
Pleuroflammula pannonica

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Pleuroflammula pannonica Polhorský, Kautmanová & Szabóová, *sp. nov*.

Etymology. Named after its occurrence in Slovak pannonian oak groves.

Classification — *Crepidotaceae*, *Agaricales*, *Agaricomycetes*.

Basidiomata scattered to subgregarious. *Pileus* (0.5–)1–2.3 (–3) mm diam, convex, becoming plano-convex, pale brown, amber brown to deep rust brown, moderately hydrophobic, dry, non-striate, minutely scurfy. *Veil* scanty, only visible on young basidiocarps at the margin, evanescent, appendiculate, fibrillose, white to pale brown. *Lamellae* widely spaced, 4–12, lamellulae 1–6, whitish, finally orange-brown from mature basidiospores, adnexed; edge white, serrated from cheilocystidia agglutinated into teeth-like projections. *Stipe* (0.3–)0.5–1(–1.5) × 0.15–0.5 mm, slightly to strongly eccentric, sometimes central, cylindrical, slightly enlarged towards the pileus, concolorous with pileus, fibrillose in its entirety, sometimes longitudinally striate. *Basidia* 18–29 × 5–8.3 µm, 4-spored, cylindrical to slender-clavate, indistinctly clamped. *Basidioles* 12–24 × 5–8.4 µm, slender- to broadly-clavate. *Basidiospores* (6.4–)8–9.3(–10) × (4.3–)5.2–6(–6.7) µm, Q 1.3–1.9, obovoid or ellipsoid, smooth, rust brown, ± thick-walled, wall 0.4–0.8 µm thick; lipid content granular in living spores, coalescing in dead spores into larger guttule(s); 1, 2-nucleate; germ pore often visible. *Cheilocystidia* 20–40 × 2.2–3.7 µm, distinct, variable, narrowly lageniform to cylindrical, flexuous, hyaline or containing orange-brown pigment, smooth, often agglutinated into fascicles, exceptionally apically forked, apex rounded, tapering or slightly capitate. *Pleurocystidia* absent. *Pileipellis* a cutis, composed of interwoven hyphae, 1.7–4.3 µm wide. *Pigment* intercellular, granulose or amorphous, abundant, ochre to deep orange-brown, partially dissolving in KOH solution. *Clamp connections* present.

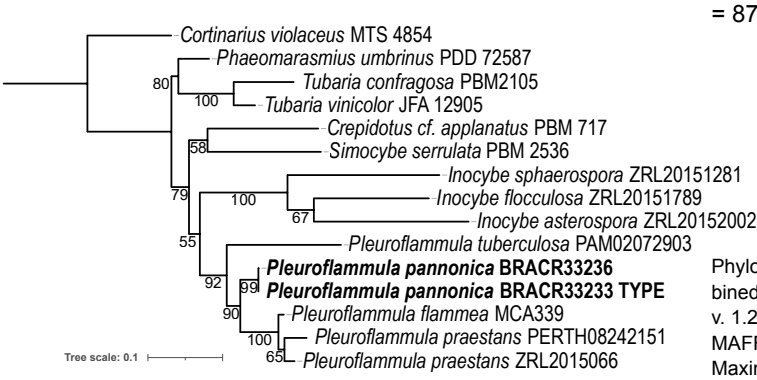
Ecology — Growing on fallen, dead *Quercus* sp. branches, on ± loose bark or on undecayed wood, not in contact with soil, 0.3–1 m above ground, in lowland, xerothermophilous pannonian oak groves with *Acer campestre*, *Cornus mas* and *Ulmus minor*. Phenology: VI–I, presumably throughout the year in case of good conditions. Geology: loess and sandy sediments.

Typus. Slovakia, Bratislava, Senec, Martinský les, corticated branches of *Quercus* sp. (*Fagaceae*), N48.25466° E17.38976°, alt. 152 m, 18 Oct. 2020, *A. Polhorský* (holotype BRA CR33236, ITS and LSU sequences GenBank MW726639 and MW726637, MycoBank MB 839244).

Additional materials examined. Slovakia, Bratislava, Senec, Martinský les, decorticated branches of *Quercus* sp., N48.25114° E17.3788°, alt. 156 m, 21 June 2020, *A. Polhorský*, BRA CR33233, ITS and LSU sequences GenBank MW726640 and MW726638; ibid., 20 Aug. 2020, *A. Polhorský*, BRA CR33234; ibid., corticated branches of *Quercus* sp., N48.25689° E17.38271°, alt. 156 m, 4 Sept. 2020, *A. Polhorský*, BRA CR33235; ibid., decorticated branch of *Quercus* sp., N48.25662° E17.36758°, alt. 171 m, 22 Jan. 2021, *A. Polhorský*, BRA CR33774; Podunajské Biskupice, Topoľové Hony, bark of cf. *Quercus*, N48.08129° E17.20171°, alt. 132 m, 18 May 2019, *A. Polhorský*, unpreserved.

Notes — Ovoid, thick-walled, rust brown basidiospores, cylindrical cheilocystidia, eccentric stipe, indistinct but present veil and orange-brown pigment dissolving in KOH agree well with the generic concept of *Pleuroflammula* and distinguishes it from morphologically similar genera (*Crepidotus*, *Phaeomarasmius*, *Pholiota*, *Simocybe*) (Horak 1978, 2018). Most of the c. 20 described species are known from the USA, but several other species are only from countries in the Southern Hemisphere (Chile, Brazil, South Africa, Indonesia, Papua New Guinea, Australia and New Zealand). Presently the only known species from Europe were cosmopolitan-appearing *P. ragazziana* (Gierczyk & Kubiński 2019) and *P. tuberculosa* (Horak 1986). From European taxa, *P. pannonica* superficially resembles small members of the genus *Phaeomarasmius*, e.g., *P. rimulincola* and *P. siquieri* (Salom & Esteve-Raventós 2011), but differs in KOH-soluble pigment, not encrusted cheilocystidia and smaller spores. This new species represents the smallest member of the genus next to *P. minutula* (pileus 2–6 mm diam), which differs in more persistent veil, broader cheilocystidia (4–7 µm) and growth on living bark of *Populus* (Smith & Hesler 1968).

Based on a megablast search of NCBIs GenBank nucleotide database, the closest hits using the **ITS** sequence of BRA CR33236 were *P. croceosanguinea* (strain TFB8631, GenBank KY559341; Identities = 540/583 (92 %), 16 gaps (2%)), *P. flammea* (AFTOL-ID 1381, GenBank DQ494685; Identities = 507/578 (88 %), 26 gaps (4 %)) and *P. praestans* (PBM3461, GenBank HQ832450; Identities = 519/597 (87 %), 36 gaps (6 %)). Closest hits using the **LSU** sequence of BRA CR33236 are *P. flammea* (MCA339, GenBank AF367962; Identities = 874/893 (98 %), no gaps), *Pleuroflammula* sp. (OKM24609, GenBank AF208533; Identities = 873/893 (98 %), no gaps) and *P. praestans* (PBM3461, GenBank HQ832464; Identities = 873/893 (98 %), no gaps).



Phylogenetic tree based on the Maximum Likelihood analysis from the combined ITS-LSU sequence alignment. Analyses were done on the Phylosuite v. 1.2.2 platform (Zhang et al. 2020). The alignment was performed with MAFFT v. 7 (Katoh & Standley 2013) and manually checked and trimmed. Maximum Likelihood phylogenies were inferred using IQ-TREE 2 (Nguyen et al. 2015) under the model automatically selected by IQ-TREE for 5000 ultrafast (Minh et al. 2013) bootstraps. Bootstrap support values are given at the nodes. *Cortinarius violaceus* was used as an outgroup. The novel taxon is indicated in **bold**. Scale bar on the tree indicates the expected number of changes per site.

Colour illustrations. Martinský les oak grove. Young and mature basidiomata; cheilocystidia; basidiospores. Scale bars = 0.5 mm (basidiomata), 10 µm (microstructures).

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