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SOME RARE OR INTERESTING SPECIES OF FUNGI

Abstract

The authors describe some rare or interesting species collected during some mycological forays.

Riassunto

Gli autori descrivono delle specie rare o interessanti raccolte durante alcune escursioni micologiche.

Key words: *Basidiomycota*, *Psathyrella carinthiaca*, *Cortinarius lux-nymphae*, *Cortinarius olivaceofuscus*, *Ripartites tricholoma*.

Introduction

The four species described in this paper were collected during some mycological forays in Autumn 2019. Three of them, in particular, show relevant points of interest.

The finding of *Psathyrella carinthiaca* represents the second ever world record of this relatively recent taxon and therefore it consents to confirm its main discriminating characters and to make a more consistent proposition about its habitat.

Cortinarius lux-nymphae would not be a rare species, though not much common, but we discovered no sequence had ever been deposited in GenBank so we provide it together with a morphological description. Moreover, when we compared our sequence with the UNITE database, it resulted identical with an entry under the name "*C. olivaceofuscus*" thus suggesting a possible morphological confusion between the two species. Therefore we decided to produce a voucher and a sequence of our own collection of *C. olivaceofuscus*.

TAXONOMY

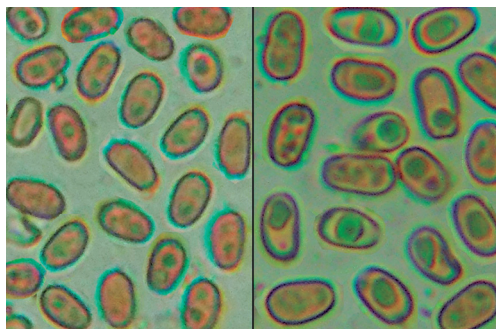
Psathyrella carinthiaca P. Voto, *Rivista di Micologia* 2: 122. 2011

Pileus 17-40 mm broad, hemispherical-campanulate then through broadly convex to flat, with an obtuse small umbo, little fleshy, fragile; cuticle striate one third or half way from centre, reddish-brownish to brick-red or brownish (pinkish-) violaceous, hygrophanous, discolouring to alutaceous or greyish-ochraceous starting from centre or from margin and becoming rugulose starting from margin or in midway; veil made of discreet white floccules around margin, rarely a little more inwards, fugacious. **Lamellae** emarginated-adnate, sometimes decurrent with a tooth, narrow, straight or little ventricose; crowded, with many lamellulae, sub concolorous with pileus then more and more purplish to finally blackish violaceous; edge minutely fimbriate, concolorous or little lighter. **Stipe** 25-75 × 1.5-4 mm, somewhat sinuate, cylindraceous or little tapering upwards, white, glabrous, sericeous, pruinose at apex, white felted at base, hollow. **Context** in young specimens white, when dried beige in pileus and brownish beige in stipe; smell indistinct. **Spores** 5.00-6.00 × 3.00-3.70 µm, Q = (1.40)1.50-1.82(1.86), on average 1.60-1.65, in front view oval, cylindrical-oval, elliptic to cylindrical elliptic, in side view adaxially flattened to sub phaseoliform or phaseoliform; in water dull pinkish brown to dull reddish-pinkish under optical microscope; germ pore 0.7-1.5 µm broad. **Basidia** (10)12-18 × 5-7 µm, 4-spored. **Pleurocystidia** 30-45 × 8-14 µm, apex 4.5-8 µm broad, variously utriform, rarely sub lageniform, moderately numerous, sometimes incrustated, with hyaline to weakly pigmented walls. **Cheilocystidia** 17-37 × 8-12 µm, sometimes sub capitate, fairly numerous to sometimes clustered, often with up to 0.5(0.8) µm thickened and pinkish-purplish to brownish pigmented walls. **Paracystidia** 9-21 × 8-15 µm, up to 1 µm thick-walled and then

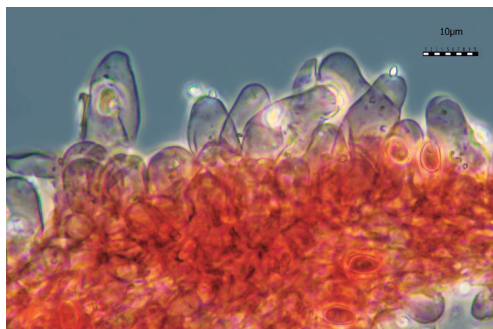


Psathyrella carinthiaca. Pileus and hymenium (16.X.2019).

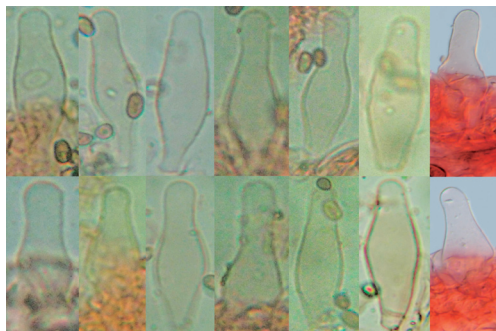
Photo by Pietro Voto



P. carinthiaca. Spores colour in water. Comparison between *P. carinthiaca* (left) and *P. piluliformis* (right). Photo by Pietro Voto



P. carinthiaca. Cheilocystidia in Congo red by phase-contrast. Bar 10 µm. Photo by Ledo Setti



P. carinthiaca. Pleurocystidia in Congo red.

Photo by Pietro Voto and Ledo Setti

pigmented like cheilocystidia, fairly numerous. **Pileipellis** a 2-3 layers paraderm. **Veil** on pileus made of 3-5(9) µm broad hyphae. **Clamp connections** numerous. **Habitat** gregarious on wood or debris of *Picea abies* (L.) H. Karst.; Slovenia, Ljubno ob Savinji, Radmirje, in mixed wood, approx. 450 m a.s.l, 16.X.2019, P. Voto, in pers. Herb. Voto. Known so far only from two findings from central non-Alpine Europe.

Discussion

This finding is most valuable in as much as it contributes confirming the validity of this species,

its typical characters and the main differences against its closest allied *P. piluliformis* (Bull.: Fr.) P.D. Orton. The pinkish shade of its spores is a strong microscopical parameter for distinction; while a scarce veil, violaceous to pinkish-violaceous or red-brown pilei and subconcolorous gills, together with conifer habitat, are good clues for telling them apart in a provisional field check.

We noted that this and the holotypical (Austria, Carinthia, east of Hermagor and south of Pressegger See, 660 m a.s.l., 26.IX.2009) finding sites are approx. only 120 km apart in direct air distance and, though located in two different countries, they practically share the same habitat and geographical characteristics. On the contrary, the fact that it has not yet been reported from Italy during these ten years could suggest exclusion of a Mediterranean habitat.

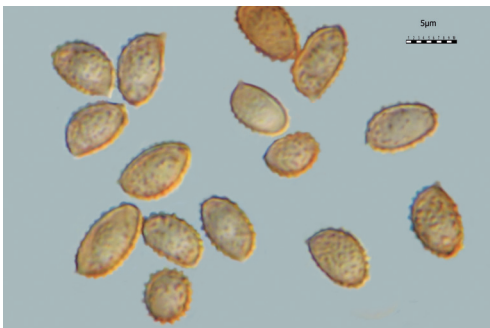
Cortinarius lux-nymphae Melot, Documents Mycologiques 20 (77): 95, 1989

Subgenus *Hydrocybe* (Fr.) Trog; Section *Fraterni* Moënne-Locc. & Reumaux; Subsection *Vestiti* Moënne-Locc. & Reumaux.



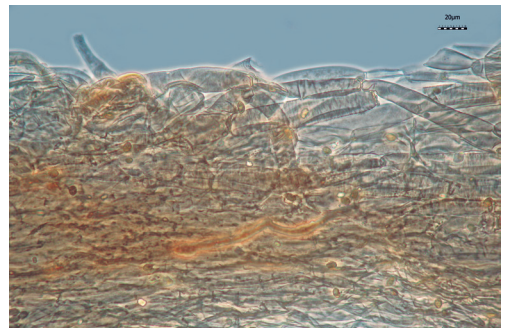
Cortinarius lux-nymphae (16.X.2019).

Photo by Ledo Setti



C. lux-nymphae. Spores in Congo red by differential interference contrast (DIC). Bar 5 μm.

Photo by Ledo Setti



C. lux-nymphae. Pileipellis in Congo red by phase-contrast. Bar 20 μm.

Photo by Ledo Setti

Pileus 10-20 mm broad, conical-campanulate with a distinct acute umbo, then umbonate-flattened with margin sometimes remaining inflexed when fully expanded, margin often crenulate; cuticle at centre dark brown to chestnut-brown, discolouring to golden yellow, orange-brown, olivaceous brown or yellow-brown, at margin olivaceous or paler, often retaining darker radial strands; when young covered with fine scales or innate fibrils. **Lamellae** sinuate-emarginate, broad, spaced, greenish yellow then brownish. **Stipe** 80-100 × 4-6 mm, cylindraceous, fibrillose, lower half with pinkish-lilac shades, covered all over with yellowish-greenish velar remnants. **Macro chemical reactions on context:** positive with KOH (black) and AgNO₃ (strongly green), negative with Guaiac and Phenolaniline. **Spores** 6.97-7.73 × 3.83-4.66 μm, Q = (1.55) 1.57-1.92(2.03), on average 1.74, in front view oblong to fusiform, in side view often subamygdaliform; ornamented with spaced, isolated to rarely connected towards the base, often thin and low, truncate-cylindraceous warts; suprahilar plage is present, apiculus rather distinct, 0.8 - 1 μm long; yellowish-ochraceous in L4 under optical microscope. **Basidia** 25-29 × 6-7 μm, 4-spored, sterigmata up to 5 μm long. **Lamellar trama** regular to sub regular, made of hyaline in L4, up to 8 μm broad hyphae. **Pleurocystidia** not found. **Cheilocystidia** or **marginal cells** claviform. **Pileipellis** a cutis made of 12-22 μm broad, not gelatinized, smooth, cylindraceous hyphae, with smooth, thin, 8-10 μm broad terminal elements; pigment brownish, intracellular, partly strongly incrustant; context of cylindrical, up to 8 μm broad hyphae. **Vascular hyphae** not found. **Gloeocystidia** not found. **Clamp connections** present everywhere. **Habitat** gregarious among lichens on sandy and acid soil under *Picea abies* in mixed wood; Slovenia, Ljubno ob Savinji, Radmirje, approx. 450 m a.s.l., 16.X.2019, A. Tacconi, G. Maraia, P. Voto, V. Milanese & L. Setti, Herb. AMB 99, GenBank MN899288.

Discussion

As no entry can be found in GenBank for this species, our ITS sequence is currently the first and only molecular reference in its database. Conversely we have found four sequences sub nomen *C. lux-nymphae* in the other database UNITE, 100% identical to each other (UDB002214, UDB000676, UDB001164, UDB036288, collection sites Norway and Sweden) but only 95% identical to ours; however no reference to morphological descriptions, nor herborized materials are cited.

Concerning the differentiating characters of this species against its closest allied taxa, we report the notes to it in the series *Atlas des cortinaires* (BIDAUD *et al.*, 2017):

“Les minuscules spores subfusiformes de ce taxon pinicole le sèparent facilement de C. angelesianus A.H. Sm., morphologiquement semblable, mais a spores ovoïdes”.

To our opinion, the picture of *C. lux-nymphae* in the series *Flora Photographica* (BRANDUD *et al.*, 1994), does not represent the species we have studied because of its chromatic look and extreme shape of spores.

C. olivaceomarginatus Carteret would represent a lookalike species characterized by olivaceous tints on pileus margin and stipe; it should differ for its very small and finely ornamented spores, similar to those of *C. pseudolanatus* Reumaux *ad int.*, and for its habitat of hygrophilous broadleaves (BIDAUD *et al.*, 2012).

C. olivaceofuscus Kühner, belonging in subgenus *Telamonia* (Fr.) Trog, can look somehow morphologically similar to *C. lux-nymphae* on a superficial field check. However, on a more accurate examination, it can be noted that it lacks pinkish-lilaceous shades on the stipe and that it has generally larger basidiomes; moreover it has thinner pileipellis hyphae and a lower spore quotient (CONSIGLIO *et al.*, 2004; CONSIGLIO & PAPETTI, 2012). Notwithstanding these differentiating characters, we have found in the UNITE molecular database a sequence under the name of *C. olivaceofuscus* (UDB018343) which matches 100% with our sequence of *C. lux-nymphae*. So we have decided to sequence our own material of *C. olivaceofuscus* and then

we found that, although various sequences are deposited in GenBank under this name, none of them match with a significantly high homology. Indeed the best match came out to be EU668227, “uncultured *Dermocybe*”, with 89% homology.

We therefore have decided to also deposit the sequence of our *C. olivaceofuscus* and, in order to offer a complete dataset, we present below the description of our collection and its herbarium reference.

Cortinarius olivaceofuscus Kühner, Bulletin Mensuel de la Société Linnéenne de Lyon 24 (2): 39, 1955

Pileus 30-60(80) mm broad, campanulate, then convex to almost applanate, sometimes with a more or less distinct acute umbo, margin involute, little fleshy; cuticle dry, sericeous, at centre brown to reddish brown, at margin and in ground colour with olivaceous shades, radially crossed with innate olivaceous to sulphur-yellow thin fibrils, covered with reddish, adpressed at centre, squamules, not hygrophanous, macro reaction positive in 3% KOH (black to very dark red). **Lamellae** adnexed-emarginate, somewhat ventricose, little crowded, with lamellulae, olivaceous yellow; edge eroded. **Stipe** 30-50 × 3-6 mm, cylindraceous to clavate-cylindraceous, often bent, faintly bulbillose at base, a little fistulose, fibrillose, olivaceous-ochraceous to concolorous with gills, covered with fugacious, yellowish to yellowish brown velar remnants. **Context** exiguous, fibrous, yellow-olivaceous; smell strongly raphanoid. **Spores** 6.48-7.15 × 4.12-4.58 μm , $Q = (1.41)1.47-1.66(1.79)$, average $Q = 1.56$, in front view oblong, in side view amygdaliform, sometimes sub oval to sub citriform; ornamented with truncate-cylindraceous, often low and thin, rarely connected towards the base (and then assuming a parallelepiped-like pattern) warts, these generally absent at the spore apex, thinning away and smaller towards the spore base where a suprahilar plage is present; apiculus rather distinct, 0.8-1 μm long; in L4 yellowish-ochraceous under optical microscope. **Basidia** 20-30 × 5-7 μm , 4-spored, clavate to cylindraceous, hyaline to olivaceous yellow. **Lamellar trama** regular to sub regular, made of hyaline in L4 hyphae. **Pleurocystidia** and **cheilocystidia** absent. **Pileipellis** a cutis made of 8-12 μm broad, not gelatinized, smooth, cylindraceous hyphae with swollen terminal elements; pigment brownish, intracellular and in part very finely incrustant. **Vascular hyphae** not found. **Gloeocystidia** not found. **Sarcodimitic structure** absent. **Clamp connections** present everywhere. **Habitat** gregarious, on calcareous soil under *Carpinus* spp. and other thermophilous broadleaves; Italia, Veneto, S. Anna di Chioggia, Nordio wood, approx. 1 m a.s.l., 9.XI.2019, A. Tacconi, P. Voto & L. Setti, Herb. AMB 11, GenBank. MN915085.

Discussion

C. olivaceofuscus is a sufficiently common species in thermophilic environments, with a growing preference in association with *Fagales* trees (Moser, being used to find it in association with *Carpinus*, had denominated it *Dermocybe carpineti* M.M. Moser, which is currently considered as an invalid synonym).

Among the closest allied taxa, the one most similar is *C. croceus* (Schaeff.) Gray which, however, is separated for growing associated with coniferous trees.

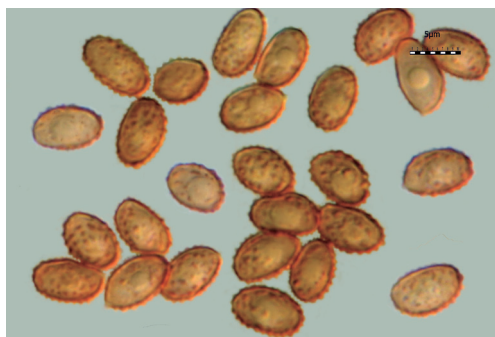
Ripartites tricholoma (Alb. & Schwein.) P. Karst., Bidrag till Kännedom av Finlands Natur och Folk 32: 477, 1879

Pileus 20-40 mm broad, convex then applanate, sometimes slightly depressed, margin fringed, ciliate with visible white hairs; cuticle glazed, sometimes concentrically cracked or sub zonate or with adpressed clusters of fibrils, pure white, discolouring to cream, yellow, brownish ochre starting from centre. **Lamellae** sub decurrent, crowded, separable from pileus, white to cream, in mature specimens grey-ochraceous, finally brownish. **Stipe** 15-40 × 2-6 mm, cylindraceous with



Cortinarius olivaceofuscus (9.XI.2019).

Photo by Ledo Setti



C. olivaceofuscus. Spores in Congo red by differential interference contrast (DIC). Bar 5 μ m. Photo by Ledo Setti

tapering base, ochraceous to yellowish white, slightly pruinose at apex. **Context** white to ochre; smell indistinctive or slightly farinaceous; taste mild. **Spores** $4.04\text{--}4.73 \times 3.63\text{--}4.22 \mu\text{m}$, $Q = 1.03\text{--}1.20$, in front view globose to sub globose, in side view sub amygdaliform to lacrimiform; ornamented with truncate-cylindrical warts; apiculus little distinct, $0.2\text{--}0.4 \mu\text{m}$ long; pale yellow in L4 under optical microscope. **Basidia** $20\text{--}21 \times 5\text{--}8 \mu\text{m}$, 4-spored, clavate, sterigmata up to $4 \mu\text{m}$ long. **Lamellar trama** regular to sub regular, made of hyaline in L4, up to $7 \mu\text{m}$ broad hyphae. **Pleurocystidia** and **cheilocystidia** absent. **Pileipellis** a cutis with

transition to trichoderm, made of repent, $5 \mu\text{m}$ broad, variously interwoven, not gelatinized, smooth, cylindraceous hyphae mixed with up to $150 \times 6 \mu\text{m}$ large or longer, emerging, clustered terminal hyphae; context of cylindrical, up to $12 \mu\text{m}$ broad hyphae. **Vascular hyphae** not found. **Gloeocystidia** not found. **Sarcodimitic structure** absent. **Clamp connections** present everywhere. **Habitat** solitary to gregarious in 3 to 4 specimens, in mixed wood of *Fagus sylvatica* L. and *Picea abies*. Italy, Verona, Ferrara di Monte Baldo, Mount Baldo, 1,200 m a.s.l., 23.XI.2019, A. Tacconi & L. Setti, herb. AMB 91.

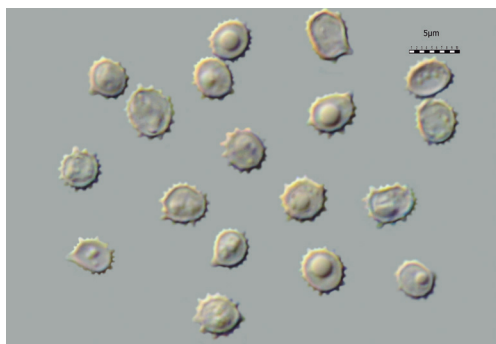
Discussion

This species is easily recognized on a field check by the adpressed clusters of fibrils on the pale pileus and the white ciliate hairs at the margin. We followed EYSSARTIER & ROUX (2017) in



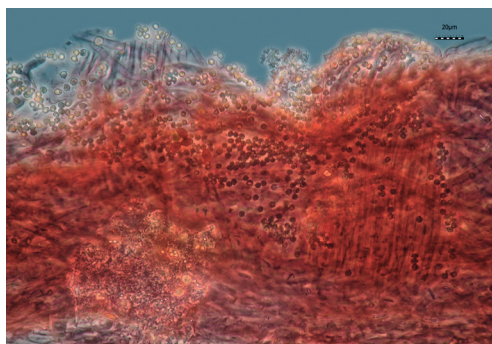
Ripartites tricholoma (23.XI.2019).

Photo by Antonio Tacconi



R. tricholoma. Spores in Congo red by differential interference contrast (DIC). Bar 5 μ m.

Photo by Ledo Setti



R. tricholoma. Pileipellis in Congo red by phase-contrast. Bar 20 μ m.

Photo by Ledo Setti

separating our collection from the closely allied *R. strigiceps* (Fr.) P. Karst; these authors treat the latter only at a forma level and characterize it by more robust basidiomes and a smell of aniseed.

Before them, however, BON (1997) had already commented in the notes to *R. tricholoma*:

"La polymorphie de cette espèce à marge +/- poilue a incité l'école néerlandaise à traiter cette dernière sensu latissimo, inclus *R. strigiceps*, *R. helomorpha* et *R. metrodi* – FAN 3:95; à notre avis, cette façon de voir les choses pourrait être justifiée, à condition au moins de conserver le niveau forme ou variété pour les épithètes cités, ce qui pourrai traduire un certain manque d'homogénéité dans le raisonnement ou le style adopté Ou alors l'auteur de ces lignes pourrai-il être considérée comme contrariant?"

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