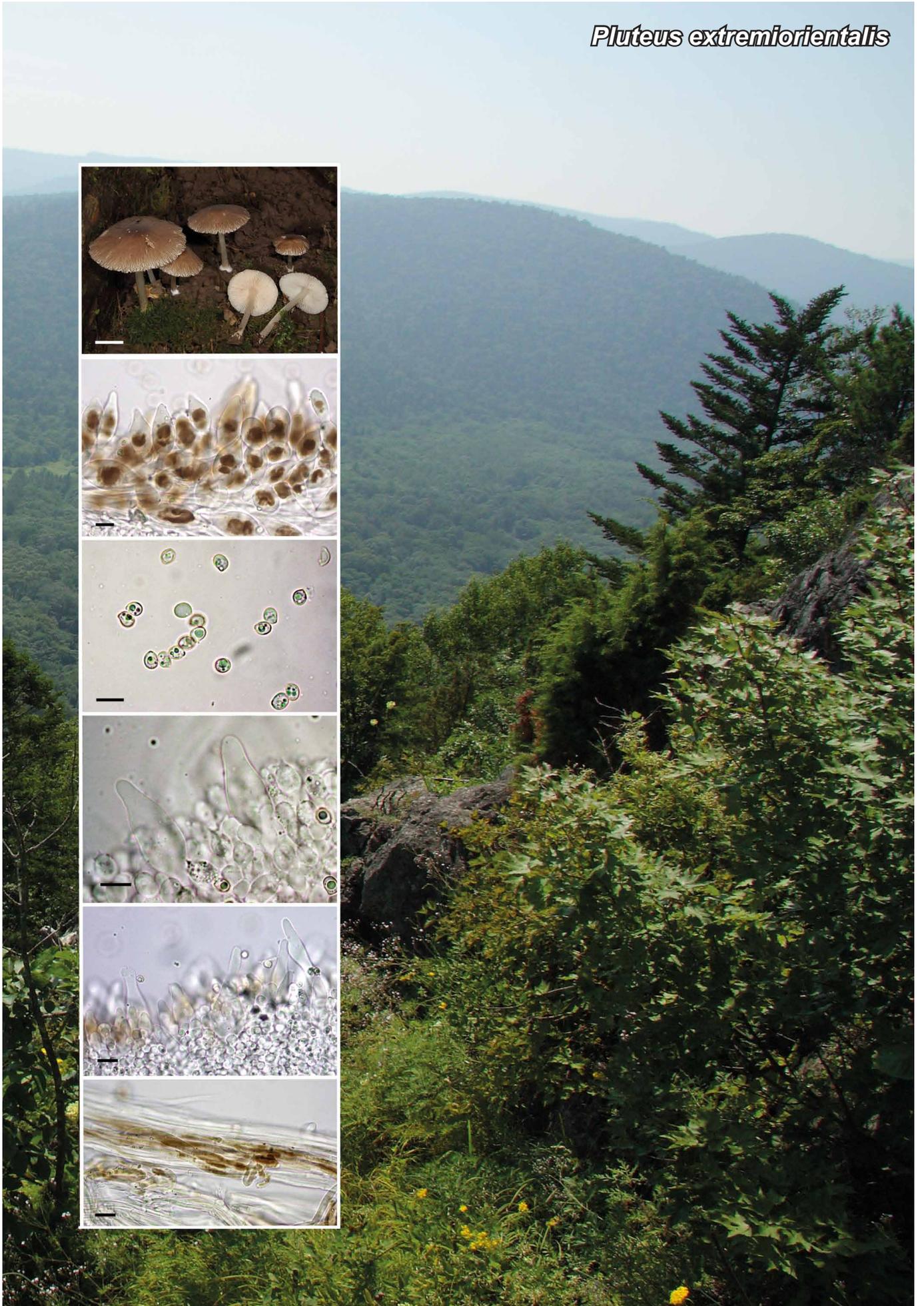
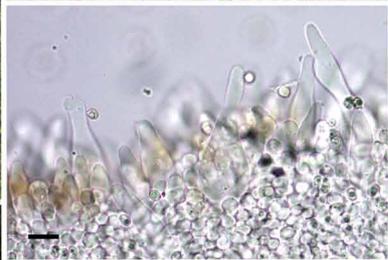
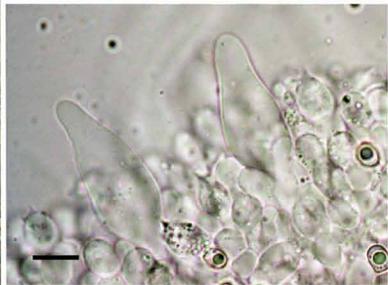


Pluteus extremiorientalis



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

Etymology. Named after the geographical area where it was collected (Russian Far East).

Pileus 10–35 mm diam, firstly hemispherical, then convex becoming appanate, commonly with obtuse low umbo; surface tomentose to squamulose – densely punctate-granulose at centre and fibrillose-squamulose towards margin, often with white context exhibited between rare fibrils or squamules; centre strongly venose-rugose; dark coloured, cocoa brown, leather brown (6E6), often with reddish tint – chestnut brown (6F7–F8) or henna (7E8), with darker disc (7F7–F8) and lighter margin because of scarcity of squamules; margin even or rimose, slightly striate or not, often incurved. *Lamellae* free, moderately crowded, ventricose, white becoming pink; edges even or slightly fimbriate, fuscous (brownish), more rarely concolorous. *Stipe* 20–55 × 1.5–5 mm, cylindrical or slightly broadening downwards (up to 7 mm), but without basal bulb, longitudinally fibrillose, whitish at upper part, covered with dark brown fibrils or squamules at lower part; basal tomentum white. Context white. Smell indistinct. *Basidiospores* 5.6–7 × 4.6–5.7 µm, Q = (1.02–)1.04–1.39(–1.48), Q* = 1.24 (n = 40), subglobose to broadly ellipsoid, some oviform, smooth, slightly thick-walled, hyaline, contents with one large or numerous small guttules. *Basidia* 20–30 × 6–9 µm, 4-spored, clavate. *Pleurocystidia* scattered, 35–70 × 10–17(–25) µm, broadly lageniform to utriform, some broadly fusiform to oviform, with pedices and obtuse apices, thin-walled, hyaline. Lamellae edge sterile. *Cheilocystidia* numerous, 40–90 × 10–33 µm, varying in shape, predominantly lageniform with inflated body and narrow long neck (up to 30 µm long and 6 µm wide), a few narrow utriform to clavate-cylindrical, thin-walled, with brown intracellular pigment (including holotype), but in some specimens hyaline. *Pileipellis* a cystoderm, made up of spheropedunculate, pyriform, broadly clavate cells in combination with lageniform or narrowly fusiform elements with acute apices, 20–75(–90) × 12–30(–35) µm, thin- or slightly thick-walled, with dark brown intracellular pigment in vacuoles. *Stipitipellis* a cutis of hyaline thin- or slightly thick-walled cylindrical hyphae, 5–12 µm wide, in stipe base with brown content and scattered clavate or cylindrical caulocystidia, 35–70(–100) × 8–15 µm, often with yellow-brown intracellular pigment. *Clamp connections* absent in pileipellis, but occasional in stipe context.

Habitat & Distribution — Scattered to gregarious on decaying deciduous wood or soil, in floodplain broadleaf forests. Known from two localities in the Russian Far East.

Typus. Russia, Primorye Territory, Ussuriysky Nature Reserve, vicinities of Peishula field station, floodplain of Koryavaya River, broadleaved forest (with *Ulmus*, *Populus*, *Acer*), on soil, 12 Aug. 2011, N. Psurtseva (holotype LE 262872; ITS sequence GenBank KM658280, MycoBank MB810390).

Colour illustrations. Russia, Primorye Territory, Ussuriysky Nature Reserve, southern spurs of the Sikhote-Alin mountains, liana coniferous-broadleaved forest; basidiocarps, pileipellis elements, basidiospores, pleurocystidia, sterile edge of lamella (with pigmented cheilocystidia), stipitipellis (all from holotype). Scale bars = 1 cm (basidiocarps), 10 µm (microscopic structures).

Additional specimens examined. Russia, Primorye Territory, Ussuriysky Nature Reserve, vicinities of Peishula field station, floodplain of Koryavaya and Suvorovka Rivers, broadleaved forest (with *Ulmus*, *Populus*, *Acer*), on wood of *Ulmus*, 12 Aug. 2011, A. Kovalenko, LE 262871, ITS sequence GenBank KM658279; *ibid.*, on soil, 12 Aug. 2011, E. Malysheva, LE 303463, ITS sequence GenBank KM658282; *ibid.*, *Ulmus japonica* forest, on soil, 13 Aug. 2011, E. Malysheva, LE 262865, ITS sequence GenBank KM658281; Primorye Territory, Kedrovaya Pad Nature Reserve, valley of Kedrovaya River, floodplain broadleaved forest (*Quercus mongolica*, *Carpinus cordata*, *Tilia amurensis*, *Juglans mandshurica*), on decaying deciduous wood, 5 Sept. 2011, A. Kovalenko, LE 303464, ITS sequence GenBank KM658283.

Notes — Macroscopic descriptions are based on fresh basidiocarps from the original collections and photos taken at the site. Colour terms are according to Kornerup & Wanscher (1978). Microscopic observations and photos were made from dried material mounted in 5 % KOH using an AxiolmagerA1 light microscope.

Pluteus extremiorientalis is characterised by small to medium-sized, brownish coloured and tomentose-squamulose pileus, fuscous edges of lamellae and dark fibrils on lower part of stipe. Microscopically, the pileipellis consists of two types of cystidioid elements (broadly clavate to sphaeropedunculate and fusiform); cheilocystidia abundant, variable in pigmentation in different collections, but most contain brown intracellular pigment; pleurocystidia not rare, predominantly lageniform or utriform.

Based on its pileipellis structure *P. extremiorientalis* is placed to sect. *Celluloderma* and subsect. *Mixtini*. The ITS sequences from the five studied collections are 99–100 % identical, but morphological characters differ slightly between collections – this mainly concerns the differences in colour of basidiocarps, density of squamules or fibrils on pileus surface, pigmentation of cheilocystidia and substrate preferences.

Pluteus extremiorientalis mostly resembles *P. podospileus* and *P. seticeps* var. *cystidiosus* in pileus colouration, dark brown fibrils at stipe base, shape of pleurocystidia and pileipellis structure (Minnis & Sundberg 2010). It can be distinguished from both by the strong tomentose-squamulose surface of the pileus, brownish coloured lamellae edges, cheilocystidia shape and smaller elements in the pileipellis. The molecular data (generated ITS sequences) confirmed the morphological differences between all species discussed and supported the recognition of *P. extremiorientalis* as a separate taxon.