Paxillus albidulus, a new species of the family Paxillaceae

Paxillus albidulus, nový druh čeledi Paxillaceae

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A new species of the family *Paxillaceae, Paxillus albidulus,* is described. A conspicuous diagnostic feature of this species is a white or nearly white colouration of the pileus, stipe, flesh, and basal mycelium. This white colouration well distinguishes *Paxillus albidulus* from the most closely related species, *Paxillus involutus.*

Je popsán nový druh čechratkovitých hub, *Paxillus albidulus.* Nápadným diagnostickým znakem tohoto druhu je bílé nebo téměř bílé zbarvení klobouku, třeně, dužniny a bazálního mycelia. Tímto zbarvením se *Paxillus albidulus* dobře odlišuje od nejblíže příbuzného druhu, kterým je *Paxillus involutus.*

In 1981 and 1984 I had an opportunity to examine a very interesting fungus from the group of the species *Paxillus involutus* (Batsch: Fr.) Fr. After the examination of this fungus and available mycological literature I drew a conclusion that it is a new, undescribed taxon. For a long time, however, I hesitated whether to treat this taxon as a good, separate species or merely as a variety of P. involutus. Finally I have decided to describe it as a new species.

Paxillus albidulus Šutara sp. nov.

Diagnosis latina: Species ex affinitate *Paxilli involuti.* Pileus albus vel albidus, pressus ferruginescens vel brunnescens, primum convexus, dein centro depressus, glabrescens, margine involuto, tomentoso. Lamellae decurrentes, anastomosantes, cremeae vel sordide luteae, dein sordide ochraceae vel brunneo-ochraceae. Stipes subtiliter granulatus, fere glaber, albus vel subalbus, pressus rufo-brunnescens. Mycelium album. Caro alba vel albida, secta ferruginescens vel brunnescens. Pulvis sporarum ochraceus vel pallide brunneus. Sporae ellipticae, laeves, (7,5—) 8—10,5 (—12,5) × (4,5—) 5—6,2 (—6,7) μm.

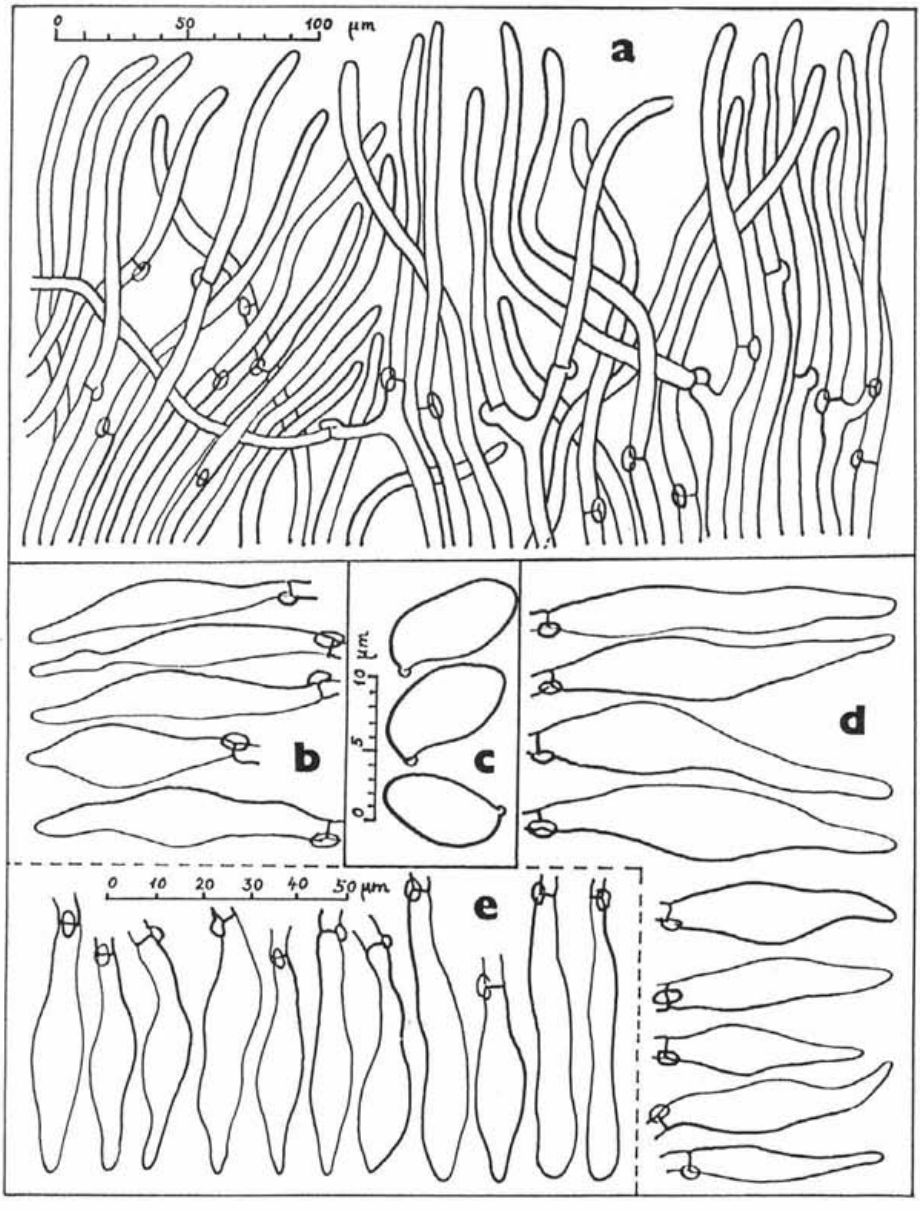
Holotypus: Bohemia occidentalis, prope Lipí apud Manětín, ad terram in silva conifera (*Pinus, Picea* et forsan Betula?), 12. IX. 1981, leg. J. Šutara, in herbario Musei Nationalis Pragae asservatur (PRM 842855).

Carpophores of *Paxillus albidulus* are very similar to the specimens of *Paxillus involutus.* Pileus of young and maturing carpophores (2—) 3—7 cm broad, convex at first, them somewhat depressed in the centre, with an inrolled margin, white or nearly white, becoming ferruginous or brown on the pressed places, covered with a fine tomentum when young, glabrescent almost on the whole surface, only on the inrolled margin persistently tomentose. Lamellae 3—6 mm, crowded, decurrent, branching, anastomosed near the top of the stipe, cremeous or sordid yellow at first, then sordid ochreous, finally brown-ochreous. Stipe of immature specimens 2,5—4 cm long, (0,5—) 1—2 cm broad, central or somewhat excentric, solid, almost cilindric, white or whitish, on pressed places becoming ferruginous or brown, on the surface nearly smooth, with white, very minute granular particles and dots. Basal mycelium white. Flesh white in the whole carpophore, only in a very thin layer (1—2 mm) above the lamellae slightly cremeous, becoming ferruginous or brown when cut. Taste and smell mild, inconspicuous, perhaps slightly acidulous. Spore print ochreous or pale brown.

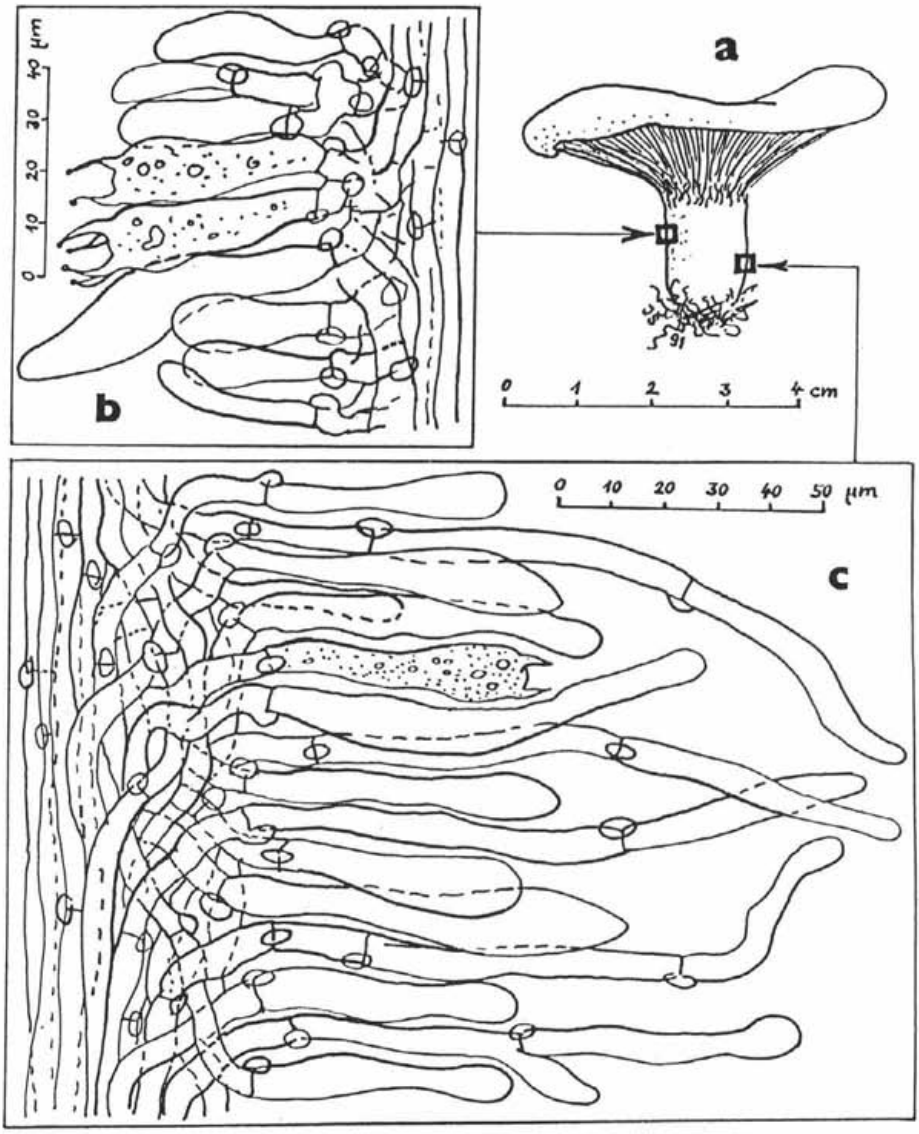
Spore (7,5—) 8—10,5 (—12,5) × (4,5—) 5—6,2 (—6,7) μm, smooth under the light microscope, mostly ellipsoid, sporadically fusoid-ellipsoid with a slight suprahilar depression, i.e. with a boletoid shape. Many of the spores are cyano-

philous and dextrinoid. Hymenophore: Trama of the hymenophore is bilateral, with lateral strata which are gelified in a certain developmental stage and therefore this structure very remindes of a true boletoid trama. Mediostratum densely arranged, non-gelatinous, 20—50 μm thick, composed of hyphae 4—10 (—14) μm broad. Lateral stratum divergent, loosely arranged, distinctly gelatinized, 20—35 μm thick. Hyphae of the lateral stratum are divergent, not touching one another, smooth ant thin-walled, (4—) 6—12 (—15) μm broad. Subhymenium 10—20 μm thick. Hymenium 20—25 μm. Basidia 25—40 (—52) × 7—10 (—12) μm, more or less clavate, 4-spored. Pleurocystidia scattered, fusoid or almost lageniform, (38—) 45—70 (—84) × 7—12 μm. Many pleurocystidia contain a plasmatic pigment which is yellow in NH_4OH and yellow-brown or brown in Melzers reagent. Cheilocystidia fusoid, clavate or nearly cylindric, (43—) 50—63 × 7—11 μm. The pleurocystidia and cheilocystidia are thin-walled and mostly smooth, only in sporadic cases are covered with a thin, gelatinous layer. Pileus cuticle a filamentous trichodermium. The trichodermium is more or less collapsed almost on the whole pileus surface, only on the pileus margin persists in an erected (not collapsed) state. The trichodermal layer reaches thickness up to 700 μm, however, in the collapsed state it is only 100—200 (—300) μm thick. Trichodermal hyphae are loosely entangled, (3—) 4—8 (—9) μm broad, hyalinne in H_2O and NH_4OH, without a pigmented content in Melzers reagent, composed of elongated cylindric cells. The surface of the hyphae is smooth or covered with a colourless gelatinous matter. Walls of the hyphae are thin or slightly thickened (to 0,6 μm). Pileus trama loosely entagled in an irregular way, consisting of hyphae which are smooth and thin-walled, filamentous as well as somewhat inflated, (3—) 5—25 μm broad. Con tent of the hyphae is colourless in H_2O and NH_4OH, light and non-dextrinoid in Melzers reagent. Stipe surface is composed of a caulohymenium. In youth the caulohymenium forms an entire (not disrupted) layer which covers the upper half and a part of the lower half of the stipe. With expansion of the stipe the caulohymenium gradually disrupts into small fragments consisting of clusters of caulobasidioles, caulocystidia and caulobasidia. The caulobasidia are more or less clavate, 26—47 × 7—11 μm, mostly 4-spored. The caulocystidia 33—71 × 6—14 μm, fusoid, clavate or almost cylindric. In later stages the caulocystidia and caulobasidioles often elongate their shape, especially in the lower half of the stipe, where they may be conspicuously proliferated, up to 200 μm long. The caulohymenial cells are thin-walled and usually smooth, but sometimes covered with a gelatinous matter. No lateral stratum was observed under the caulohymenium. Basal tomentum is loosely entangled, with filamentous, 3—8 μm broad, colourless hyphae. Walls of the hyphae are smooth and thin or slightly thickened (up to 0,5 μm). Stipe trama is composed of hyphae which are densely and more or less regularly arranged in a longitudinal way. The hyphae are smooth and thin-walled, 5—20 μm broad, colourless in NH_4OH, non-dextrinoid in Melzers reagent. Oleiferous hyphae are present both in the stipe and in the pileus and hymenophore. Clamp-connections are very abudant in all parts of the carpophore (e.g. on the basidia, basidioles, cystidia, caulocystidia, caulobasidia, on the hyphae in the stipe, on the cuticle and in the pileus, etc.)

Habitat. West Bohemia: – near Lipí u Manětína, distr. Plzeň-sever, on the soil in coniferous wood (*Picea, Pinus* and perhaps also *Betula*?), 12 Sept. 1981, coll. J. Šutara, holotypus PRM 842855, (Isotypus



Paxillus albidulus. — a) Terminal cells of trichodermal hyphae on the pileus (JŠ 3450). — b) Pleurocystidia (JŠ 3450). — c) Spores (JŠ 1812). — d) Pleurocystidia (JŠ 1812). — e) Cheilocystidia (JŠ 3450).
Paxillus albidulus. — a) Koncové buňky trichodermových hyf na klobouku (JŠ 3450). — b) Pleurocystidy (JŠ 3450). — c) Výtrusy (JŠ 1812). — d) Pleurocystidy (JŠ 1812). — e) Cheilocystidy (JŠ 3450).



Paxillus albidulus. — a) A maturing carpophore (JŠ 1812). — b) A fragment of the caulohymenium from the upper half of the stipe. — c) A fragment of the caulohymenium with conspicuous, proliferated elements from the lower half of the stipe.

Paxillus albidulus. — a) Dospívající plodnice (JŠ 1812). — b) Fragment kaulohymenia s horní poloviny třeně. — c) Fragment kaulohymenia s nápadnými, proliferovanými elementy se spodní poloviny třeně.

JŠ 1812). – Near Plasy, distr. Plzeň-sever, in predominantly coniferous wood, 25 Sept. 1984, coll. Maděra (PRM 842856 and JŠ 3450).

Delimitation. *Paxillus albidulus* is distinguished from the most closely related species, *Paxillus involutus*, by the white colour of the pileus, stipe, flesh and basal mycelium. Till this time I have seen no intermediate colour forms which could cast doubt on the limit between these species. In *P. involutus* the surface cells on the pileus and stipe constantly contain a brown plasmatic pigment which is absent in *P. albidulus*. It is, however, interesting that in the hymenophore (above all in the cystidia) the pigmentation is essentially the same in both the species.

As regards the other characters, it seems that a diagnostic feature could be also the dextrinoidity (pseudoamyloidity) of the spores. The spores of *P. involutus* seem to be somewhat more dextrinoid than those of *P. albidulus*. This question, however, is not yet quite clear and requires further observations.

Acknowledgements

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Souhrn

V letech 1981 a 1984 se mi dostala do rukou velice zajímavá čechrátka ze skupiny druhu *Paxillus involutus* (Batsch: Fr.) Fr. Protože jsem tuto čechratku nedokázal ani po prostudování dostupné mykologické literatury s ničím ztotožnit, rozhodl jsem se nakonec tento taxon popsat jako nový druh, pro který navrhuji latinské jméno *Paxillus albidulus*.

Plodnice druhu *Paxillus albidulus* se celkovým zjevem a anatomickou stavbou velice podobají exemplářům druhu *Paxillus involutus*, ale na rozdíl od tohoto druhu mají bílý klobouk, třeň, dužninu a bazální mycelium. Domnívám se, že hranice mezi druhy *P. albidulus* a *P. involutus* je dostatečně jasná, protože jsem se ještě nikdy nesetkal se žádnými přechodnými barevnými formami, které by tuto hranici mohly zpochybnit. Rozdíl mezi oběma druhy je snadno zjistitelný i pod mikroskopem. U druhu *P. albidulus* chybí v povrchových buňkách na klobouku a na třeni hnědý pigment, který je u druhu *P. involutus* stabilně přítomen. Zajímavé však je, že v hymenoforu (zejména v cystidách) je pigmentace u obou druhů v podstatě stejná.

Pokud se týká ostatních znaků, zdá se, že určitý diagnostický význam by snad také mohl mít menší rozdíl v dextrinoiditě výtrusů. U druhu *P. involutus* se výtrusy zdají být o něco více dextrinoidní než u *P. albidulus*. Otázka dextrinoidity výtrusů druhu *P. albidulus* však ještě není zcela jasná a potřebuje ověřit na větším množství materiálu. V tomto ohledu by nám mohly velice pomoci další nálezy, které by prozradily více o variabilitě tohoto druhu a umožnily by také lépe zhodnotit jeho taxonomickou hodnotu.

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