile edge, cylindrical, septate, thin-walled, consist of 2–3 cells, with terminal cells 25–38 × 7–12 µm. **Pleurocystidia** 38–65 × 6–9 µm, cylindrical, fusiform, subfusoid to narrowly lageniform, thin-walled, sparse. **Hymenophoral trama** divergent, boletoid. **Pileipellis** a trichoderm, made up of interwoven cylindrical hyphae 2.5–4 µm wide with narrowly clavate or fusiform terminal cells, 29–75 × 6–16 µm, sometimes with thickened walls in the apex; pigment incrusting, in some hyphae zebra-striped (-verrucose) and additionally pale intracellular. **Pileal trama** composed of interwoven hyphae 3.5–5.5 µm wide. **Stipitipellis** hymeniform. **Caulocystidia** 41–84 × 9–12 µm, as cylindrical, septate hairs with clavate or sometimes rostrate terminal cells. **Clamp connections** absent.

Habit, Habitat & Distribution — In groups on soil and dead wood in primary tropical middle to upper montane evergreen mixed forests. Known from Vietnam.

Colour illustrations. Vietnam, Lam Dong Prov., Lac Duong Dist., Bidoup-Nui Ba National Park, vicinities of Giang Ly, middle montane mixed forest with the participation of *Pinus kempffii*. Spores; SEM photos of spores; cheilocystidia; pileipellis; pleurocystidia; caulocystidia; basidiomata *in situ* (all from holotype); cross section of the basidioma (from LE315547). Scale bars = 1 cm (basidiomata), 10 µm (microstructures).

Typus. VIETNAM, Lam Dong Province, Lac Duong District, Bidoup-Nui Ba National Park, vicinities of Giang Ly, 12.18061°N, 108.68442°E, 1500 m alt., on soil and dead wood in middle montane mixed forest with the participation of *Pinus kempffii*, *P. dalatensis*, 25 May 2014, O.V. Morozova (holotype LE315544, ITS, *tef1a* and LSU sequences GenBank MN511177, MN597966 and MN511170, MycoBank MB832742).

Additional materials examined. VIETNAM, Lam Dong Province, Lac Duong District, Bidoup-Nui Ba National Park, vicinities of Giang Ly, 12.18442°N, 108.68610°E, 1520 m alt., on soil in middle montane mixed forest with the participation of *Pinus kempffii*, *P. dalatensis*, 2 July 2010, E.S. Popov (LE315549, ITS sequence GenBank MN511180); *ibid.*, 12.18440°N, 108.68988°E, 1500 m alt., on soil in middle montane mixed forest with the participation of *Pinus kempffii*, *P. dalatensis*, 23 May 2014, O.V. Morozova (LE315545); Dak Lak Province, Krong Bong District, Chu Yang Sin National Park, Krong Kmar, 7 km northwest of Chu Yang Sin, 12.40856°N, 108.38856°E, 1530 m alt., on soil in mountain polydominant rainforest with the participation of *Pinus kempffii*, 21 May 2014, A.V. Alexandrova (LE315547, ITS, *tef1a* and LSU sequences GenBank MN511178, MN597965 and MN511171; *ibid.*, LE315546, ITS and *tef1a* sequence GenBank MN511179 and MN597964).

Notes — The genus *Veloporphyrellus* was originally described based on *V. pantoleucus* from Costa Rica (Gómez & Singer 1984). It is characterised by the whitish to pink tubular hymenophore, the pinkish to brownish pink spore print, the smooth, elongate to fusiform basidiospores, trichodermial pileipellis and the extending membranous veil remnants on the pileus margin which often embraces the apex of the stipe (Wu et al. 2016). Li et al. (2014) considered the genus as monophyletic. However, in the work of Wu et al. (2016) its monophyly was questioned because species of this genus nested into two clades. Considering the morphological similarities and following latest work (Wu et al. 2016) we treat our new species as *Veloporphyrellus* until further data are available.

The closest species is *V. gracilioides*, from which the new species differs by the brighter reddish- or orange-brown colour of the basidiomata and less developed pileus margin. Due to macromorphology *V. vulpinus* resembles *Austroboletus gracilis*, with the exception of the non-reticulate stipe surface. But like other *Austroboletus* species *A. gracilis* possesses ornamented pitted spores, while the spores of *Veloporphyrellus* are smooth.

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