
Volvariella morozovae

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# ***Volvariella morozovae*** E.F. Malysheva & A.V. Alexandrova, *sp. nov*.

*Etymology*. Named after the Russian mycologist, Dr Olga Morozova, known as an exceptional specialist in *Entolomataceae* taxonomy, and an experienced researcher of the mycobiota of Vietnam.

Classification — *Pluteaceae*, *Agaricales*, *Agaricomycetes*.

*Basidiocarps* medium-sized. *Pileus* 30–40 mm, broadly campanulate, later expanded, without umbo; non-hygrophanous; not viscid; sandy brown, cinereous, pale brownish grey, darker at centre – grey-brown or dirty brown, towards margin paler to beige or whitish; radially silky fibrillose to hairy with some short hairs ascending, with slightly serrulated margin fringed with fluffy fibrils. *Lamellae* crowded to fairly distant, free, hardly ventricose, initially whitish then pink to brownish pink, with concolorous entire edge. *Stipe* 35–50 × 3–4 mm, cylindrical, not or somewhat broadening towards base, up to 6–7 mm, white or with light ochraceous or buff shades; entirely minutely pubescent. *Volva* thin, membranous, saccate, sordid grey-brown to olivaceous brown with rusty brown spots, irregularly lobed, with felted to woolly outer surface. *Context* white. *Smell* and *taste* indistinct. *Basidiospores* 5–6.2 × 3.3–4.3 µm, Q = 1.30–1.65, Q* = 1.46, elongate-ellipsoid to lacrymoid, some rather ovoid, hyaline in KOH, thick-walled. *Basidia* 13.5–20 × 7–8.5 µm, 4-spored, broadly clavate with a medial constriction at maturity. *Cheilocystidia* 40–55 × 13–18 µm, variable in shape, mainly ventricose-lageniform, broadly fusiform, sometimes with apical excrescences or subglobose apex, some proportion utriform, thin- or slightly thick-walled. *Pleurocystidia* rare, 45–50 × 18–30 µm, utriform or broadly clavate, slightly thick-walled. *Pileipellis* a cutis, made up of short-celled, slightly thick-walled hyphae, 20–35 µm wide, with intracellular grey-brown pigment; transforming into a trichoderm at centre of pileus, with cylindrical, fusiform or sublageniform terminal elements more than 100 µm long. *Stipitipellis* a cutis, made up of long, cylindrical, hyaline hyphae, 10–12 µm wide; hairs of stipe cylindrical, up to 150–200 µm long. *Clamp connections* absent in all parts examined.

Habitat & Distribution — Solitary, on wood in tropical low-mountainous, polydominant, constantly moist forests. So far only known from the type locality.

*Typus.* Vietnam, Gia Lai Province, Mang Yang districts, A Yun commune, A Yun village, Kon Ka Kinh National Park, path along the river, on wood of unknown tree, 14 May 2016, *O. Morozova* (holotype LE 313229, ITS and LSU sequences GenBank MF377507 and MF377508, MycoBank MB821859).

Notes — *Volvariella morozovae* is characterised by its medium-sized and slender basidiocarps with pale brownish grey and hairy pilei, olivaceous brown or rusty brown felted volva, small (5–6.2 × 3.3–4.3 µm) elongate-ellipsoid to lacrymoid basidiospores.

There are several fairly well-known species with small or medium-sized basidiocarps, grey or brown pilei and coloured volva, among them *Volvariella cinerascens*, *V. fuscidula*, *V. murinella*, *V. nigrodisca* and *V. taylorii*. The studied Vietnamese collection does not agree in all aspects with the description of any of these species (MycoBank supplementary data).

The result of megablast search of GenBank database using the ITS (625 bp) sequence of *V. morozovae* showed *Volvariella* sp. from India (GenBank KR349630), *V. taylorii* from Italy (GenBank LN877891) and *V. nullicystidiata* from Brazil (GenBank EU920671) as the closest hits, but with extremely low indexes of similarity: 87 %, 85 % and 84 %, respectively.

*Colour illustrations*. Vietnam, Kon Ka Kinh National Park; basidiocarp; cheilocystidia; pleurocystidia; basidiospores (all from holotype). Scale bars = 1 cm (basidiocarp), 10 µm (microscopic structures).

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