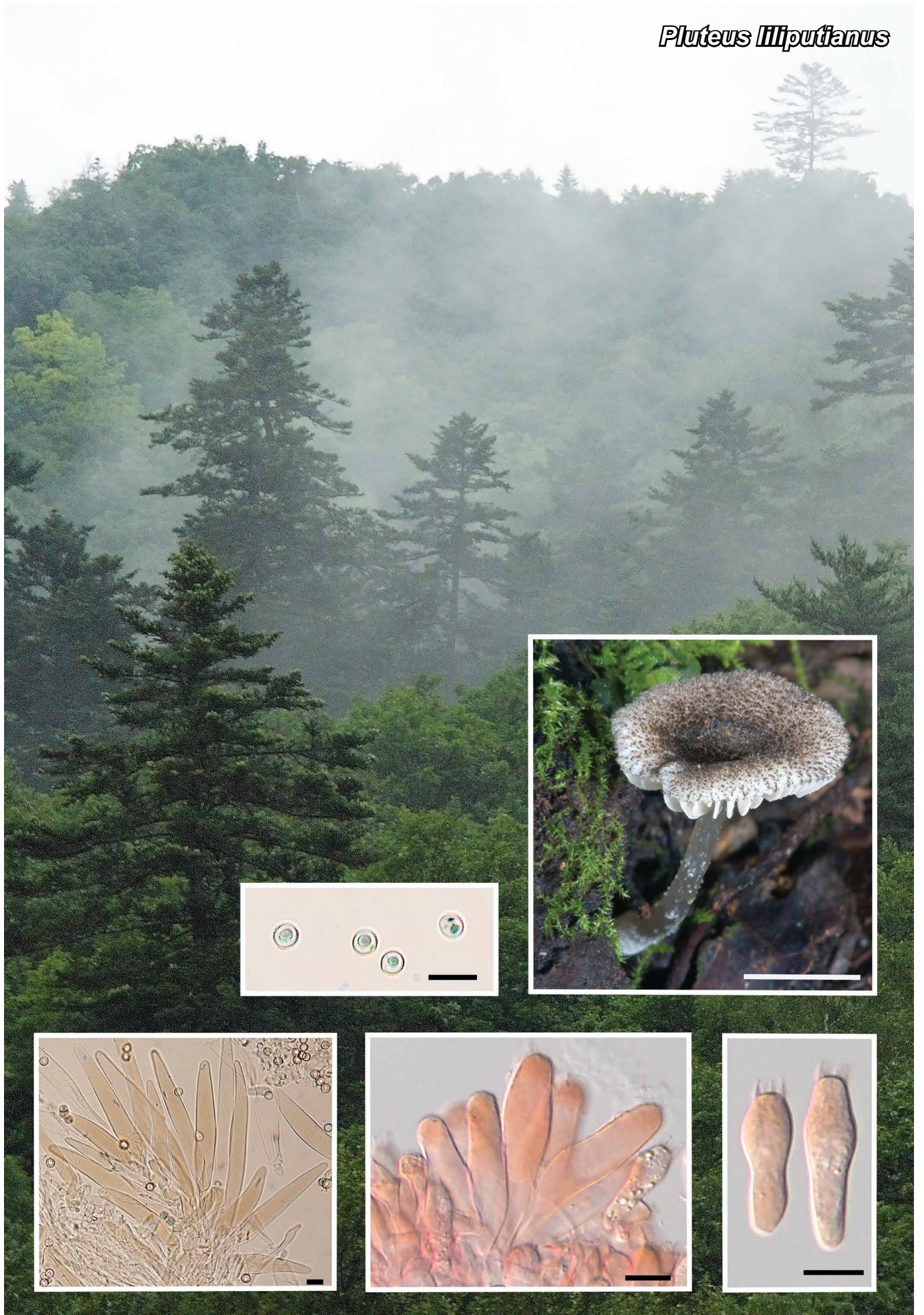


Pluteus liliputianus



Fungal Planet 1023 – 18 December 2019

***Pluteus liliputianus* E.F. Malysheva & Malysheva, sp. nov.**

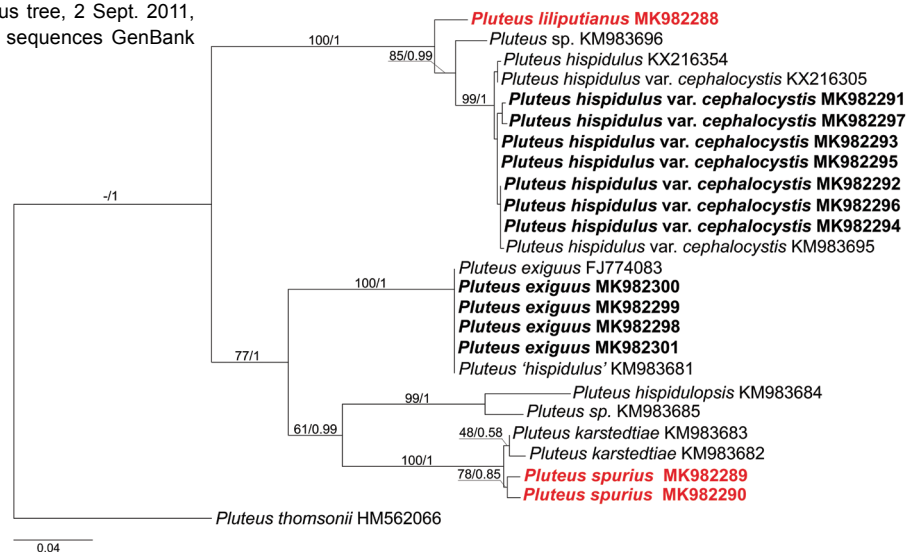
Etymology. The epithet reflects very small, diminutive size of basidiocarps.

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

Basidiocarp tiny. *Pileus* 9 mm diam, infundibular with concave centre; margin serrated, not striated, slightly undulating; not hygrophanous; surface squamulose, covered with small erect dark brown squamules, densely located at centre and scarce towards margin with white context exhibited between them, and the pattern of the squamules arrangement gives the impression of mottle. *Lamellae* free, fairly distant, ventricose, white becoming pink, with serrulated, concolorous edges. *Stipe* 10 × 1–1.5 mm, cylindrical, somewhat broadening towards base, but without basal bulb, whitish or with light ochraceous shades, slightly pruinose. *Context* in pileus and stipe white. *Smell* and *taste* not distinctive. *Basidiospores* 5.3–6.2 × 5–5.8 μm ($L_{av} = 5.7$, $W_{av} = 5.3$), $Q = 1.00–1.16$, $Q^* = 1.08$, globose to subglobose; thick-walled; hyaline in KOH, with one large or numerous small guttules. *Basidia* 19–33 × 7.5–8.5 μm, 4-spored, broadly clavate with a medial constriction at maturity. *Cheilocystidia* rather numerous to abundant, forming sterile layer at the lamella edge, 36–83 × 9–15 μm, mainly clavate or narrowly utriform, rare almost cylindrical, pedicellate (with short to long pedicels), most of them with slimy apical caps or apical drops; slightly thick-walled; hyaline. *Pleurocystidia* absent. *Pileipellis* a cutis, made up of ascending bundles of narrowly fusiform or cylindrical thick-walled elements, with intracellular brown pigment, 70–170 × 10–14 μm. *Stipitipellis* a cutis, made up of long, cylindrical, hyaline hyphae, 4–10 μm wide. *Caulocystidia* absent. *Clamp connections* absent in all parts examined.

Habitat & Distribution — Solitary, on fallen branch of deciduous tree, in mixed coniferous-broadleaf forest. So far known only from type locality.

Typus. RUSSIA, Primorye Territory, Land of the Leopard National Park, watershed of Ananievka and Gryaznaya rivers, mixed coniferous-broadleaf forest (with *Abies holophylla*, *Quercus mongolica*, *Carpinus cordata*, *Tilia mandshurica* and *Acer* spp.), on fallen branch of deciduous tree, 2 Sept. 2011, V. Malysheva (holotype LE 312868, ITS and LSU sequences GenBank MK982288 and MK982304, MycoBank MB831298).



Colour illustrations. Russia, Land of the Leopard National Park, mixed coniferous-broadleaf forest. Basidiocarp; basidiospores; pileipellis; cheilocystidia; basidia (all from holotype). Scale bars = 5 mm (basidiocarp), 10 μm (microscopic structures).

Notes — *Pluteus liliputianus* is characterised by tiny basidiocarps, squamulose dark brown pileus with a peculiar arrangement pattern of squamules, pileipellis organised as a trichoderm with long fusiform terminal elements, absence of pleuro- and caulocystidia, and globose or subglobose basidiospores. Based on its pileipellis structure *P. liliputianus* is placed in sect. *Celluloderma*.

This new species resembles *P. hispidulus*, *P. exiguus*, *P. karstedtia*, *P. hispidulopsis* and *P. spurius* by its macroscopic features but can be distinguished from them due to microscopic characters.

Pluteus liliputianus can be distinguished from the first three species listed mainly by the cheilocystidia shape, as well as shape and size of basidiospores (Vellinga 1990). It differs from *P. karstedtia* by having a smaller basidiocarp, differently coloured pileus with more distinct squamation and non-striate margin, larger cheilocystidia, and the pileipellis structure (Menolli et al. 2015). *Pluteus hispidulopsis* is distinguished by the structure of its pileus surface and colouration, smaller basidiospores (5–5.5 × 4.5–5.5 μm), the presence of pleurocystidia and the pileipellis organised as a cutis (Menolli et al. 2015). *Pluteus spurius*, another species distributed in the same territory and described herein, is characterised by larger basidiocarps, differently shaped cheilocystidia, pileipellis a cutis, and the presence of caulocystidia.

In the phylogenetic analyses, the sequence of *P. liliputianus* forms an individual branch which is placed close to the group of *P. hispidulus*.

Best tree from the ML analysis of the nrITS dataset for *Pluteus hispidulus* and allied taxa with *P. thomsonii* as outgroup, generated on RAxML server v. 0.9.0. Bootstrap support values and Posterior probability (BS/PP) are given above the branches. All tips are labelled with taxon name and GenBank accession number. The newly generated sequences are in bold.