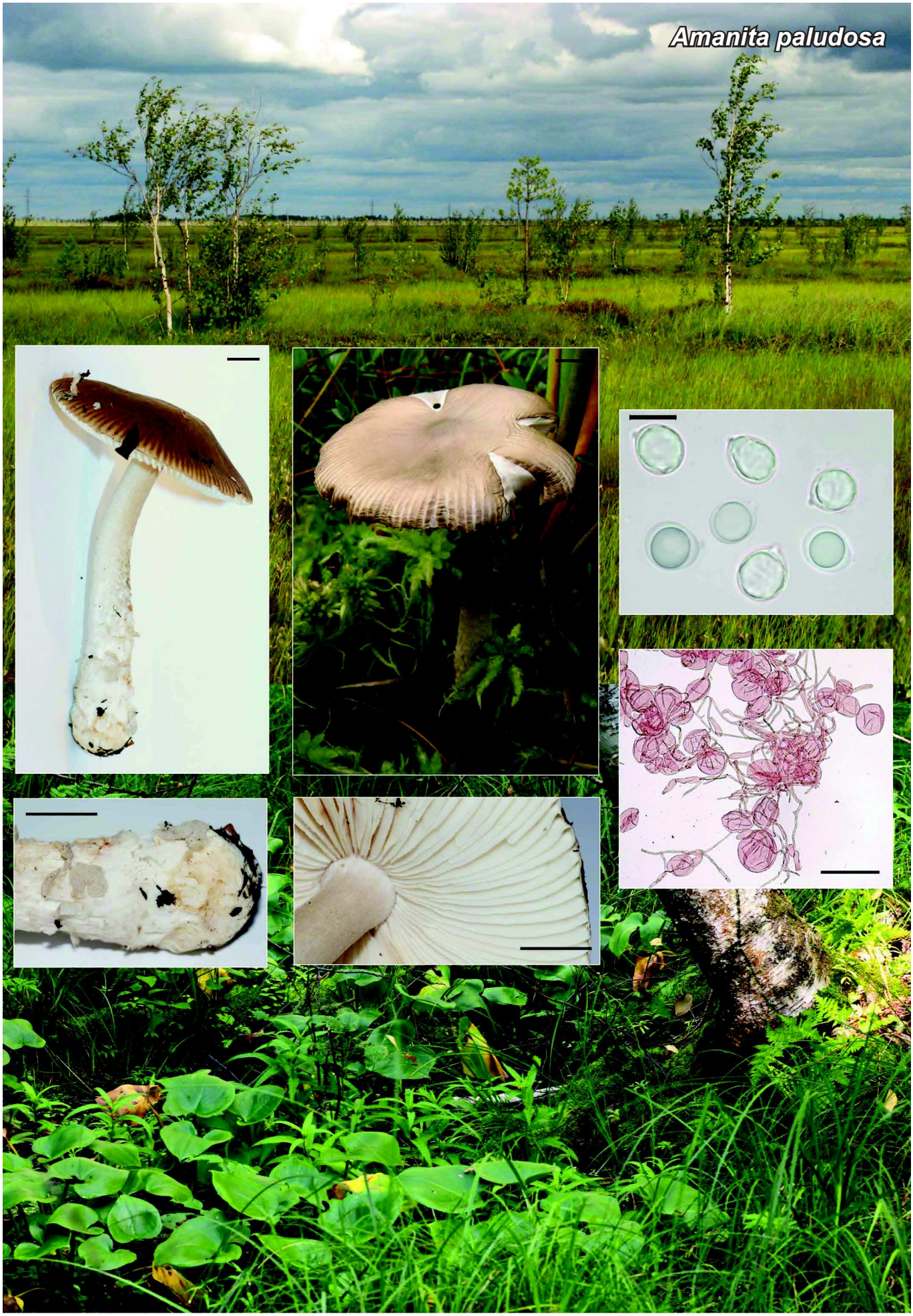

Amanita paludosa

Fungal Planet 822 – 14 December 2018

Amanita paludosa Bulyonk., Filippova & O.V. Morozova, *sp. nov.*

Etymology. The epithet *paludosa* (boggy) refers to the preferred habitat of the species.

Classification — *Amanitaceae*, *Agaricales*, *Agaricomycetes*.

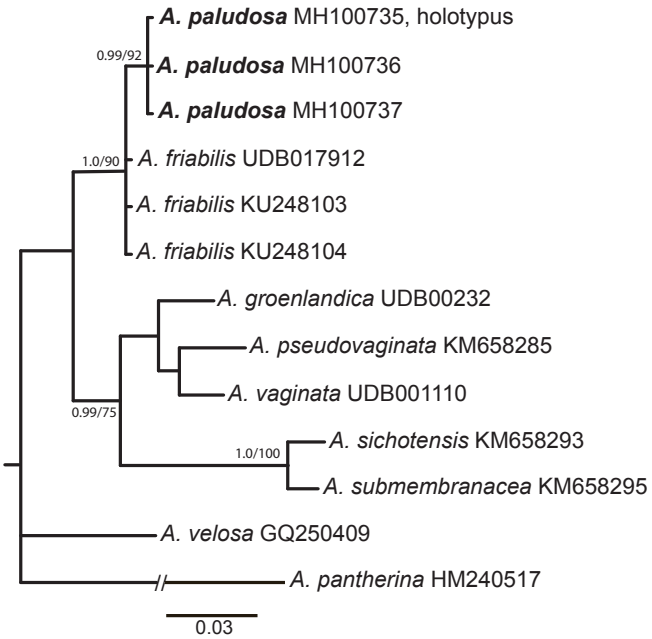
Cap 40–65 mm diam, planoconvex, obtusely umbonate, light brownish grey; surface glabrous, almost dry, ingrown-fibrillose under lens; margin very distinctly sulcate up to 5 mm with paler context showing between ribs. *Lamellae* subcrowded, off-white with light yellow-brown fimbriate edge concolorous with stipe apex, ventricose up to ± 7 mm, free. Universal veil fragments absent or present as a few small scattered greyish patches and warts. *Stipe* 70–90 × 10–17 mm, tapering upwards, with a broad rounded base but not bulbous; context white, firm, fistulose; surface light grey-brown and pruinose near apex, with paler zebroid fibrils below, in the lower third bearing fragments of volval material. *Volva* friable, up to 2 mm thick, brownish grey, appearing as wart-like floccules appressed to the stipe surface or partially or completely remaining bound to the substrate. *Pileipellis*: *suprapellis* an ixocutis of thin, filamentous hyaline hyphae in a gelatinous matrix; *subpellis* hyphae with yellow-grey intracellular pigment, some slightly constricted at septa, some forked, (2.9–)3.2–7.2(–8) µm (av. 5.4 µm) thick; vascular hyphae not plentiful, irregular, aseptate, present in all layers, 2–12 µm thick. *Lamella trama* bilateral. *Mediostratum* of well-inflated elements, filamentous hyphae scarce. *Lateral stratum* of inflated intercalary elements, appearing pseudoparenchymatous near lamellar base, closer to margin becoming mostly broadly ellipsoid and broadly fusiform, some branched and irregular-shaped, solitary and in chains of 2 or 3. *Subhymenium* near lamellar base virtually pseudoparenchymatous, of thin-walled, well-inflated elements, transitioning into the similarly well-inflated mediostratum; closer to the edge more structured, appearing as 2 or 3 layers of inflated, subglobose, angular or irregular ('jigsaw-puzzle'-like) elements. *Vascular hyphae* in lamella trama overall very rare, but common in the subhymenial layer of the lamella margin, where they sometimes form tangled masses of branching filamentous hyphae 2.5–3.2(–3.5) µm wide. *Inflated elements on the lamella margin* sphaeropedunculate, some utriform to broadly clavate, some slightly thick-walled, with pale greyish yellow intracellular pigment, 21.2–54.3 × 14.1–32.5 µm (av. L = 31.6, W = 22.0). *Universal veil* differentiated; outer layer dominated by sphaerocysts, some slightly collapsed, often in chains of 3 or 4, and often with pale yellowish grey intracellular pigment, linked by very thin, thin-walled, often collapsed, branching and forked filamentous hyphae; filamentous hyphae more abundant in the inner layer.

Colour illustrations. Top: treed transitional fen in Kondinskiye Ozera nature park in Yugra; bottom: bogged forest hollow in deciduous forest near Akademgorodok; inset: fruitbodies *ex situ* and *in situ*; detail of stipe base with veil and lamella margins; spores, veil with inflated elements; (all from holotype). Scale bars = 1 cm (basidiomata), 10 µm (spores, veil).

Typus. Russia, Novosibirsk district, vicinity of Novosibirsk Akademgorodok, bogged hollow in mixed deciduous forest (*Betula pendula*, *Populus tremula*, *Salix* spp.), N54°50'55.38" E83°07'52.90", 9 Sept. 2011, *T. Bulyonkova* (holotype LE211974, ITS and LSU sequences GenBank MH100735 and MH100732, MycoBank MB825171).

Additional materials examined. Russia, KhMAO-Yugra, Kondinskiy district, Kondinskiye Ozera nature park, treed fen (*Betula* spp.), 1 Aug. 2008, *T. Bulyonkova*, LE311975; same location, 14 Aug. 2008, *T. Bulyonkova*, LE311976.

Notes — *Amanita paludosa* is a rare ringless *Amanita* so far known only from three collections along the Ob river basin, spanning across several hundred kilometres. The closest and most similar species is the European *A. friabilis*, mycorrhizal with *Alnus* in wetland habitats (Tulloss 2018). *Amanita paludosa* differs from *A. friabilis* by sparser and less fragmented velar remnants on pileus surface and stipe base due to its more differentiated veil structure with more abundant filamentous elements; markedly rounder, subglobose spores; mycorrhizal association with *Betula*; and a known distribution limited to West Siberia. Despite the proximity of the two taxa on molecular level, the significant differences in morphology, ecology, and distribution validate separating *A. paludosa* as a new species.



Phylogenetic tree derived from Bayesian analysis based on nrITS1-5.8S-ITS2 data. Analysis was performed under GTR model, for 5 M generations, using MrBayes v. 3.2.1 (Ronquist et al. 2012). The ML analysis was run in the RAxML server (Stamatakis et al. 2008). Posterior probability (PP > 0.95) values from the Bayesian analysis followed by bootstrap support values from the Maximum Likelihood (BS > 50 %) analysis are added to the left of a node (PP/BS).

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