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***Hygocybe salicis-herbaceae* Kühner**

Article received 21 December 2023, accepted 10 February 2024

Some interesting *Agaricales* fungi from Bosnia and Herzegovina II. *Coprinellus hiascens*, *Deconica magica*, *Inocybe treneri*

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¹<https://www.facebook.com/dusko.trivic.9>

Key words:

Psathyrellaceae

Strophariaceae

Inocybaceae

Abstract: Collections of *Coprinellus hiascens*, *Deconica magica* and *Inocybe treneri* are briefly described with some morphological data and pictures of the basidiomes and of the main micro characters. Notes are also included after each description.

INTRODUCTION

The three collections described in this paper represent a little extract from several more or less interesting species found during the year 2023 while mushroom foraging in the surroundings of Prijedor. They were all posted in the online forum of the journal Mycological Observations which helped select the most relevant among them. All microcharacters were photographed in Congo red from fresh material.

All images are from the author.

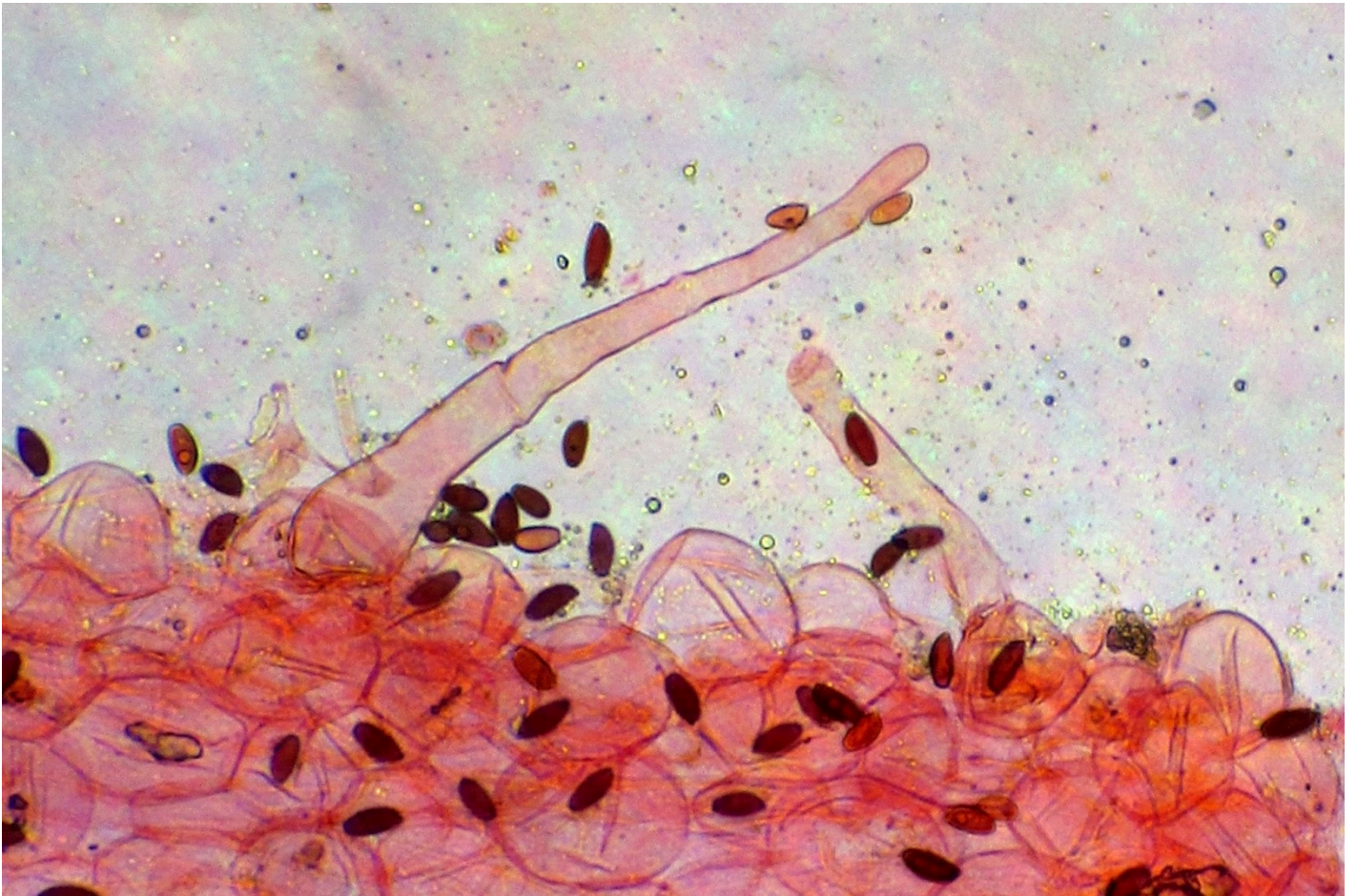
***Coprinellus hiascens* (Fr.) Redhead, Vilgalys & Moncalvo**

Taxon 50(1): 234 (2001)

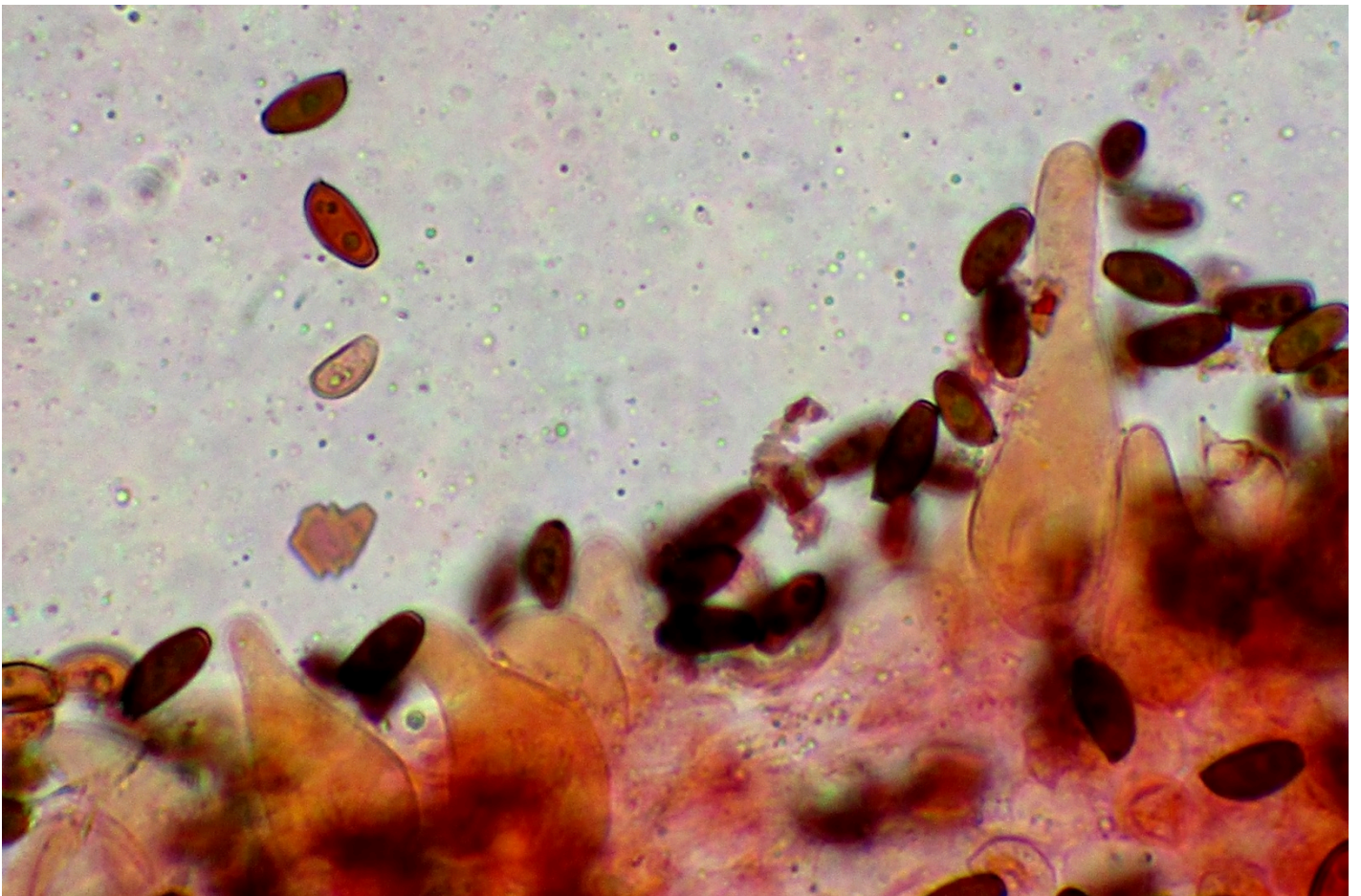


Trivič D (2024). Some interesting Agaricales fungi from Bosnia and Herzegovina II.
Coprinellus hiascens, *Deconica magica*, *Inocybe treneri*. *MycolObs* 8:1–13

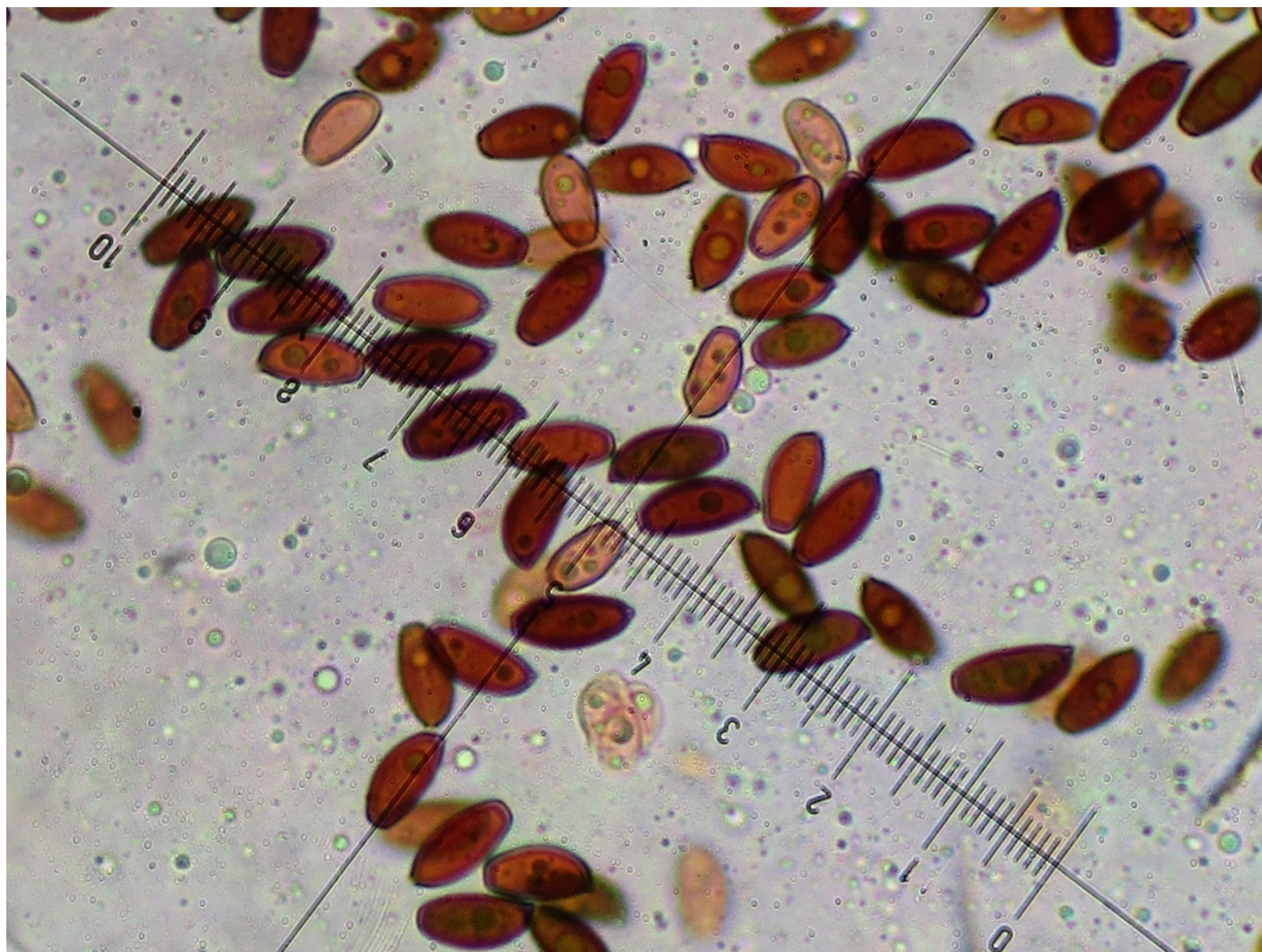




Pileipellis and pileocystidia



Gill edge with cheilocystidia

Spores (scale bar = 1 μm)

BRIEF DESCRIPTION

Pileus at first narrowly ellipsoid to subcylindrical and smooth then expanding and plicate; ochraceous brown, discoloring through beige to grey outside centre; wholly covered with fugacious white fibrillose flocks of veil. *Lamellae* free, blackish at maturity, slowly deliquescent. *Stipe* cylindrical or with a little enlarged base, straight to flexuous, white, wholly covered with white fibrillose flocks of veil.

Basidiospores approx. $9.0 - 11.0 \times 4.5 - 5.0 \mu\text{m}$, $Q = 1.88 - 2.27 (2.60)$, in front view oblong, base often tapering, in side view oblong to subamygdaliform, smooth, dark reddish brown; germ pore central, large, (sub)truncate. *Basidia* 4-spored. *Pleurocystidia* absent. *Cheilocystidia* approx. $30 - 47 \times 12 - 17 \mu\text{m}$, lageniform to subutriform, neck subcylindrical to tapering, intermixed with some basidia. *Pileipellis* cellular. *Pileocystidia* approx. $95 - 152 \times 12 - 23 \mu\text{m}$, lageniform, neck elongate and mostly progressively tapering.

Habitat and collection examined: Bosnia and Herzegovina, Banja Luka, Prijedor, Mount Kozara, gregarious to fasciculate, on naked soil in forest, 1 October 2023, D. Trivič, in pers. herb.

NOTES

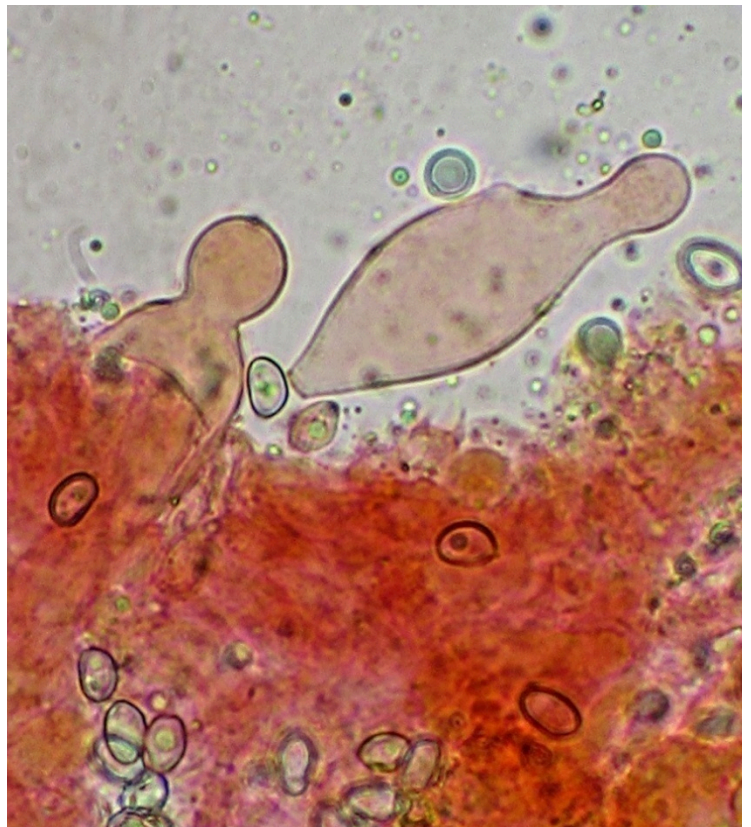
With its cellular pileipellis this veiled, deliquescent species is a typical member of the genus *Coprinellus* P. Karst. Among the taxa provided with pileocystidia it is mainly distinguished by a distinct presence of veil, terete (not tridimensional) spores, long tapering pileocystidia, and lageniform, never claviform, cheilocystidia.

I have noticed that the spores of this collection are slightly slenderer than usual.

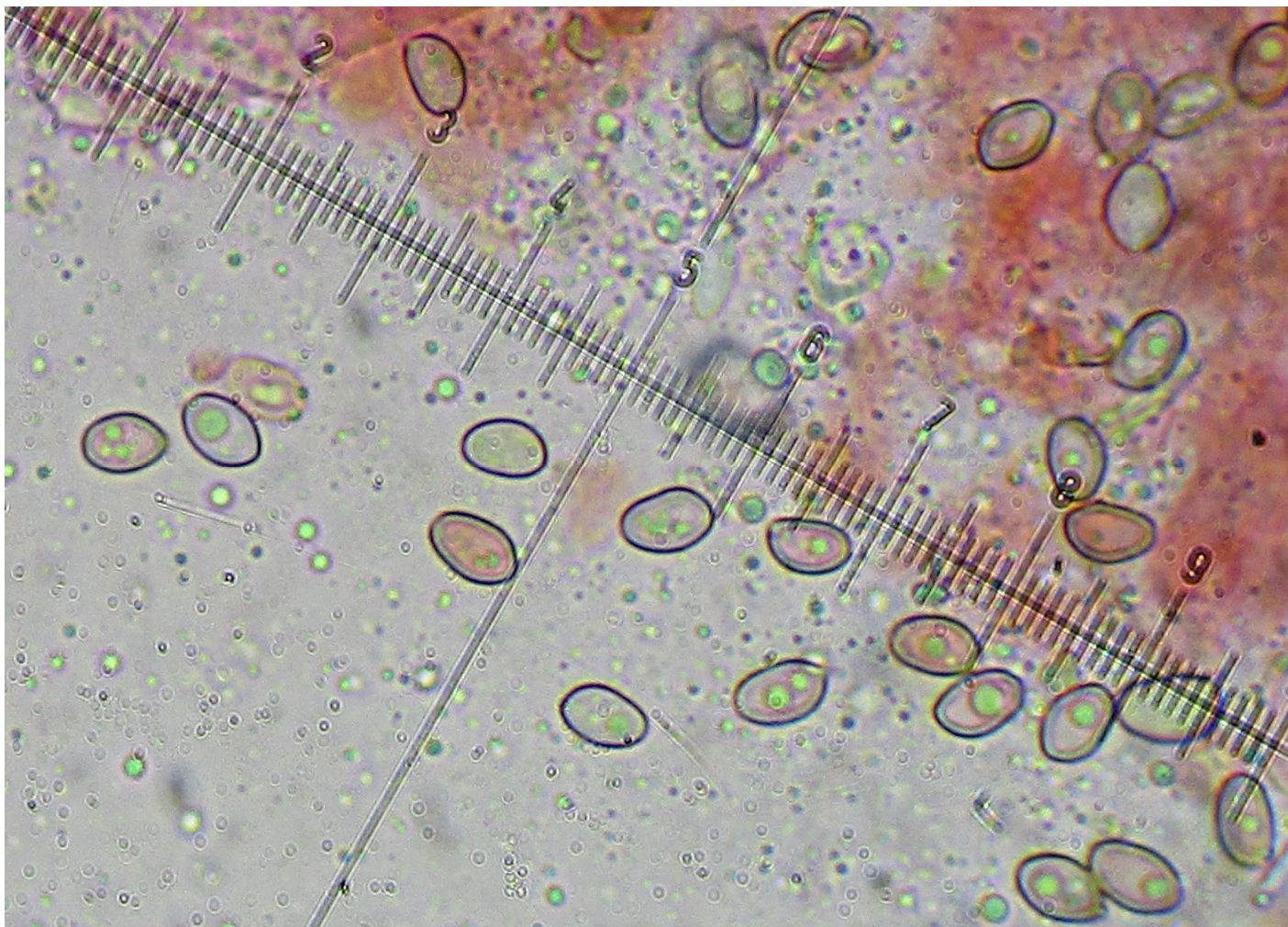
The common *Coprinellus heterothrix* (Kühner) Redhead, Vilgalys & Moncalvo differs by having somewhat broader spores with a partly eccentric germ pore and pileocystidia with a more cylindrical neck which is often somewhat broadened at the apex.

Deconica magica (Svrček) Noordel.
Öst. Z. Pilzk. 18: 198 (2009)





Cheilocystidia (scale bar = 1 μ m)



Spores (scale bar = 1 μm)

BRIEF DESCRIPTION

Pileus applanate-convex, striate at margin, brown in the inner half, ochraceous- to olivaceous- brown at margin and between striae, viscidulous; all covered by a white velar pruina, very scarce or no remains of veil attached at the margin. *Lamellae* moderately crowded, approx. 30, l = 3 – 5, adnate-emarginate, ventricose, brownish; edge white fimbriate. *Stipe* cylindraceous, a little flared at the apex, bulbillose at the base, straight to flexuous, ochraceous- to olivaceous- brown in the upper half, turning to dark brown in the lower half, entirely covered with a white velar pruina.

Basidiopores approx. $6.0 - 7.3 \times 4.0 - 4.5 \mu\text{m}$, $Q = 1.37 - 1.60$, in front view mostly elliptic to ovoid-submitriform, base mostly rounded, in side view adaxially flattened to sometimes irregular; wall thickened, smooth, brownish grey; germ pore present, central. *Cheilocystidia* approx. $27.0 - 50.0 \times 6.0 - 23.0 \mu\text{m}$, apex $3.5 - 10.9 \mu\text{m}$ broad, utriform to capitate-utriform or capitate-lageniform. *Pleurocystidia* absent.

Habitat and collection examined: Bosnia and Herzegovina, Banja Luka, Prijedor, Mount Kozara, gregarious, in a thick bush among dead branches of *Rubus* sp., *Euonymus* sp. and *Prunus spinosa*, 1 November 2023, D. Trivič, in pers. herb.

NOTES

The presence of a veil and the capitate cheilocystidia are strongly characteristic of *Deconica magica*; however, we found two somewhat deviating characters in this collection: the veil is diffused over the entire pileal surface, not only at the margin, and the cheilocystidia are more voluminous than usual ($20.0 - 30.0 \times 5.5 - 10.0 \mu\text{m}$, apex $2.0 - 5.0 \mu\text{m}$ broad in Noordeloos 1999). The close *D. montana* (Pers.) P.D. Orton lacks the two aforementioned characters.

Noordeloos (1999) cites a *Psilocybe schoeneti* Bresinsky ('very similar, but has somewhat more distinctly flattened spores') of which I could not find further data.

Inocybe treneri* Bres.Stud. Trent., Classe II, Sci. Nat. Econ.* 7(1): 54 (1926)**BRIEF DESCRIPTION**

Pileus (only not fully mature specimens examined) up to 12 mm broad, convex to convex-campanulate (umbonate) with an involute margin, then broadly conical, pale greyish-beige to pale olivaceous-brownish, cuticle composed of innate radial fibrils; a white veil initially connecting margin of pileus and stipe, later on not remaining as appendiculate at the margin. *Lamellae* moderately crowded, straight, not ventricose, greyish. *Stipe* 22 – 31 × 2 – 3 mm, cylindraceous, a little flexuous, base equal or somewhat enlarged; initially white and covered by white velar fibrils; pale olivaceous brownish to pale pinkish below the velar fibrils, turning to olivaceous brownish upon handling. Context and its organoleptic characteristics not examined.

Basidiospores (7.5) 8.5 – 11.0 (12.0) × (4.5) 5.3 – 6.2 (6.5) μm, on average 10.0 × 5.7, Q = (1.30) 1.55 – 1.90 (2.05), on average 1.75; in front view elliptic to oval, apex often (elongate-) tapering, in side view irregularly amygdaliform to phaseoliform-amygdaliform, base usually rounded, apex sometimes protruding, occasionally subpored. *Basidia* 4-spored (2-spored are expected to be present accounting for the largest spores). *Pleurocystidia* and *cheilocystidia* similar, approx. 40.0 – 75.0 × 13.0 – 20.0 μm, Q = (2.21) 2.35 – 3.95 (4.83), on average 3.16, utriform to fusiform, sometimes lageniform, apex equal to capitate, pedicel mainly absent to short; a diffuse granular content is distinctly visible; apex covered with generally scarce crystals, walls 1.0 – 1.5 (2.0) μm broad at apex and ammonia (sub) negative. *Paracystidia* 10 – 18 × 6 – 10 μm, shortly to slenderly clavate, congophilous.

Habitat and collection examined: Bosnia and Herzegovina, Prijedor, Raljas village, gregarious, among pine humus in a *Pinus* forest with presence of some *Acacia*, 11 October 2023, D. Trivič, in pers. herb.

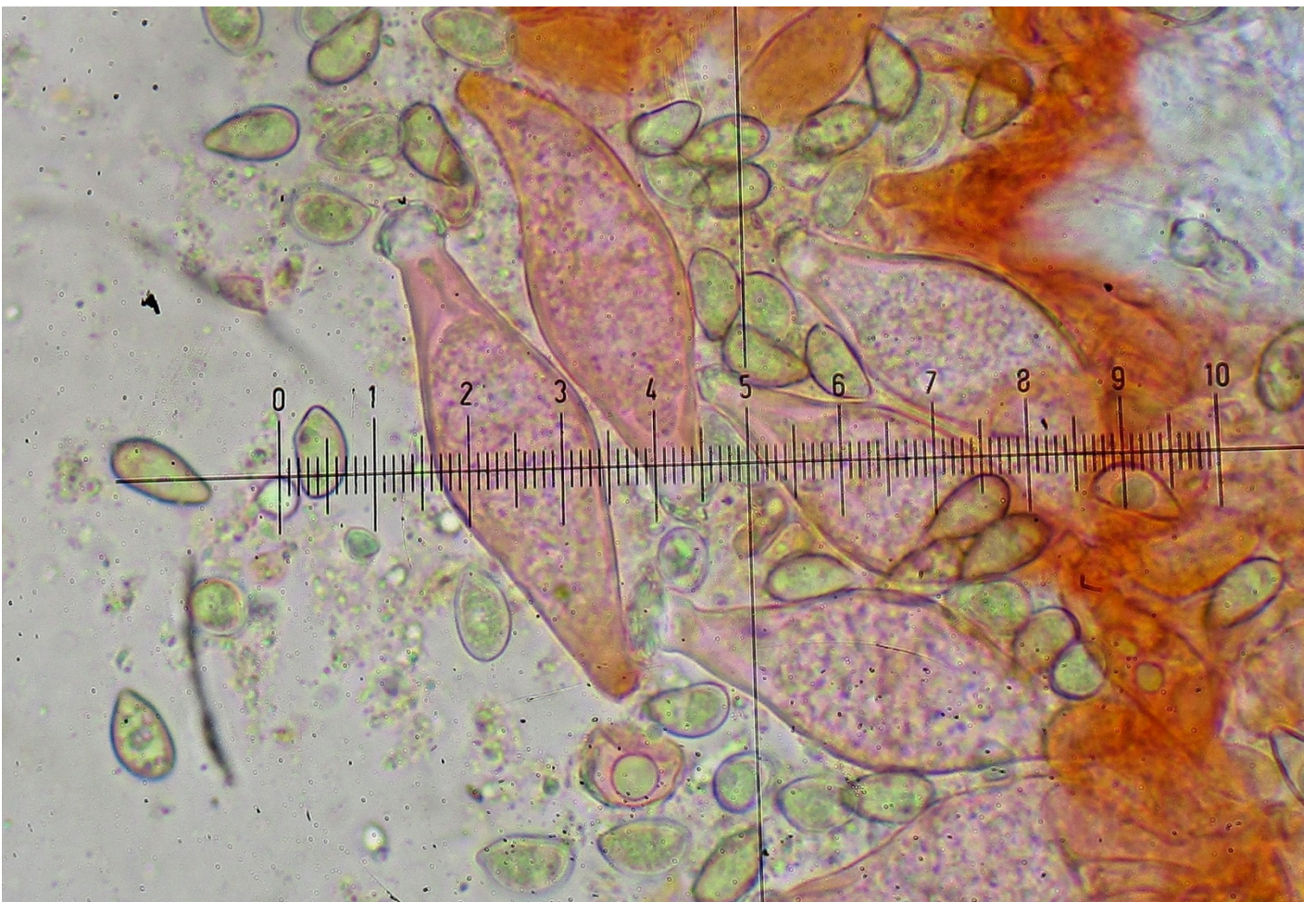
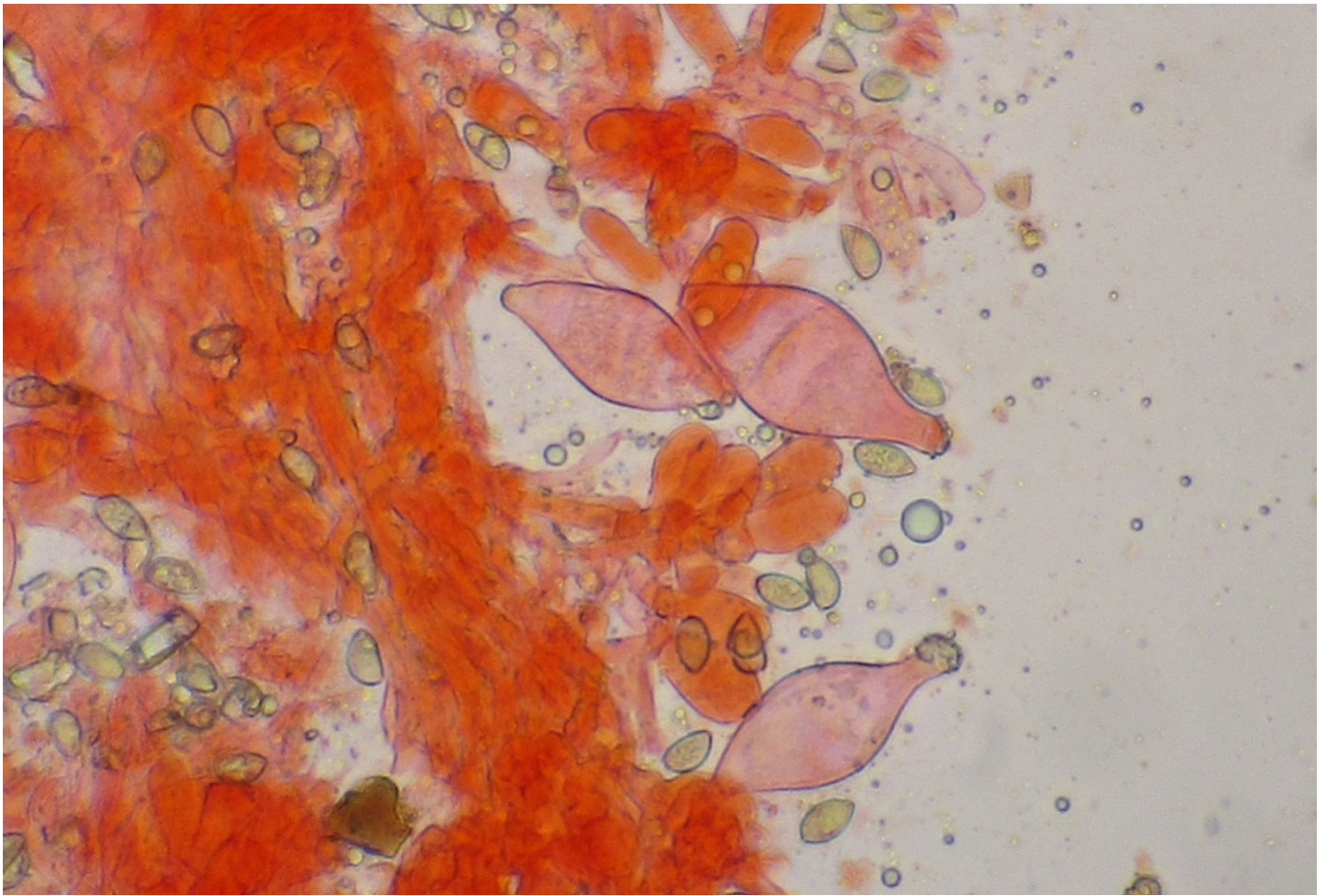


Spores (scale bar = 1 μ m)

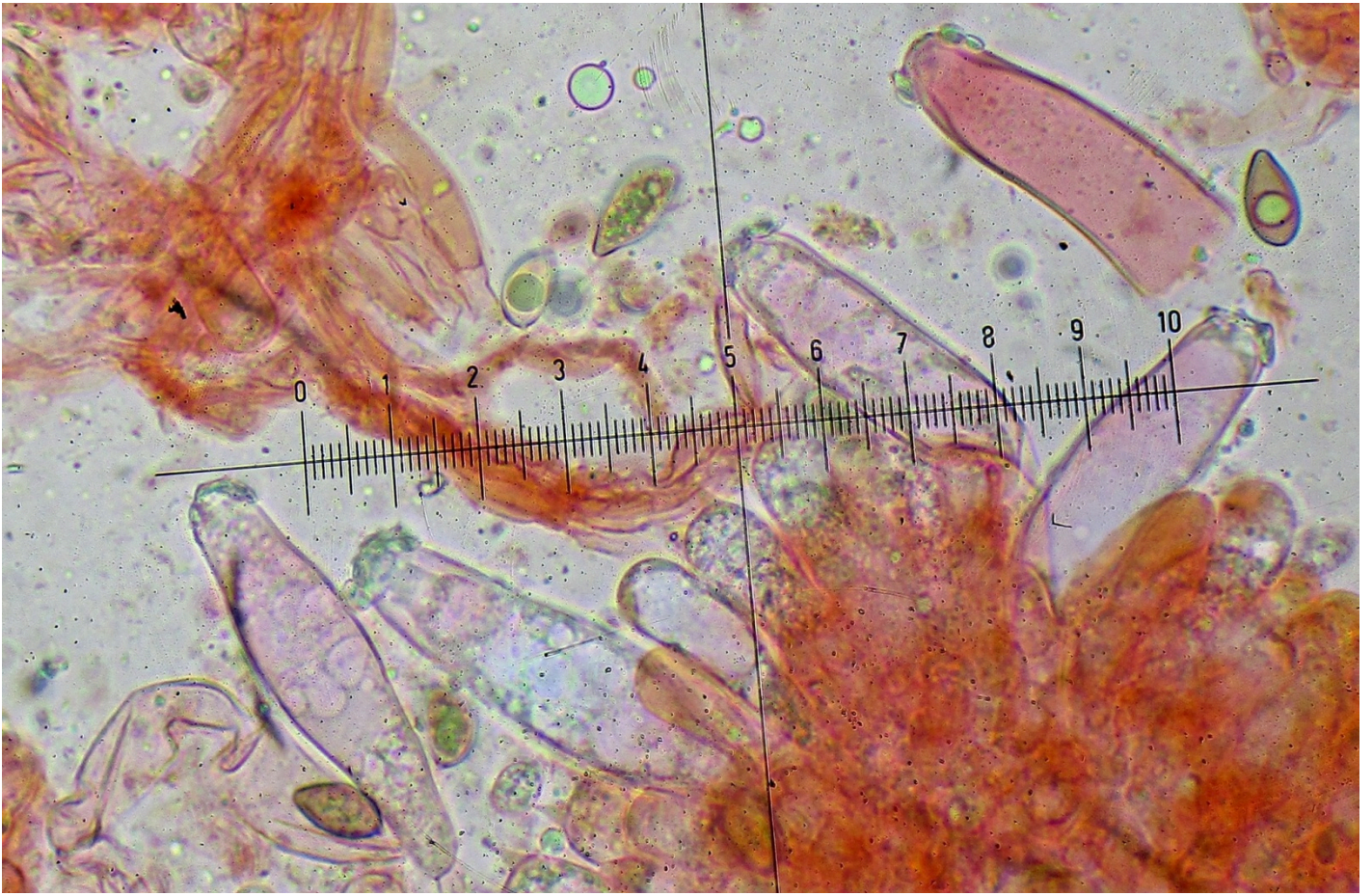


cheilocystidia

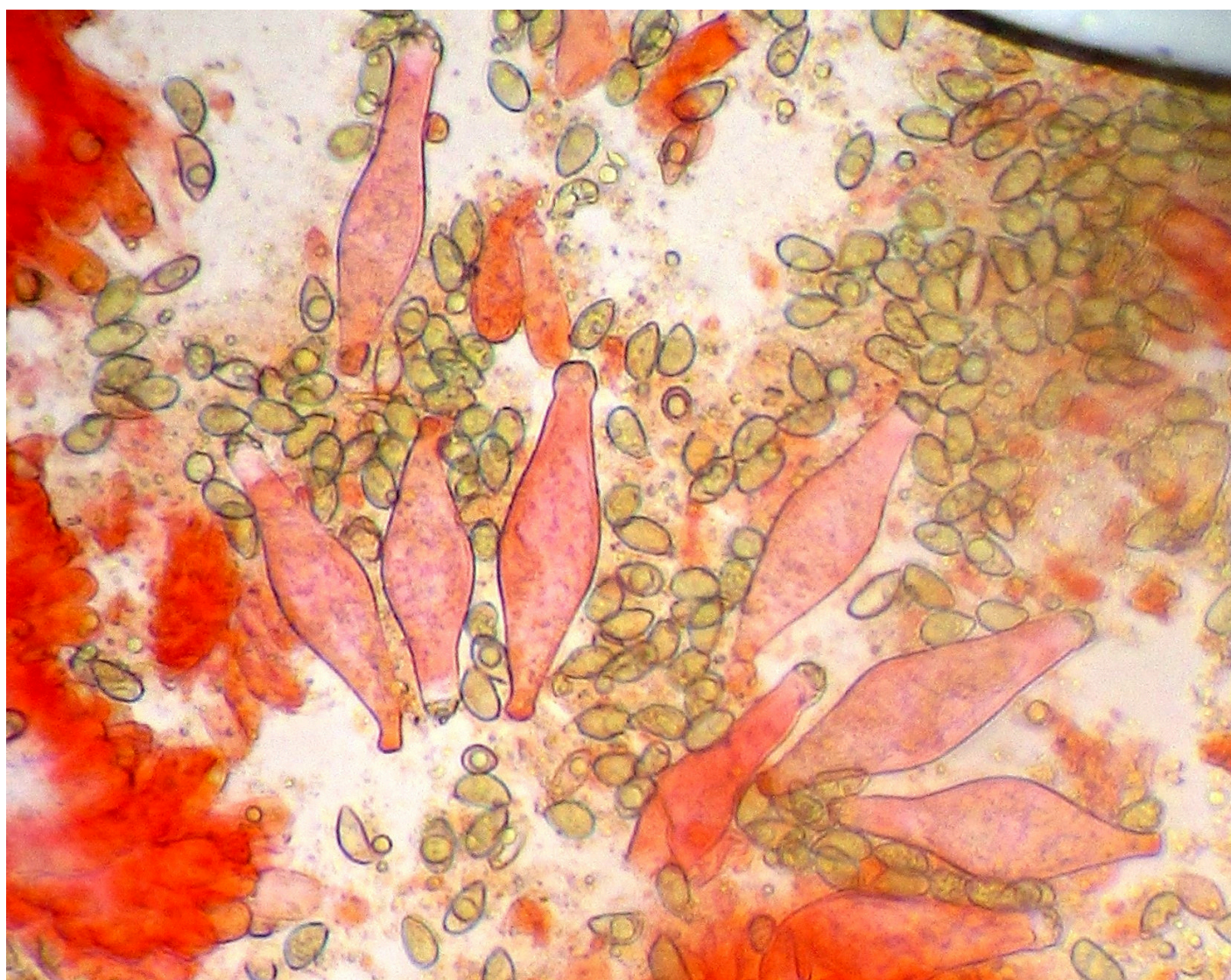
Cheilocystidia



Cheilocystidia (scale bar = 1 μ m)



Pleurocystidia (scale bar = 1 μ m)



Pleurocystidia (scale bar = 1 μ m)

NOTES

I. treneri is characterized by caulocystidia present, at most, only in the upper portion of the stipe, pileus and stipe pale and with an olivaceous shades, the stipe also with a possible faint pinkish hue and slightly browning when handled, the spore size and their peculiar shape, cystidia often fusiform and capitate, little thick-walled and with a distinct granular content, and a conifer habitat mainly connected to pines.

This collection has a strong correspondence with the descriptions in Bandini & Oertel (2012) and Bandini (2024); the former authors define the gills as narrow; the gills of my collection were not examined with much attention, however they certainly are not ventricose.

Interestingly, regarding the olivaceous shades observed in this collection, Bon (1997:20) hints to their presence for the species of the *I. melanopus* complex to which *I. treneri* can be ascribed.

Species of this complex also share a darkening stipe, an often somewhat aromatic smell, and cystidia with a partially capitate apex, a rather thin wall and often with a pale amorphous content.

Among the species of this group, *I. melanopus* D.E. Stuntz looks macroscopically similar to *I. treneri* but differs in ordinary, not irregularly oval-elongate spores; *I. maculipes* J. Favre is an alpine species; *I. albovelutipes* Stangl has regularly shaped spores, a lanose pileus and a thick tomentose stipe. This last species is, however, the most similar to *I. treneri* and sometimes is difficult to distinguish on the base of morphological characters alone.

Bon (1997) also describes *I. treneri* sensu Métrod with some corresponding characters such as small-sized basidiomes, sub thick-walled and ammonia-negative cystidia with granular contents spores amygdalioid-elongate; he reports this taxon under broadleaves.

ACKNOWLEDGEMENTS

I thank the editorial board of the journal MycolObs for the assistance received.

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Article received 21 December 2024, accepted 10 February 2024

Coprinellus plicatiloides in Bosnia and Herzegovina

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¹<https://www.facebook.com/dusko.trivic.9>

Key words:

Basidiomycetes
Agaricales
Psathyrellaceae

Abstract: *Coprinellus plicatiloides* is described from Bosnia and Herzegovina with images of the basidiome and of the main micro characters. Comparisons are made with the closest taxa. The use of this epithet against the name 'curtus' for European capitata-cystidiate collections is commented.

INTRODUCTION

During a mushroom foraging, some horse dung was noticed which showed unidentifiable fungal primordia. The excrement was taken home and at dawn some full grown coprinoid specimens were noticed and immediately photographed with an artificial light knowing full well that they would hardly last till morning in fresh, intact condition because of their deliquescence.

All microcharacters were photographed in Congo red from fresh material; the scale bar value is 1 μm . All images are from the author.

Coprinellus plicatiloides (Buller) Voto

Boll. Assoc. Micol. Ecol. Romana 109(1): 11 (2020)

= *Coprinus curtus* var. *canus* Bogart, *The genus Coprinus in Washington and adjacent western states*: 177 (1975), nom. prov. [fide Voto 2021]

= *Coprinus curtus* Kalchbr. sensu auct., non sensu Kalchbrenner





BRIEF DESCRIPTION

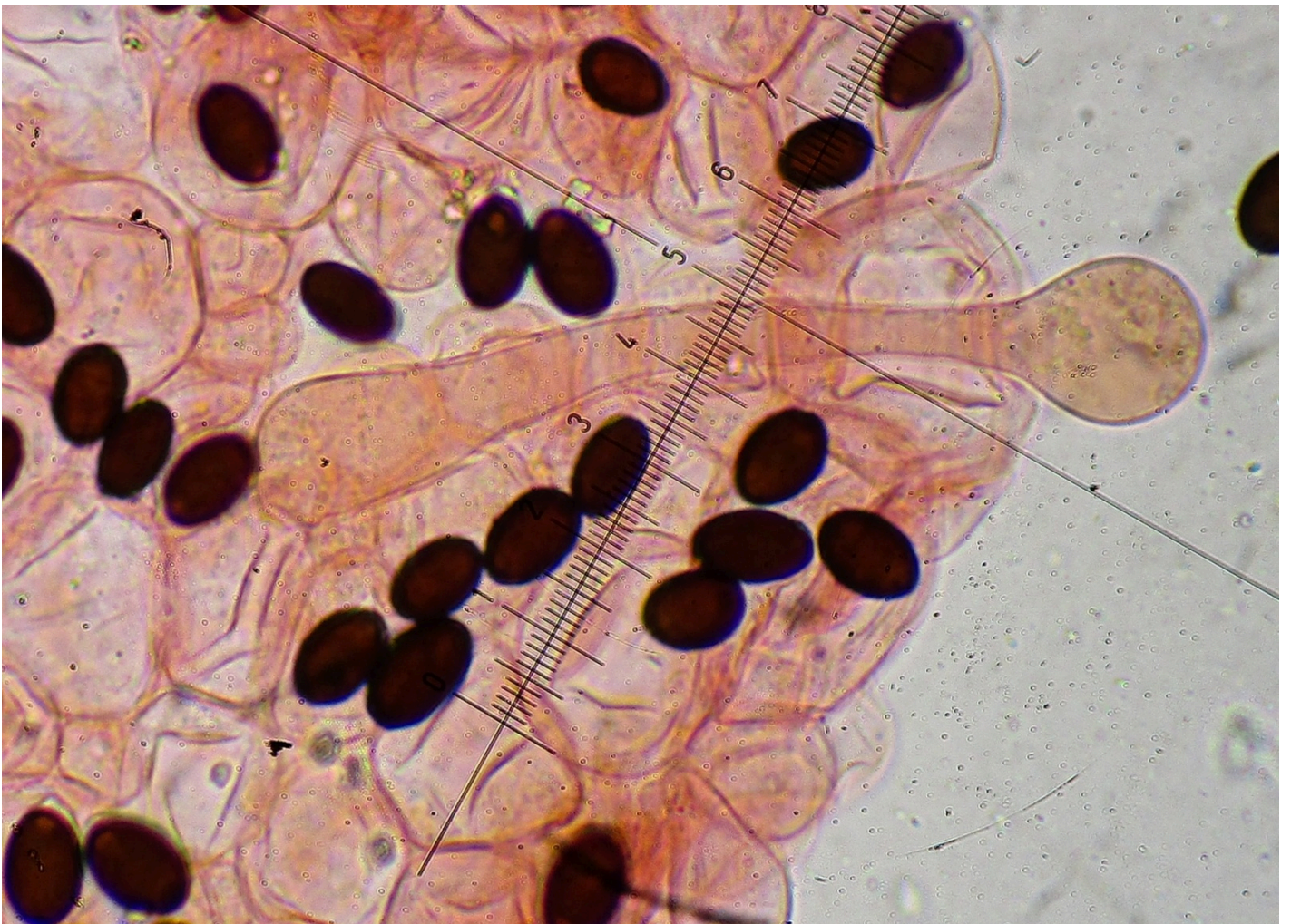
Pileus (before full expansion) approx. 4 mm broad at half expansion, at first ellipsoid-cylindraceous, then truncate-conic and deeply sulcate to disc; at first greyish then cream colour, at centre ochraceous; covered with fugacious velar granules and thin hairy floccules or pubescence. *Lamellae* free, pale then blackish, quickly deliquescent. *Stipe* approx. 25 × 0.6 mm at apex, 1 mm broad towards the progressively enlarged base, straight; at first almost translucent white then translucent greyish in the lower half; entirely pubescent and towards the base minutely fluffy.

Basidiospores 9.8 – 13.0 × 7.1 – 8.3 × 6.3 – 7.5 μm, Q = 1.48 – 1.63 × 1.59 – 1.78, ellipsoid, smooth, dark reddish brown; germ pore eccentric, large. *Basidia* 14 – 32 × 11 – 14 μm, short- to elongate- clavate, 4-spored. *Pleurocystidia* absent. *Cheilocystidia* more or less globose. *Pileipellis* made of cellular elements. *Veil* composed of spherocytes. *Pileocystidia* capitate-lageniform, approx. 90.0 – 98.4 μm long, ventricose with a 13.5 – 15.5 μm broad base, capitate with a 13.0 – 16.5 μm broad apex. *Clamp connections* not seen.

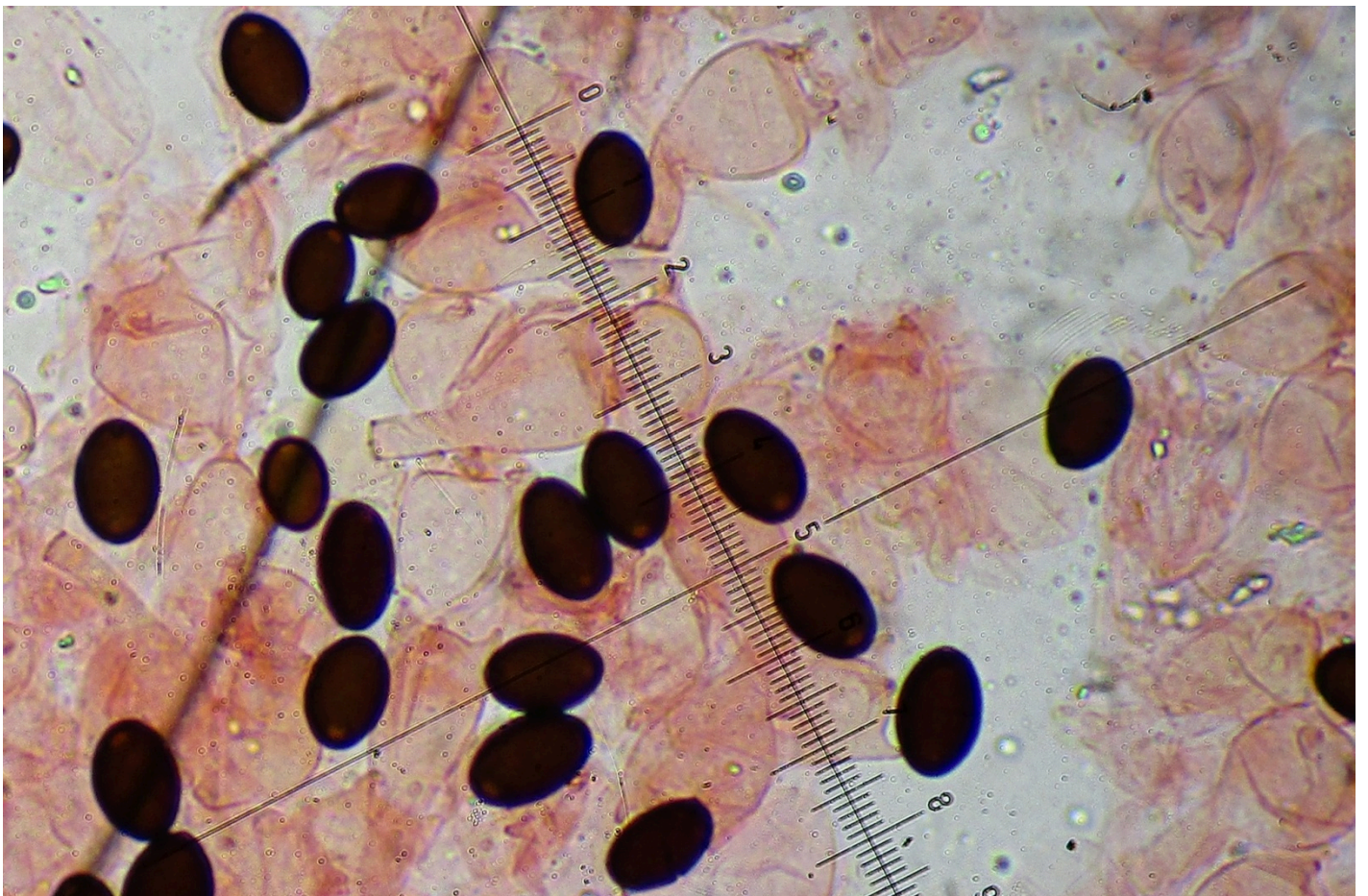
Habitat and collection examined: Bosnia and Herzegovina, Banja Luka, Prijedor, isolate on horse dung, 24 October 2023, D. Trivič, in pers. herb.

NOTES

Reid (1975) makes a revision of the type material of *Coprinus curtus* Kalchbr., originally described from South Africa, and he reports, both in text and figures, that the pileocystidia have a cylindrical, never capitate apex. Strangely, all European and American authors have ignored this important information and have kept identifying with this name their collections presenting pileocystidia with a distinctly capitate apex.



Pileocystidia in Congo red



Pileocystidium above; spores below. In Congo red

Some authors, among others, that have used this misidentification are Doveri (2004), Gierczyk *et al.* (2011), Ludwig (2007), Nagy (2005), Orton & Watling (1979), Prydiuk (2010), Uljé (2005) and Vila & Rocabrana (1996) for Europe; Van de Bogart (1975) for North America (both as *C. curtus* and as *C. curtus* var. *canus* nom. prov., the latter synonymized with *C. plicatiloides* by Voto 2021); Putzke & Putzke (2017) and Richardson (2001) for Brazil.

Until a phylogenetic evidence is produced from the type material, the current morphological knowledge indicates that the collections with distinctly capitate pileocystidia are a misidentification of the true South African species. When Voto (2011) set out to find a new name for the species with capitate pileocystidia he noted that these collections were also called *Coprinus plicatiloides* Buller and that this name was treated as a synonym (Uljé 2005); consequently, he combined this name with *Coprinellus* and proposed its use for the collections with capitate pileocystidia (see also Voto 2024).

ACKNOWLEDGEMENTS

I thank the editorial board of the journal MycolObs and the online mycological forum of the journal for the assistance provided.

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Available from: https://www.ameronlus.it/chiavi_micologia.php

Second report of coprinoid fungi (Psathyrellaceae, Agaricales) in the Dominican Republic

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Key words:

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Taxonomy

Phylogeny

Neotropics

Caribbean

Hispaniola Island

Abstract: Continuing the study of coprinoid fungi of the Dominican Republic (see Angelini, Voto & Alvarado 2023), two more taxa are reported with morphological and molecular data: *Coprinopsis nivea*, with a peculiar set of spore characters combined with a coprophilous habitat, and *Parasola lilatincta*, characterized by lilaceous tints on the pileus, and broad, tridimensional spores with an eccentric germ pore. Both species are not strictly specific to the tropics, being present in different climate zones.

INTRODUCTION

Coprinopsis nivea is a well-known and common species with a cosmopolitan distribution. Its large, tridimensional and angular spores with a papillate apex and an eccentric germ pore, together with a coprophilous habitat, make it easily recognizable inside sect. *Niveae* (Citérin) D.J. Schaf.

Parasola lilatincta was recognized, notwithstanding pleurocystidia could not be found, by the lilaceous tints on the pileus and the peculiar shape and size of the spores, and was phylogenetically confirmed. Lack of pleurocystidia is here registered as an occasional occurrence for this taxon.

MATERIALS AND METHODS

As in Angelini, Voto & Alvarado (2023). Images in habitat by C. Angelini, microscopy images by P. Voto.

TAXONOMY

Coprinopsis nivea (Pers.) Redhead, Vilgalys & Moncalvo
Taxon 50(1): 229 (2001)

Macroscopic characters

Pileus (young specimens not observed) 6 – 30 mm broad, soon expanded convex, radially striate at extreme margin, margin becoming plicate, radially cleft, and deflexed to revolute; grey; covered with abundant but fugacious white velar flocci up to centre.

Lamellae free, close, narrow, grey, deliquescent; lamellulae present.

Stipe 25 – 140 × 1.5 – 4.5 mm at base, progressively tapering upwards to 0.8 – 2.0 mm broad at apex, base not swollen; pale grey; covered with white velar flocci scarce at apex, progressively more abundant towards base.

Microscopic characters

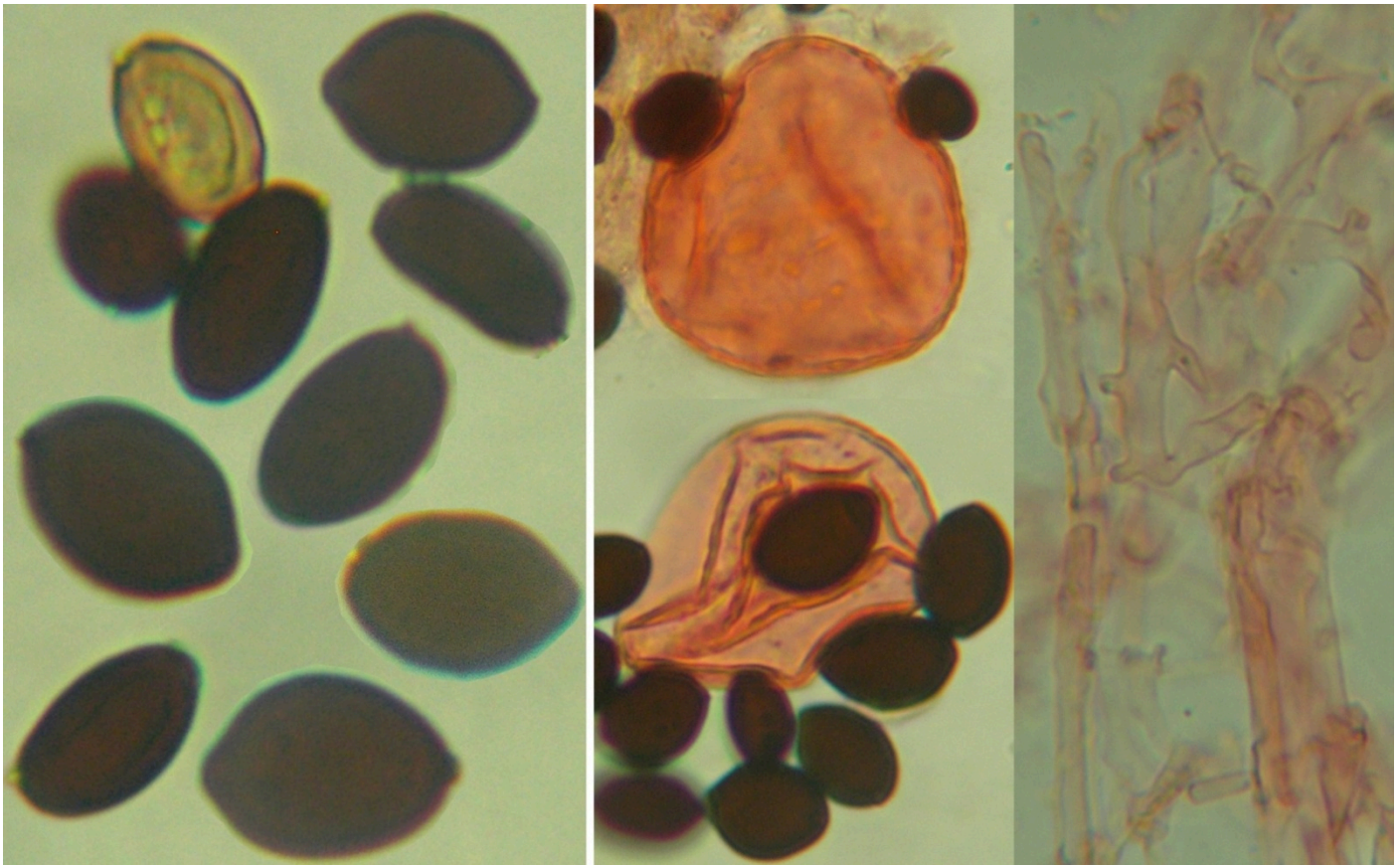
Spores 13.5 – 17.3 × 8.4 – 12.5 × 8.0 – 10.2 μm, Q = 1.23 – 1.81 × 1.69 – 1.81; in front view hexagonal to broadly elliptic, sometimes irregular, apex often papillate, in side view narrowly elliptic; dark brown in water; germ pore eccentric.

Basidia stocky to slenderly clavate, 4-spored.

Pleurocystidia ellipsoid to broadly utriform.

Cheilocystidia not observable because of consumed gill edge.





Left: spores in Congo red; right: cellular elements and connecting hyphae of veil in Congo red

Pileipellis composed of filamentous elements.

Veil composed of globose to broadly ellipsoid, approx. 40 – 70 × 40 – 70 µm, thin-walled, hyaline cells, connected by narrow, diverticulate hyphae.

Clamp connections present.

Habitat and collection examined: Dominican Republic, Puerto Plata, Cabarete, Sea Horse Ranch resort, gregarious on a pile of horse dung mixed with wood sawdust, 14.I.2023, C. Angelini ANGE1831, PAD H0061570; GenBank PP349937 - ITS.

NOTES

Coprinopsis nivea is a common coprophilic species with a worldwide distribution (Uljé 2005). It belongs in the sect. *Niveae* (Citérin) D.J. Shaf. (Schafer 2010) defined with smooth spores and a veil composed of smooth cellular elements or with encrustations easily soluble in hydrochloric acid (HCl). Among the few coprophilic species with very large spores of this section, *C. macrocystidiata* Voto, from North America, differs in its obovoid, non-papillate spores, while *C. pachysperma* (P.D. Orton) Redhead, Vilgalys & Moncalvo, otherwise very similar, differs in having entirely or partially 2-spored basidia.

Parasola lilatincta (Bender & Uljé) Redhead, Vilgalys & Hopple
Taxon 50(1):236 (2001)

Macroscopic characters

Pileus (young specimens not observed) 15 – 35 mm, low convex - applanate with smooth and distinctly depressed centre, elsewhere strongly plicate, margin not upturning, ochraceous-brownish with lilac shades at centre (more evidently coloured when young), whitish outside, grey inside the plicae; glabrous.

Lamellae free, somewhat distant, narrowly ventricose, pale grey, slowly deliquescing; lamellulae present.

Stipe 30 – 80 × 2 – 2.5 mm at base, equal or slightly tapering upwards to a 1.5 mm broad apex, base not enlarged; pale grey.



Microscopic characters

Basidiospores 11.0 – 14.2 × 10.2 – 12.0 × 8.2 – 9.2 μm, Q = 1.08 – 1.20 × 1.48 – 1.67; in front view subglobose-oval to sometimes subangular, apex papillate to tapering, in side view elliptic; dark brown; germ pore distinct, eccentric.

Basidia 20.0 – 32.5 × 9.5 – 13.5 μm, short to long clavate, 4-spored, surrounded by 6 – 7 hymenophysalides 12 – 20 (30) × 12 – 20 (25) μm.

Pleurocystidia not observed (lamellar tissue apparently well preserved).

Cheilocystidia not observable (gill edge already consumed by deliquescence).

Pileipellis hymeniform, of elongate clavate cells 22.0 – 58.0 × 11.0 – 18.0 (19.5) μm; clavate cells at centre with a thick-walled, straight peduncle with intraparietal ochraceous-brownish pigment (in 5% KOH), outside of centre with a thin-walled, bent to tortuous at base, hyaline peduncle. Subpellis of repent hyphae with intraparietal ochraceous-brownish pigment (in 5% KOH) at centre, hyaline outside of centre.

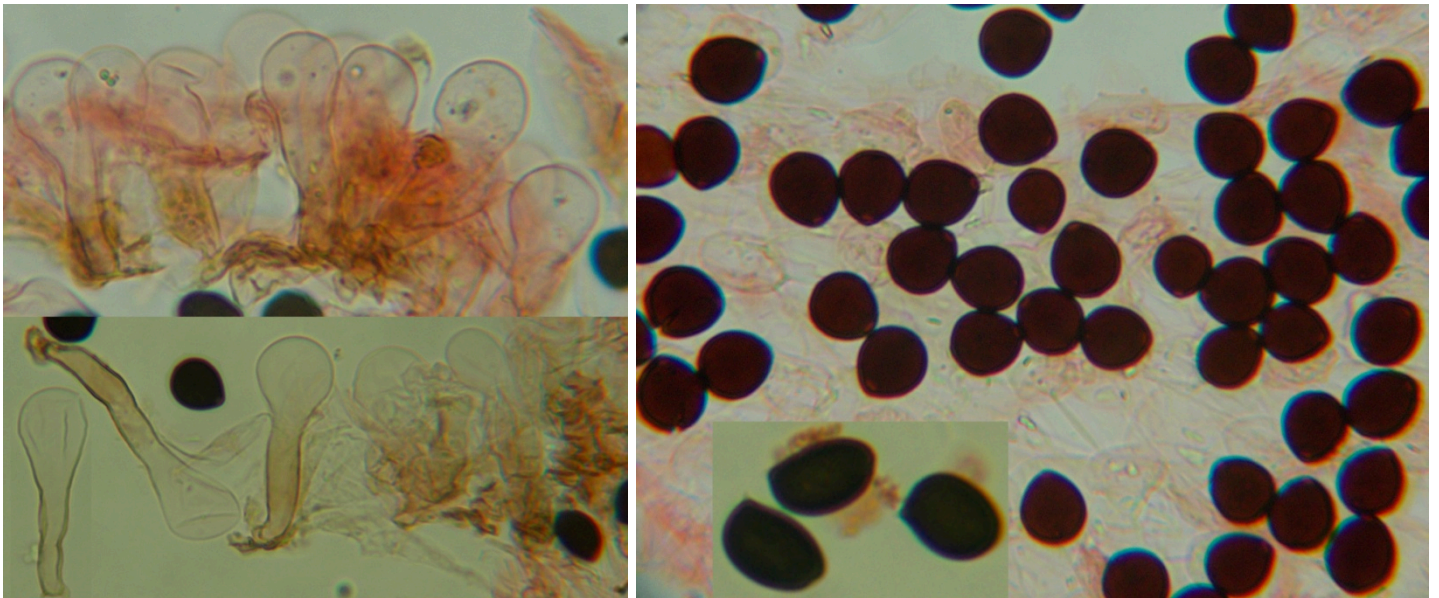
Caulocystidia absent.

Clamp connections present.

Habitat and collection examined: Dominican Republic, Puerto Plata, Cabarete, Sea Horse Ranch resort, gregarious among grass in a meadow with grazing horses; 14.I.2023, C. Angelini ANGE1830, PAD H0061571; GenBank PP349938 - ITS.

NOTES

Among the non-pileocystidiate species of the genus *Parasola*, the large, lentiform, angular spores with a papillate to tapering apex and an eccentric germ pore characterize *P. lilatincta*. Lilaceous tints on the pileus are also characteristic of this species but tend to fade away with age. Pleurocystidia may be occasionally absent, as in this collection (Voto 2024). A yellowish grey pigmented content is usually found in pileipellis, cheilocystidia and basidia (Uljé 2005). The Australian *P. grgurinoviciae* Voto, without pleurocystidia, and the European *P. megasperma* (P.D. Orton) Redhead, Vilgalys & Hopple, with pleurocystidia, have larger spores than *P. lilatincta* (12.5 – 17.6 × 13.0 – 15.0 × 7.0 – 11.0 μm and 12.0 – 20.0 × 8.8 – 15.0 × 7.5 – 10.0 μm, respectively).



Left: pileipellis in Congo red (above), in Congo red and 5% KOH (below); right: spores in Congo red

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Available from: https://www.ameronlus.it/chiavi_micologia.php

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Mycena fuscoaquosipes in the Nordio forest

(versione italiana a pag. 30)

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Key words:

Basidiomycota
Agaricomycetes
Agaricales
Mycenaceae
Taxonomy
Italy, Veneto

Abstract: A collection of *Mycena fuscoaquosipes* in the same habitat and area of the locus typicus is described, with images of the carpophores and of the main microcharacters. Although the original description dates back to 2003 it seems no other reports of this species are present in the available online literature therefore, most probably, this finding is its second ever. A small size, dull colours and a stipe discoloration with alternating brownish grey and watery-hyaline tones, are its most peculiar macrocharacters.

INTRODUCTION

The genus *Mycena* (Pers.) Roussel, such as presented in Robich (2016), included approximately 300 taxa in Europe with 82 new entities, including species, varieties and forms. Some of them currently belong to other genera due to the dismemberment of the genus *Mycena* on a molecular basis; e.g. *M. adonis* (Bull.) Gray in *Atheniella* Redhead, Moncalvo, Vilgalys, Desjardin & B.A. Berry, *M. hiemalis* (Osbeck) Quél. in *Phloeomana* Redhead, *M. oregonensis* in *Hemimycena* Singer, *M. rorida* (Fr.) Quél. in *Roridomyces* Rexer.

Mycena fuscoaquosipes is, like many other mycenas, a species that easily goes unnoticed, hidden in the forest humus, with its small size and inconspicuous pale greyish brown colour; only a careful microscopy investigation can allow it to be correctly identified.

This collection, which to the author's knowledge is the second ever, expands its iconography and substantially confirms its morphological description and its broad-leaved habitat in a Mediterranean environment (the holotype was found in the not much distant Mesola forest, in the province of Ferrara, which, like the Nordio forest, is characterized by the typical vegetation of the Mediterranean scrub grown on the sandy soil of ancient dunes).

MATERIALS AND METHODS

The specimens were found by my friend Roberto Albanese of the Bruno Cetto Mycological Association of Venezia Mestre, and were photographed by the author some hours after, on the same day. The microscopic elements were studied and photographed by the author on dried material rehydrated with 3% ammonia and coloured with Congo red. The microscope photos in fig. 1 were produced by A. Tacconi using the phase contrast technique.

The collection is housed at the herbarium of the Università degli Studi di Padova (PAD).

TAXONOMY

Mycena fuscoaquosipes Robich

Boll. Ass. Micol. Ecol. Romana **19**(59-60): 31 (2003)

Macroscopic characters

Pileus 4 – 10 mm, convex, then almost applanate, smooth, deeply and radially striate to two thirds of the radius, at centre light greyish brown, externally whitish.

Lamellae distant to medium crowded (approx. 20 reaching the stipe), adnate, ventricose, 1 (– 3) tiers of lamellulae also present, white; edge concolorous.

Stipe 35 – 55 × 0.5 – 1 mm, cylindric down to base, flexuous, lucid, glabrous, not pruinose, at first white then darkening with light brownish grey tones with hyaline-watery intervals, base with a scarce mycelial felt, internally hollow.

Context non studied.



Microscopic characters

Basidiospores (6.7) 7.5 – 9.3 (9.4) × (4.4) 5.0 – 6.1 (6.9) μm, Q = (1.16) 1.33 – 1.66 (1.79), in front view narrowly to broadly elliptic, base often more or less tapering, in side view more or less adaxially flattened, often internally mono- to bi- or three-guttulate, amyloid.

Basidia approx. 18 – 23 × 7.5 – 9.5 μm, 4-spored, clavate to cylindraceous.

Cheilocystidia 30 – 53 × 13 – 28 μm, numerous, clavate to ellipsoid, sometimes utriform, almost always with a basal peduncle, rarely sessile, covered in the upper half with small nodulose warts and, on the apical cap, also with up to 6.5 × 1.0 – 1.5 μm large, often tortuous excrescences.

Pleurocystidia similar to the cheilocystidia, scattered.

Pileipellis in cutis with 7.0 – 17.0 μm broad hyphae, covered with numerous minute nodulose warts up to 3.0 × 1.0 μm large, and with some elongate excrescences up to 15.0 × 2.0 μm large, often deformed to tortuous, also present terminal elements with a similar diameter and ornamentation; subpellis composed of swollen, smooth elements.

Caulopellis externally composed of smooth hyphae 1.5 – 5.0 μm broad and of adnate terminal element with a similar diameter or a little swollen, covered with minute, thinned out warts.

Clamp connections present and numerous everywhere.

Habitat and collection examined: Italy, Veneto, Venezia, S. Anna di Chioggia, Nordio forest, gregarious in the humus of a forest with oaks, poplars and other broadleaves, collected on 8 November 2023, leg. R. Albanese, det. P. Voto, PAD H0061572.

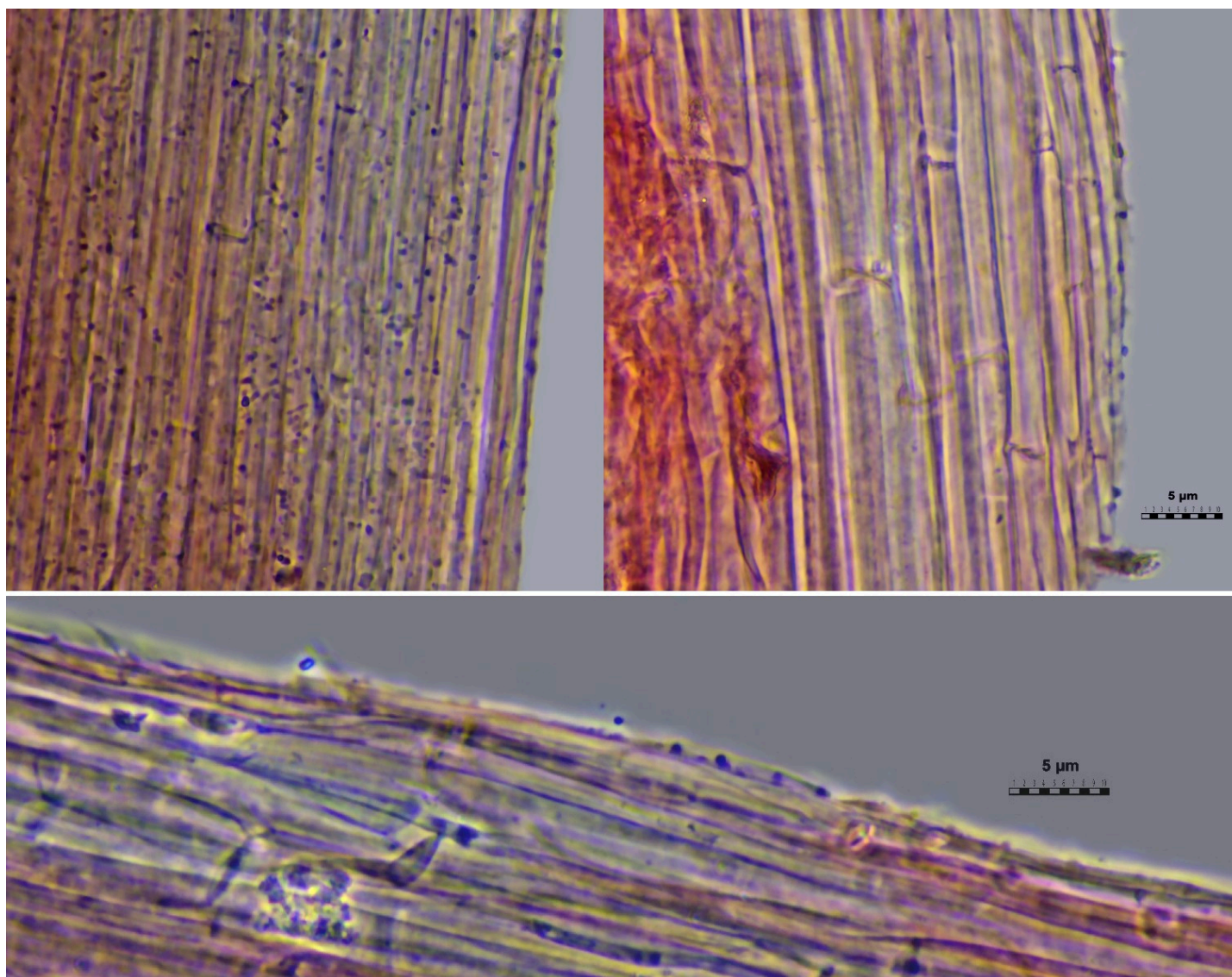
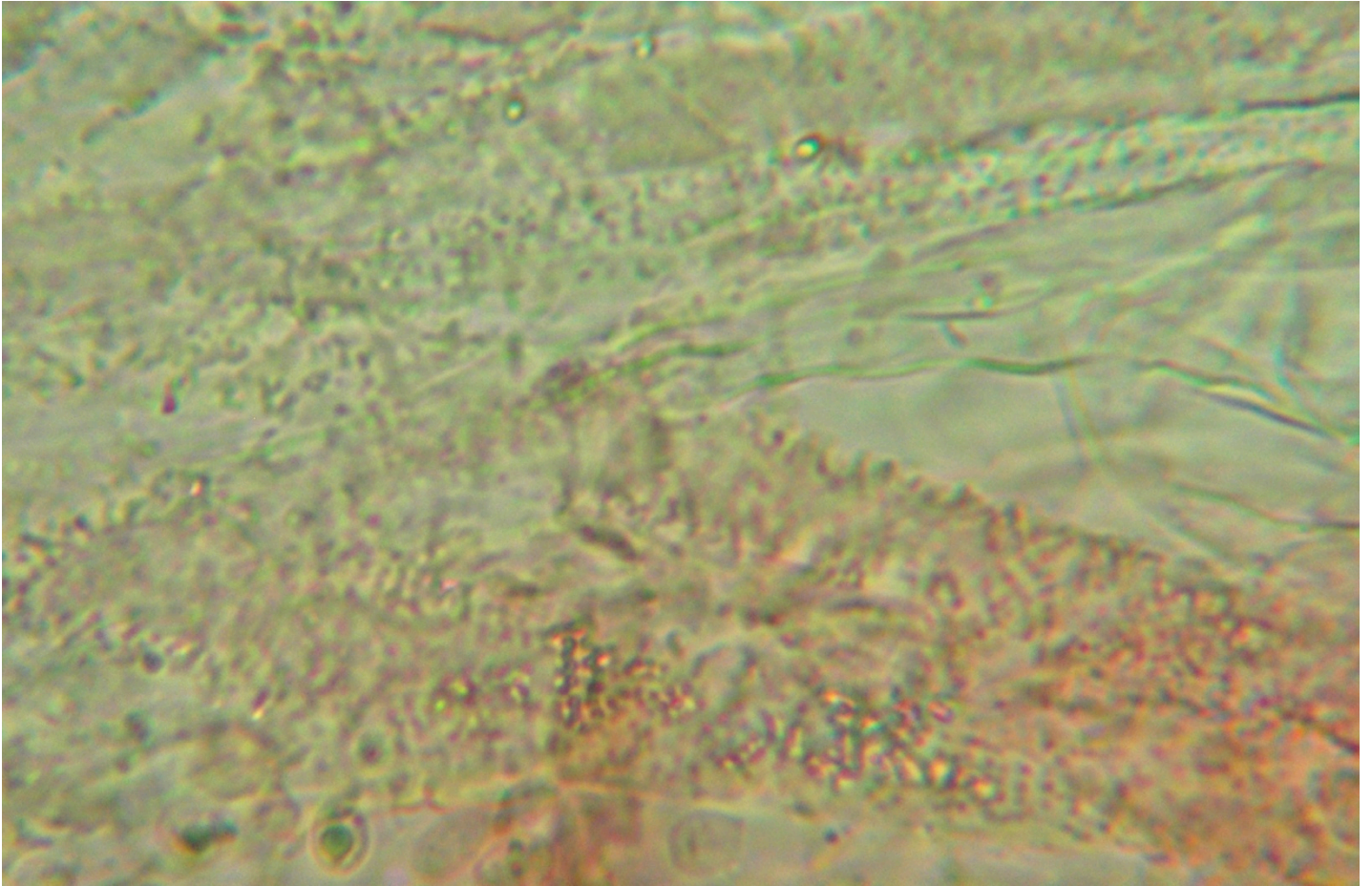
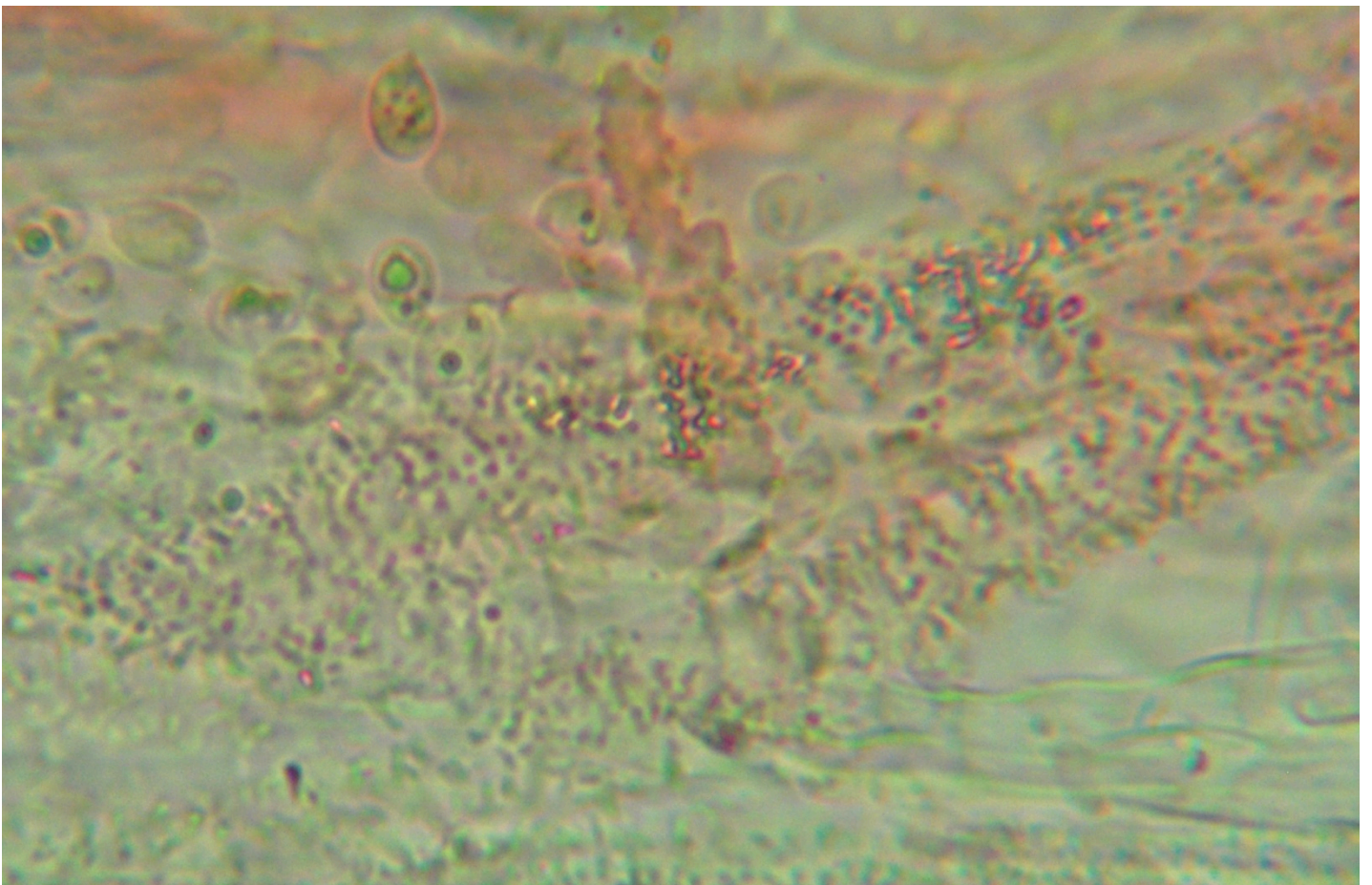


Fig. 1. Above: caulopellis, below: pileipellis / sopra: caulopellis, sotto: pileipellis

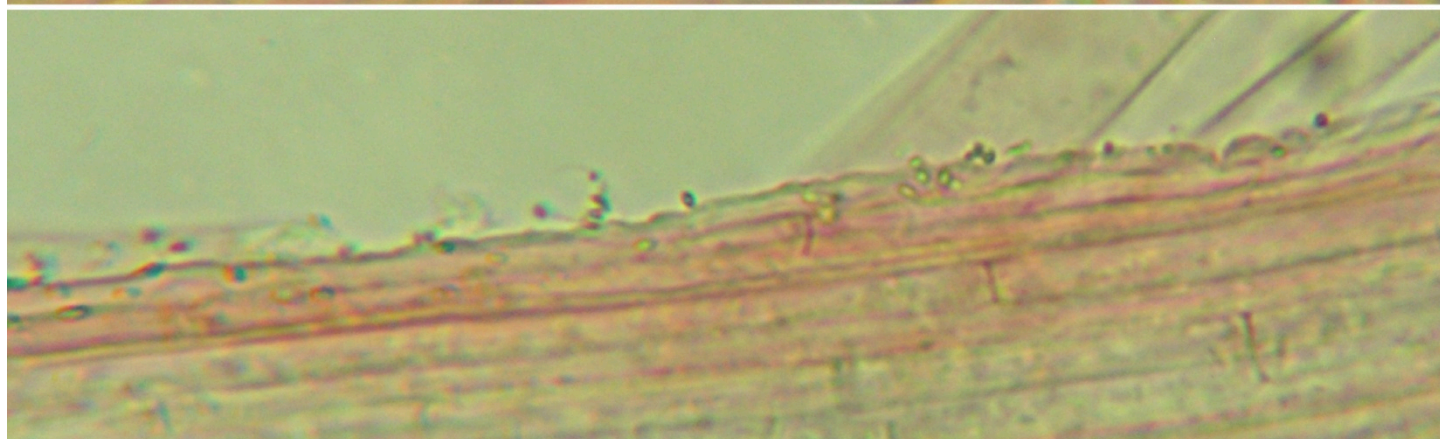
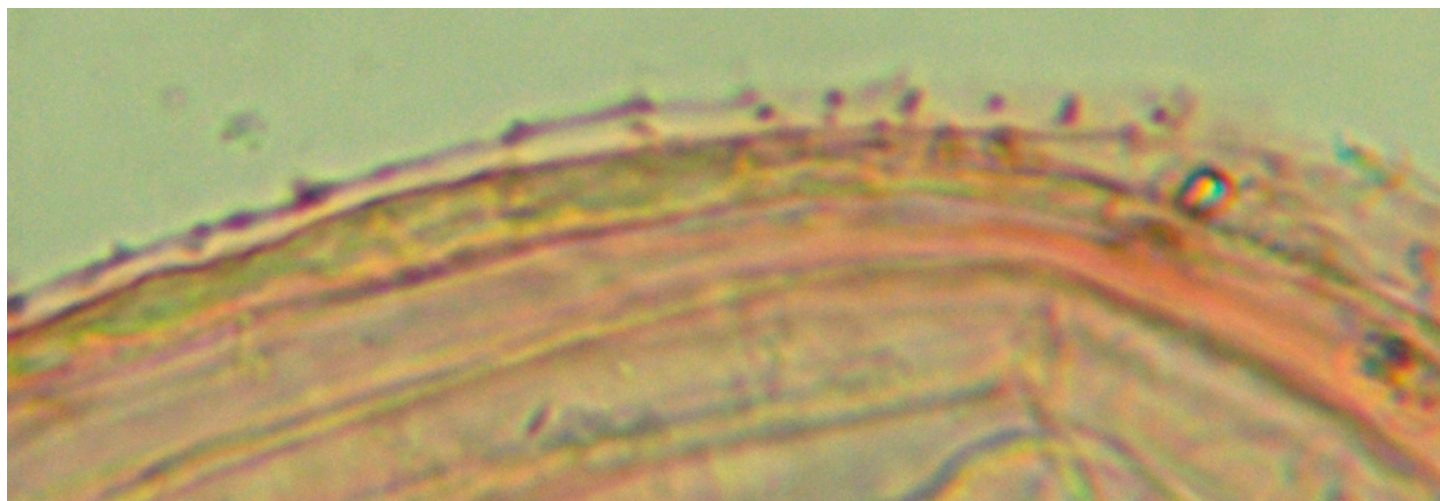
A. Tacconi



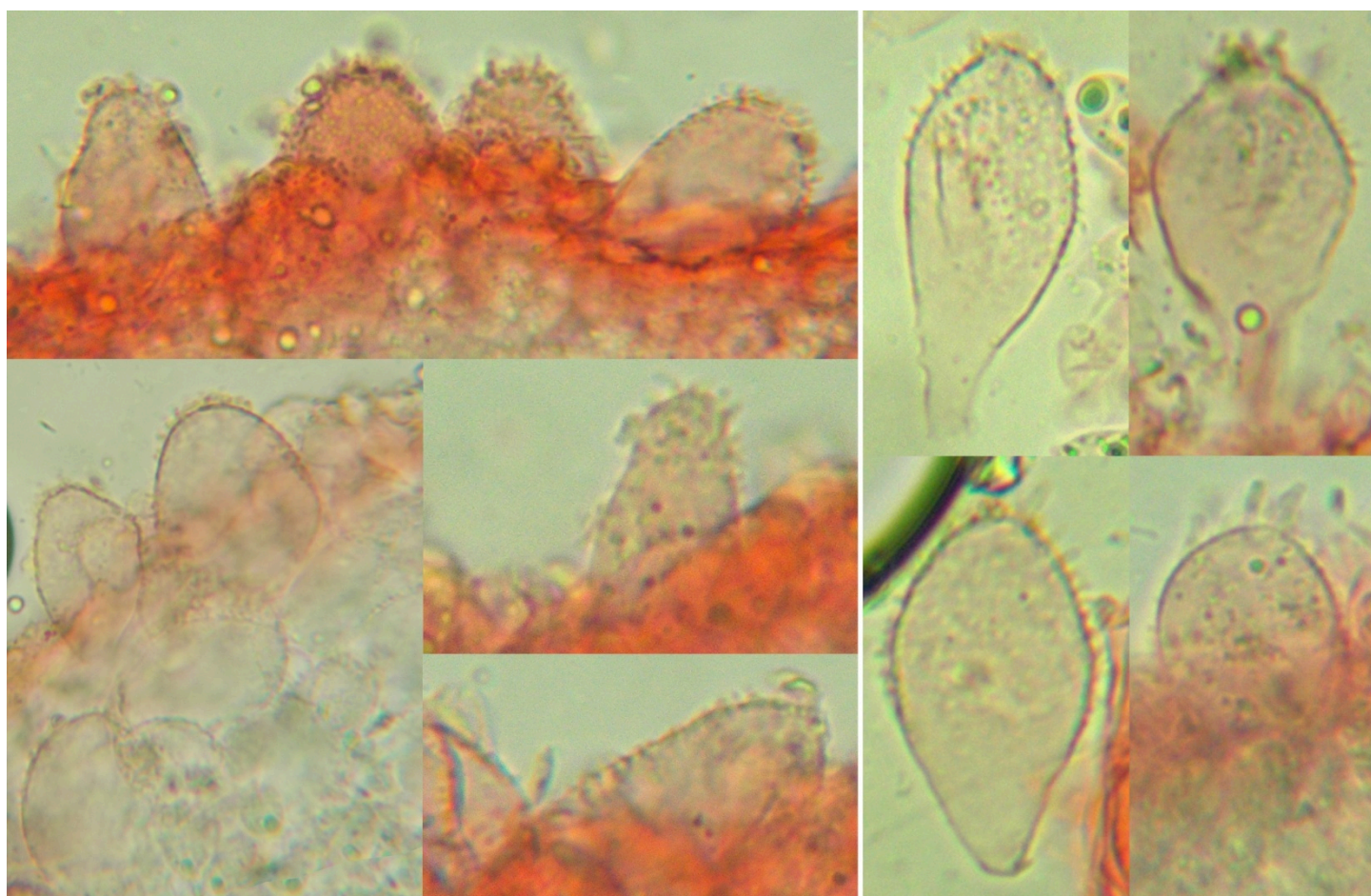
Pileipellis in Congo red / pileipellis in rosso Congo



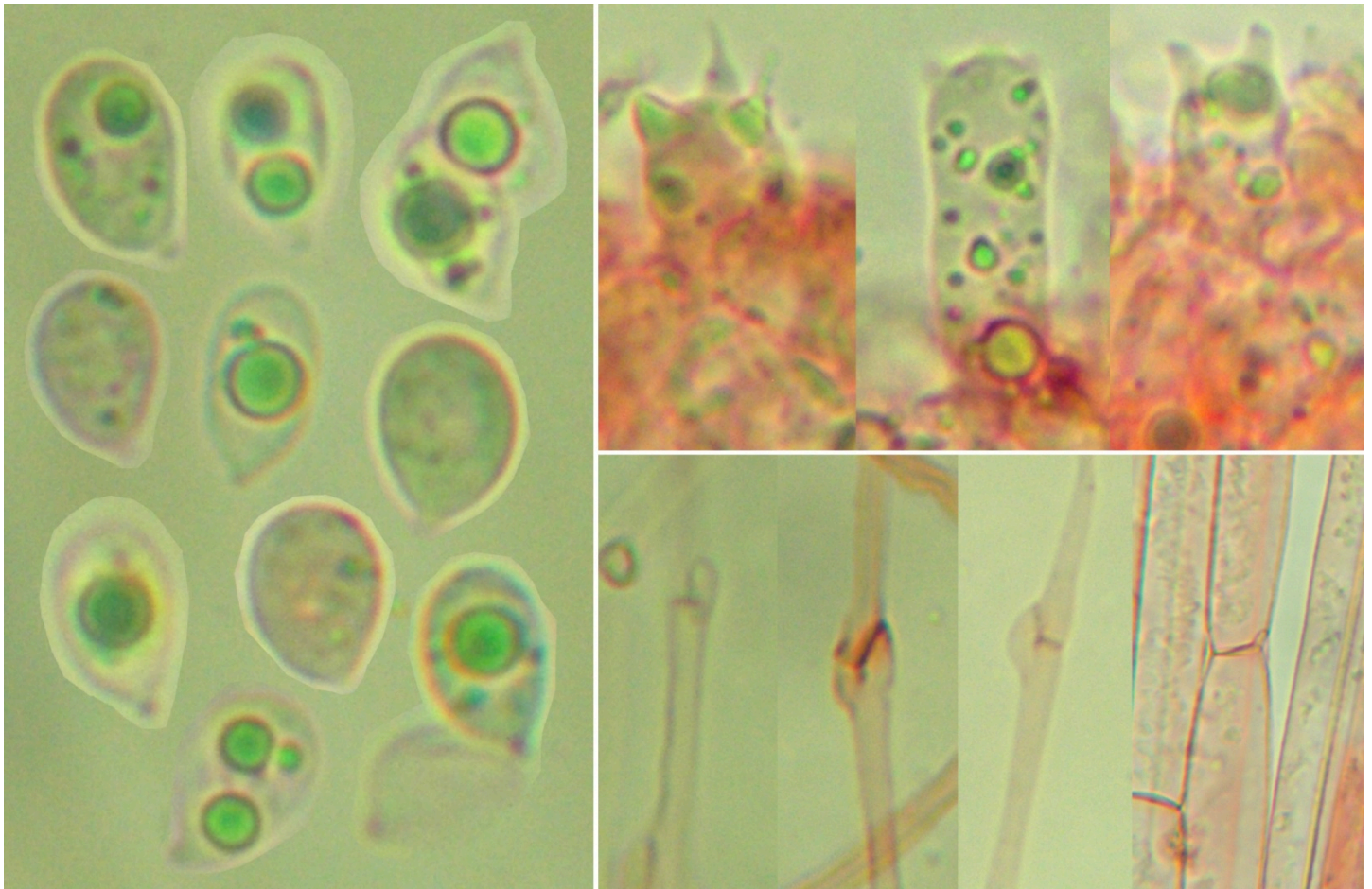
Pileipellis in Congo red / pileipellis in rosso Congo



Caulopellis in Congo red / caulopellis in rosso Congo



Left: cheilocystidia, right: pleurocystidia; in Congo red / sinistra cheilocistidi, destra: pleurocistidi; in rosso Congo



Left: spores, top right: basidia, bottom right: clamps; in Congo red / sinistra: spore, destra in alto: basidi, destra in basso: fibbie; in rosso Congo

NOTES

The key in Robich (2016) was used to identify this collection.

The absence of peculiar characters, such as a stipe with basal disc, a separable gelatinous pileus pellicle and lamellae with a coloured edge, used in the first dichotomous steps of the key to sections, leads the identifying investigation to the dichotomy between the species with '*pileus small in size*' and those with '*pileus medium-sized to somewhat broad*'. Since this dichotomy is ambiguous, not being expressed in terms of specific measurements, and since species with pilei up to 8 mm are found in the first dichotomy, and species with pilei only up to 10 mm are found in the second dichotomy, both were investigated.

Among the medium-sized to somewhat broad species, sect. *Filipedes* (Fr.) Quél. is the only section corresponding to the presence of small warts on the pileipellis, caulopellis and apex of cheilocystidia, and for the clavate shape of the latter. Among the species with greyish-brown pilei, presence of pleurocystidia, spores not particularly rounded, and pileipellis hyphae with a broad diameter, a small group of five species is selected.

M. rapiolens J. Favre and *M. truncimuscolola* Robich are excluded due to the spores being decidedly longer, in the range 10 – 12 μm ; furthermore, the former also has a larger pileus and a habitat with beech and spruce trees.

M. albidoaquosipes Robich has a non-darkening stipe, pinkish hues on the pileus and habitat associated with spruce trees.

M. ticinensis Robich has a short stipe tending to have vinaceous shades and with evident mycelial hairs at the base, a pileus not? striate (Robich, 1996 and 2016 make no mention of this character and in the holotype iconography the pileus is unequivocally not striate), and presence of numerous small cells, smooth or warty, more or less rounded, without guttules, on the surface of the pileipellis and caulopellis.

Vice versa, *M. fuscoaquosipes* presents no discordant elements of significant taxonomic value. Compared to the protologue, a stipe with a diameter of more than 0.5 mm (up to 1.0 mm), an occasional presence of three, not one, tiers of lamellulae, the minimally wider spore interval, slightly smaller basidia, excrescences of the pileipellis occasionally longer than 9 µm (up to 15 µm) were noted.

It is interesting, in this collection and in the holotypic one, the presence at the apex of the cheilocystidia, not only of simple excrescences, as it occurs in other species, including *M. ticinensis*, but also, on the apical cap, of longer excrescences with a tortuous to deformed shape.

Furthermore, this collection confirms the variable aspect between dark tones and watery tones of the stipe which inspired the name of the species.

Finally, following the other dichotomy of the key, only in the sect. *Polyadelphia* Singer ex Maas Geest. species are found with characteristics in line with this collection (a dry cuticle, a glabrous stipe, cheilocystidia, pileipellis and caulopellis apically covered with small excrescences, and non-globose spores). The only species in this section comparable with *M. fuscoaquosipes* is *M. tholofegina* Robich which is in fact very similar and differs mainly in having cheilocystidia with only thin, simple, straight and not more than 3.0 µm long excrescences, a habitat connected to beeches and a pileus diameter of 3 – 7 mm.

ACKNOWLEDGMENTS

I thank A. Tacconi (Verona) for the microscopy photographs.

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Mycena fuscoaquosipes in bosco Nordio

Key words:

Basidiomycota
Agaricomycetes
Agaricales
Mycenaceae
Taxonomy
Italy, Veneto

Riassunto: Si descrive, con immagini dei carpofori e dei principali microcaratteri, una raccolta di *Mycena fuscoaquosipes* nello stesso habitat e areale del locus typicus. Malgrado la descrizione originaria risalga al 2003 non sembra risultino altre segnalazioni di questa specie nella letteratura disponibile in internet pertanto, molto probabilmente, il presente ritrovamento è il suo secondo in assoluto. Dimensioni minute, colori spenti e una decolorazione del gambo con alternanza di toni grigio-brunastri e acquosi-ialini sono i suoi macrocaratteri più peculiari.

INTRODUZIONE

Il genere *Mycena* (Pers.) Roussel, così come presentato nel lavoro di Robich (2016), comprendeva in Europa circa 300 taxa, incluse 82 nuove entità, tra specie, varietà e forme. Alcune di esse attualmente appartengono ad altri generi a causa dello smembramento del genere *Mycena* su base molecolare; p. es. *M. adonis* (Bull.) Gray in *Atheniella* Redhead, Moncalvo, Vilgalys, Desjardin & B.A. Berry, *M. hiemalis* (Osbeck) Quél. in *Phloeomana* Redhead, *M. oregonensis* in *Hemimycena* Singer, *M. rorida* (Fr.) Quél. in *Roridomyces* Rexer.

Mycena fuscoaquosipes è, come tante altre mycene, una specie che passa facilmente inosservata, nascosta nell'humus boschivo, con le sue minute dimensioni e l'incospicuo colore bruno grigiastro pallido; solo un'attenta indagine di microscopia può consentire di identificarla correttamente.

Questa raccolta, che a conoscenza dell'autore è la seconda in assoluto, ne amplia l'iconografia e sostanzialmente ne conferma la descrizione morfologica e l'habitat di latifoglie in ambiente mediterraneo (la raccolta olotipica proviene dal non molto distante bosco Mesola, in provincia di Ferrara, che, come il bosco Nordio, è caratterizzato dalla vegetazione tipica della macchia mediterranea cresciuta su terreno sabbioso di antiche dune).

MATERIALI E METODI

I carpofori sono stati trovati dall'amico Roberto Albanese del Gruppo Micologico Bruno Cetto di Venezia Mestre, e fotografati dall'autore alcune ore dopo, nello stesso giorno. Gli elementi microscopici sono stati studiati e fotografati dall'autore su materiale essiccato rigonfiato con ammoniaca 3% e colorato con rosso Congo. Le foto al microscopio di fig. 1 sono state prodotte da A. Tacconi usando la tecnica del contrasto di fase.

La raccolta è depositata nell'erbario dell'Università degli Studi di Padova (PAD).

TASSONOMIA

Mycena fuscoaquosipes Robich

Boll. Ass. Micol. Ecol. Romana **19**(59-60): 31 (2003)

Caratteri macroscopici

Cappello 4 – 10 mm, convesso, poi quasi piano, liscio, lungamente e radialmente striato per due terzi, al centro bruno grigiastro chiaro, all'esterno biancastro.

Lamelle da rade a mediamente fitte (ca. 20 che raggiungono il gambo), adnate, ventricose, lamellule presenti in 1 (– 3) livelli, bianche; filo concolore.

Gambo 35 – 55 × 0.5 – 1 mm, cilindrico fino alla base, flessuoso, lucido, glabro, non pruinoso, inizialmente bianco poi imbrunente su toni grigio-brunastri chiari con intervalli ialini-acquosi, base con scarso feltro miceliare, internamente cavo.

Carne non indagata.

Caratteri microscopici

Basidiospore (6.7) 7.5 – 9.3 (9.4) × (4.4) 5.0 – 6.1 (6.9) μm, Q = (1.16) 1.33 – 1.66 (1.79), in vista frontale da strettamente a largamente ellittiche, base sovente più o meno rastremata, in vista laterale più o meno adassialmente appiattite, sovente internamente uni-, bi- o triguttulate, amiloidi.

Basidi ca. 18 – 23 × 7.5 – 9.5 μm, 4-sporici, da clavati a cilindracei.

Cheilocistidi 30 – 53 × 13 – 28 μm, numerosi, da clavati a ellissoidali, a volte utriforimi, quasi sempre con peduncolo basale, raramente sessili, ricoperti nella metà superiore da piccole verruche nodulose e, sulla calotta apicale, anche da escrescenze grandi fino a 6.5 × 1.0 – 1.5 μm, sovente tortuose.

Pleurocistidi simili ai cheilocistidi, sparsi.

Pileipellis in cutis con ife larghe 7.0 – 17.0 μm, coperte da numerose e minute asperità nodulose prominenti fino a ca. 3.0 × 1.0 μm e da alcune escrescenze allungate fino a 15.0 × 2.0 μm, sovente deformi o tortuose, con presenza di elementi terminali con identico diametro e ornamentazione; subpellis di elementi rigonfi e lisci.

Caulopellis esternamente composta da ife lisce, di diametro 1.5 – 5.0 μm e da elementi terminali adnati, di uguale diametro o un po' rigonfi, coperti da minute verruche diradate.

Giunti a fibbia presenti e numerosi ovunque.

Habitat e raccolta esaminata: Italia, Veneto, Venezia, S. Anna di Chioggia, bosco Nordio, gregari nell'humus di un bosco con querce, pioppi e altre latifoglie, raccolto in data 8 novembre 2023, leg. R. Albanese, det. P. Voto, PAD H0061572.

COMMENTI

Per l'identificazione di questa raccolta si è usata la chiave in Robich (2016).

L'assenza di caratteri peculiari, quali gambo con disco basale, cuticola gelatinosa separabile e lamelle con orlo colorato, usati nei primi passi dicotomici della chiave alle sezioni, porta l'indagine identificativa alla dicotomia tra le specie con '*cappello di piccola taglia*' e quelle con '*cappello di taglia media o più larga*'. Poiché questa dicotomia è ambigua, non essendo espressa in termini di misure specifiche, e poiché si riscontrano nella prima dicotomia specie con cappello fino a 8 mm e nella seconda specie con cappello solo fino a 10 mm, sono state indagate entrambe.

Tra le specie di taglia media o grande, la sez. *Filipedes* (Fr.) Quél. è l'unica a corrispondere per la presenza di piccole escrescenze sulla pileipellis, sulla caulopellis e all'apice di cheilocistidi, e per la forma clavata di questi ultimi. Tra le specie con cappelli bruno-grigiastri, pleurocistidi presenti, spore non particolarmente arrotondate e ife della pileipellis di ampio diametro, si seleziona un gruppetto di cinque specie.

M. rapiolens J. Favre e *M. truncimuscolola* Robich si escludono per le spore di lunghezza decisamente maggiore, nell'intervallo 10 – 12 µm; la prima, inoltre, ha anche cappello più grande e habitat con faggi e pecci.

M. albidoaquosipes Robich ha un gambo che non scurisce, sfumature rosastre sul cappello e habitat connesso a pecci.

M. ticinensis Robich ha un gambo corto che tende a sfumature vinose e con una vistosa peluria miceliare alla base, cappello non striato (Robich, 1966 e 2016 non fanno menzione di questo carattere e nell'iconografia olotipica il cappello è inequivocabilmente non striato) e presenza di numerose piccole cellule, lisce o verrucose, più o meno arrotondate, prive di guttule, sulla superficie della pileipellis e della caulopellis.

Invece *M. fuscoaquosipes* non presenta alcun elemento discordante di valore tassonomico rilevante. Possono essere segnalati, rispetto al protologo, il gambo di diametro oltre 0.5 mm (fino a 1.0 mm), la presenza occasionale di tre, non uno, livelli di lamellule, l'intervallo sporale minimamente più ampio, basidi leggermente più piccoli, occasionali escrescenze della pileipellis lunghe più di 9 µm (fino a 15 µm).

È interessante, in questa raccolta e in quella olotipica, la presenza all'apice dei cheilocistidi, non solo di escrescenze semplici, come avviene in altre specie, tra cui *M. ticinensis*, ma anche, sulla calotta apicale, di escrescenze più lunghe e con morfologia tortuosa o deforme.

Inoltre, in questa raccolta viene confermato l'aspetto variabile tra toni scuri e toni acquosi del gambo che ha ispirato il nome della specie.

Infine, seguendo l'altra dicotomia della chiave, solo nella sez. *Polyadelphia* Singer ex Maas Geest. si trovano specie con caratteristiche in linea con questa raccolta (cuticola di aspetto asciutto, gambo glabro, cheilocistidi, pileipellis e caulopellis coperti superiormente di piccole escrescenze, e spore non globose). L'unica specie in questa sezione confrontabile con *M. fuscoaquosipes* è *M. tholofegina* Robich che risulta in effetti molto simile e che si differenzia principalmente per avere cheilocistidi con escrescenze solo sottili, semplici, diritte e lunghe non più di 3.0 µm, un habitat legato al faggio e un diametro pileico di 3 – 7 mm.

RINGRAZIAMENTI

Si ringrazia A. Tacconi (Verona) per le fotografie di microscopia.

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***Agaricus subiculosus*, a new species of the genus *Agaricus* sect. *Minores* from Puerto Rico (USA)**

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Key words:

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Agaricales

Agaricaceae

Neotropics

Caribbean

Greater Antilles

Abstract: *Agaricus subiculosus*, a new species found in Puerto Rico is macro- and microscopically described and illustrated. Phylogenetic analyses were also performed to determine its taxonomical affinities. This species, belonging to *Agaricus* sect. *Minores*, is characterized by its lignicolous habitat growing from a broad white subiculum on degraded bamboo. Notes about its chorology and comparison with allied taxa are also provided.

INTRODUCTION

Puerto Rico, located east of the island of Hispaniola, is part of a group of Caribbean islands called the Greater Antilles. Of the 11 works published on the genus *Agaricus* L. in the Caribbean until the end of the last century (Fries 1851; Berkeley 1852; Berkeley & Curtis 1869; Murrill 1918; Ciferri 1929; Baker & Dale 1951; Heinemann 1961, 1962a, 1962b, 1962c; Pegler 1983), only Murrill (1918) recorded a species collected in Puerto Rico, *Agaricus johnstonii* Murrill, describing this new species from three collections made next to the “Piedras” river. However, Murrill's description does not contain any remarkable character, nor does it include any image to unequivocally interpret this species. For this reason, as Heinemann (1993) pointed out, the different descriptions of this species by different authors (Murrill 1918; Heinemann 1962a; Pegler 1983) do not match well. After Murrill, there is no mention of the genus in Puerto Rico for almost a century until Minter's (2001) record of *A. endoxanthus* Berk. & Broome on 31 August 1997 in Luquillo locality. However, this specimen collected by D.J. Lodge and deposited in the CMFR herbarium with the number PR4634 (Beatriz-Ortiz, pers. comm.) once sequenced was identified as *A. lodgeae* L.A. Parra, Angelini & B. Ortiz (Parra *et al.* 2018), although later (31 August 2001) *A. endoxanthus* was collected by D.J. Lodge in the same locality (PR6320 deposited in CFMR) as recorded in Parra (2013).

The rest of the taxa that have been cited for Puerto Rico, *A. ciferrianus* L.A. Parra, B. Ortiz & Lodge, *A. lodgeae*, *A. microincrustans* L.A. Parra, B. Ortiz, Lodge & T.J. Baroni and *A. parvisporus* L.A. Parra & B. Ortiz were described in two recent monographs on the genus *Agaricus* in the Caribbean (Parra *et al.* 2018; Ortiz-Santana *et al.* 2021). Thus, before the present work, only six species have been cited for Puerto Rico, which reveals the limited knowledge we have of the diversity of the genus *Agaricus* on this island.

In an effort to contribute to the catalogue of species of the genus *Agaricus* in Puerto Rico we describe *A. subiculosus* sp. nov., a species with very distinctive morphological and molecular characters that make its identification very simple even in the field.

MATERIALS AND METHODS

Studied collections

The description of this new species is based on the study of two collections collected by one of the authors (K.O.M.) in a copse of ornamental bamboo (*Bambusa vulgaris*) of an urbanization located at 55 m.a.s.l. near the western coast of Puerto Rico from July to September.

Studied basidiomata have been deposited at the University of Alcalá de Henares Herbarium (AH) with duplicates in the private herbarium of L. A. Parra (LAPAM). Herbarium acronyms are from Holmgren & Holmgren (1998).

Morphological characters

Macroscopic descriptions are based on color photographs and field notes from fresh material. Macrochemical reactions were determined from herbarium material. Microscopic descriptions are based on photos and data obtained after examining the basidiomata with a Nikon SE compound microscope. Spore measurements followed the statistical method proposed by Heinemann & Rammeloo (1985). The morphological description of the taxon follows the taxonomic treatments published by Parra (2008, 2013).

DNA extraction, PCR and DNA sequencing

Genomic DNA was isolated from dried specimens following a standard CTAB protocol (Palmer & al., 2008). The following primer pairs were used for PCR amplification and sequencing: ITS1F and ITS4 were used for the internal transcribed spacers 1 and 2 with the 5.8S rDNA (ITS) (Gardes & Bruns 1993; White *et al.* 1990); LROR (Cubeta *et al.* 1991) and LR5 (Vilgalys & Hester 1990) for the D1–D3 domains of the nuc 28S rDNA (nrLSU) and EF1-983F and EF1-1567R (Rehner & Buckley 2005) for a segment of the translation elongation factor 1- α (*tef1- α*). Sequencing was performed on ABI3730XL Genetic analyzer (Applied Biosystems) at STAB VIDA (Portugal) for the material processed at ALVALAB (Spain).

Sequence alignment and phylogenetic analyses

A combined data set consisting of 99 samples was prepared for phylogenetic analysis. In addition to the six sequences generated from this study, 97 ITS sequences, 67 nrLSU sequences and 63 *tef1- α* sequences were retrieved from GenBank, and the samples' origin and their GenBank accession numbers are given in Table 1. Sequences were aligned, for each region independently using MAFFT (Kato & Standley 2013), then manually adjusted in BioEdit v. 7.0.4 (Hall 2007). The maximum likelihood (ML) analysis was performed in RAXMLHPC2 v. 8.2.12 (Stamatakis 2014) as implemented on the Cipres portal (Miller *et al.* 2010), under a GTRGAMMA model with one thousand rapid bootstrap (BS) replicates. The combined dataset was partitioned into ITS, LSU, *tef1- α* regions. The best substitution model for each partition was inferred with the program MrModeltest 2.2 (Nylander 2004): GTR+I+G for both ITS and LSU, SYM+I+G for *tef1- α* . Bayesian inference (BI) analysis was performed in MrBayes v. 3.1.2 (Ronquist & Huelsenbeck 2003). Two runs of six Markov chains were run for one million generations and sampled every 100th generations. Burn-in was determined by checking the likelihood trace plots in Tracer v. 1.6 (Rambaut *et al.* 2014) and subsequently discarded. The outputs were displayed in FigTree v. 1.4.0. (<http://tree.bio.ed.ac.uk/software/figtree/>).

RESULTS

Phylogenetic analyses

The final alignment consisted of 99 samples and 2042 characters including gaps, representing 95 species from *A. subg. Minores*, and *A. campestris* was used as the outgroup. The resulted trees from the ML and Bayesian analysis were very similar, except for few ungrouped samples, such as *A. callacii* (AH42929), *A. campbellensis* (GAL9420), *A. columellatus* (SB-2015), *A. pseudopurpurellus* (ZRL2014063), *A. purpureofibrillosus* (ZRL3080) and *A. wayanadensis* (TBGT18860). The ML tree is presented in Fig. 1, with BS values greater than 50%, and PP values greater than 0.8 are indicated on branches. *Agaricus subg. Minores* is monophyletic and comprises three sections: *A. sect. Minores*, *A. sect. Pantropicales* and *A. sect. Leucocarpi*. Our samples are placed in *A. sect. Minores* and formed a sister clade to *A. huijsmanii* (LAPAG639) with strong support (99/1).

Table 1. Specimens and sequences used for the phylogenetic analyses. New species and new sequences are in bold. “T” refers to type specimens.

Taxon	Specimen	GenBank accession number			Geographic origin	Reference
		ITS	LSU	<i>tef1-α</i>		
<i>A. aridicola</i>	LAPAG589	KT951331	KX084027	KX198081	Spain	Zhao <i>et al.</i> 2016
<i>A. armandomyces</i> T	ZRL2015992	KX684860	KX684882	KX684906	China	He <i>et al.</i> 2017
<i>A. arrillagarum</i>	LAPAG810	KF447900	KX083985	KT951592	Spain	Parra 2013
<i>A. badioniveus</i> T	LD2012131	KU975117	–	–	Thailand	Chen <i>et al.</i> 2017
<i>A. blatteus</i> T	ZRL2012004	KT951355	KT951457	KT951608	China	Zhao <i>et al.</i> 2016
<i>A. bonisquamulosus</i> T	ZRL2010106	KX657047	KX656950	KX684951	China	He <i>et al.</i> 2017
<i>A. brunneolus</i>	LAPAG938	KU975082	KX083997	KX198062	Spain	Chen <i>et al.</i> 2017
<i>A. brunneolutosus</i> T	MS514	KU975111	KX084006	–	China	Chen <i>et al.</i> 2017
<i>A. callacii</i> T	AH42929	KF447899	KX083984	KX198051	Spain	Parra 2013
<i>A. campbellensis</i> T	GAL9420	DQ232644	DQ232657	–	New Zealand	Geml <i>et al.</i> 2007
<i>A. campestris</i> T	LAPAG370	JQ903618	KP739803	KR006636	Spain	Kerrigan 2016
<i>A. candidolutescens</i> T	LD2012129	KT951335	KT951525	KT951616	Thailand	Zhao <i>et al.</i> 2016
<i>A. catenatus</i> T	ZRL2012104	KX657023	KX656963	KX684957	China	Chen <i>et al.</i> 2017
<i>A. cerinipileus</i> T	ZRL2012001	KX657021	KX656957	KX684953	China	Chen <i>et al.</i> 2017
<i>A. cf. kerriganii</i>	WC912	AY484681	–	–	USA	Geml <i>et al.</i> 2004
<i>A. chartaceus</i> T	H6271	JF495048	–	–	Australia	Lebel & Syme 2012
<i>A. coccyginus</i>	ZRL2012576	KT951372	KT951499	KT951596	China	Zhao <i>et al.</i> 2016
<i>A. colpetei</i> T	TL2424	JX984565	–	–	Australia	Lebel 2012
<i>A. comtulus</i>	LAPAG303	KU975078	KX083986	KX198052	Spain	Chen <i>et al.</i> 2017
<i>A. columellatus</i>	SB-2015	KJ912899	–	–	USA	Bates <i>et al.</i> 2016
<i>A. dilatostipes</i>	ZRL2014450	KX656999	KX656941	KX685003	China	He <i>et al.</i> 2017
<i>A. dulcidulus</i>	PRM909627	KF447894	–	KX198064	Czech Rep.	Parra 2013
<i>A. edmondoi</i>	LAPAG412	KT951326	KT951481	KT951590	Spain	Zhao <i>et al.</i> 2016
<i>A. elongatestipes</i> T	ZRL2013271	KX657002	KX656946	KX684975	China	Chen <i>et al.</i> 2017
<i>A. fimbrimarginatus</i> T	LD201250	KU975119	KX084017	KX198076	Thailand	Chen <i>et al.</i> 2017
<i>A. flammicolor</i> T	LD201502	KU975114	KX084009	KX198042	Thailand	Chen <i>et al.</i> 2017
<i>A. flavoaurantiacus</i> T	MFLU16-0980	KU975107	KX084002	KX198069	China	Chen <i>et al.</i> 2017
<i>A. flavopileatus</i> T	MS596	KU975121	KX084022	KX198078	China	Chen <i>et al.</i> 2017
<i>A. friesianus</i>	LAPAG592	KT951316	KX083992	KT951594	France	Zhao <i>et al.</i> 2016
<i>A. gemlii</i> T	AH44510	KF447891	KX083989	–	Spain	Parra 2013
<i>A. gemloides</i> T	ZRL2014084	KT633271	KX641405	KX684986	China	He & Zhao 2015
<i>A. glabriusculus</i> T	SWAT SH-7	MK751852	–	–	Pakistan	Hussain & Sher 2019
<i>A. globosporus</i> T	ZRL2012656	KX657039	–	KX684968	China	He <i>et al.</i> 2017
<i>A. heinemannianus</i>	LAPAG302	KF447906	–	KX198056	Spain	Parra 2013
<i>A. huijsmanii</i>	LAPAG639	KF447889	KT951444	KT951571	Spain	Chen <i>et al.</i> 2017
<i>A. iesu-et-marthae</i>	LAPAG41	KF447904	–	–	Spain	Parra 2013
<i>A. indicus</i> T	TBGT16128	OR661746	–	–	India	Arya & Pradeep 2024
<i>A. jacobi</i>	LAPAG52	KF447895	KX083996	KX198061	Spain	Parra 2013
<i>A. jingningensis</i> T	ZRL20151562	KX684877	KX684895	KX684917	China	He <i>et al.</i> 2017
<i>A. kerriganii</i> T	AH44509	KF447893	KX083999	KX198066	Spain	Parra 2013
<i>A. laeticulus</i> T	Goossens5272	KX671705	–	–	DR Congo	Chen <i>et al.</i> 2017
<i>A. lamelliperditus</i>	MDBF61/96	JX984559	–	–	Australia	Lebel 2012
<i>A. latiumbonatus</i> T	SWAT SH166	MK751861	MK751858	–	Pakistan	Hussain & Sher 2019
<i>A. leucocarpus</i>	LD201226	KU975102	KX083982	KX198049	Thailand	Chen <i>et al.</i> 2017
<i>A. leucocarpus</i> T	LD201215	KU975101	KX083981	KX198048	Thailand	Chen <i>et al.</i> 2017
<i>A. luteofibrillosus</i>	LD201501	KU975108	KX084003	KX198041	Thailand	Chen <i>et al.</i> 2017
<i>A. luteomaculatus</i>	CA331	KF447901	–	KX198053	France	Parra 2013
<i>A. luteopallidus</i> T	LD2012113	KU975124	KX084026	KX198080	Thailand	Chen <i>et al.</i> 2017

<i>A. mangaoensis</i> T	ZRL2010056	KX657042	KX656956	KX684946	China	He <i>et al.</i> 2017
<i>A. marisae</i> T	LAPAG138	KU975083	KX083998	KX198065	Spain	Zhao <i>et al.</i> 2011
<i>A. matrum</i> T	AH44506	KF447896	KX083991	KX198058	Spain	Parra 2013
<i>A. megalosporus</i>	ZRL2012199	KT951367	KT951470	KT951595	Thailand	Zhao <i>et al.</i> 2011
<i>A. microviolaceus</i> T	ZRL2012718	KX657033	KX656980	KX684971	China	He <i>et al.</i> 2017
<i>A. midnapurensis</i>	CUH AM718	OL467539	–	–	India	Tarafder <i>et al.</i> 2022
<i>A. minipurpureus</i> T	ZRL2010058	KX657043	KX656953	KX684947	China	He <i>et al.</i> 2017
<i>A. neimengguensis</i> T	ZRL20151845	KX684870	KX684902	KX684924	China	Chen <i>et al.</i> 2017
<i>A. pallens</i>	LAPAG441	KF447898	–	KX198067	Spain	Parra 2013
<i>A. palodensis</i> T	TBGT17483	OR661748	–	–	India	Arya & Pradeep 2024
<i>A. parvibicolor</i> T	LD2012116	KP715162	KX084016	KX198075	Thailand	Liu <i>et al.</i> 2015
<i>A. parvibrunneus</i> T	ZRL20161053	MG137001	MG196345	MG196351	China	He <i>et al.</i> 2018
<i>A. patris</i> T	LD201224	KU975118	KX084012	KX198073	Thailand	Chen <i>et al.</i> 2017
<i>A. pseudolutosus</i>	LAPAG454	KT951329	KT951453	KT951602	Spain	Parra 2013
<i>A. pseudopallens</i> T	ZRL20151552	KX684874	KX684891	–	China	Chen <i>et al.</i> 2017
<i>A. pseudopurpurellus</i>	ZRL2014063	KX656988	KX641404	KX684985	China	Zhao <i>et al.</i> 2016
<i>A. purpurellus</i>	LAPAG944	KU975076	KX083994	KX198060	Czech Rep.	Chen <i>et al.</i> 2017
<i>A. purpureofibrillosus</i> T	ZRL3080	JF691542	KX084021	–	Thailand	Zhao <i>et al.</i> 2011
<i>A. purpureosquameus</i> T	LE2016047	MF197451	–	–	Thailand	Hyde <i>et al.</i> 2017
<i>A. purpureosquamulosus</i>	CUH AM716	OL467541	–	–	India	Tarafder <i>et al.</i> 2022
<i>A. robustulus</i> T	CA847	KU975086	KX084034	KX198039	Thailand	Chen <i>et al.</i> 2017
<i>A. rufifibrillosus</i>	ZRL20151536	KX684878	KX684893	KX684915	China	He <i>et al.</i> 2017
<i>A. rufipileus</i> T	ZRL2014140	KX656991	KX656937	KX684991	China	He <i>et al.</i> 2017
<i>A. sodalis</i> T	LD2012159	KP715161	KX084014	KX198074	Thailand	Chen <i>et al.</i> 2017
<i>A. sp.</i>	Vellinga2360	AF482831	AF482877	–	USA	Vellinga <i>et al.</i> 2003
<i>A. sp.</i>	ZRLD013	KT951384	KT951516	KT951604	Thailand	Zhao <i>et al.</i> 2016
<i>A. sp.</i>	PS036	KU975087	KX084035	KX198036	Thailand	Chen <i>et al.</i> 2017
<i>A. sp.</i>	ZRL3056	JF691541	KX084020	–	Thailand	Zhao <i>et al.</i> 2011
<i>A. sp.</i>	PYP014	KU975091	–	–	Thailand	Chen <i>et al.</i> 2017
<i>A. sp.</i>	TL2307	JF495058	–	–	Australia	Lebel & Syme 2012
<i>A. sp.</i>	ZRL20151437	KX684876	KX684892	KX684914	China	He <i>et al.</i> 2017
<i>A. sp.</i>	NTT72	JF514539	–	–	Thailand	Zhao <i>et al.</i> 2011
<i>A. sp.</i>	CA935	KU975085	KX084036	KX198034	Thailand	Chen <i>et al.</i> 2017
<i>A. sp.</i>	MS386	KU975113	KX084008	KX198044	China	Chen <i>et al.</i> 2017
<i>A. sp.</i>	ZRLWXH3064	KX657010	–	–	China	He <i>et al.</i> 2017
<i>A. sp.</i>	ZRLWXH3067	KT951387	KT951497	KT951611	China	Zhao <i>et al.</i> 2016
<i>A. sp.</i>	GAL3083	EF460374	EF460399	–	USA	Geml <i>et al.</i> 2008
<i>A. sp.</i>	ZD1528	KU975104	KX083987	KX198054	China	Chen <i>et al.</i> 2017
<i>A. sp.</i>	LD201252	KU975103	–	KX198050	Thailand	Chen <i>et al.</i> 2017
<i>A. sp.</i>	MATA774	JF727871	–	–	Mexico	Zhao <i>et al.</i> 2011
<i>A. sp.</i>	CA845	KU975084	KX084033	KX198035	Thailand	Chen <i>et al.</i> 2017
<i>A. sp.</i>	LAPAM14	KT951312	–	KT951613	Dominican Rep.	Zhao <i>et al.</i> 2016
<i>A. sp.</i>	ZRLWXH3161	KT951391	KT951526	KT951615	China	Zhao <i>et al.</i> 2016
<i>A. sp.</i>	LAH35900	MK659941	–	–	Pakistan	Unpublished
<i>A. stevensii</i>	FS 06-02-09	KJ877785	–	–	USA	Kerrigan 2016
<i>A. subiculosus</i> T	AH56332	PP313292	PP291842	PP317134	Puerto Rico	This study
<i>A. subiculosus</i>	AH56334	PP313293	–	PP317135	Puerto Rico	This study
<i>A. viridopurpurascens</i>	Horak68/79	JF514525	–	–	New Zealand	Zhao <i>et al.</i> 2011
<i>A. wariatodes</i>	TWM1589	JF495052	JF495030	–	Australia	Lebel & Syme 2012
<i>A. wayanadensis</i> T	TBGT18860	OR661750	–	–	India	Arya & Pradeep 2024
<i>A. yanzhiensis</i> T	ZRL20162082	MG137003	MG196346	–	China	He <i>et al.</i> 2018

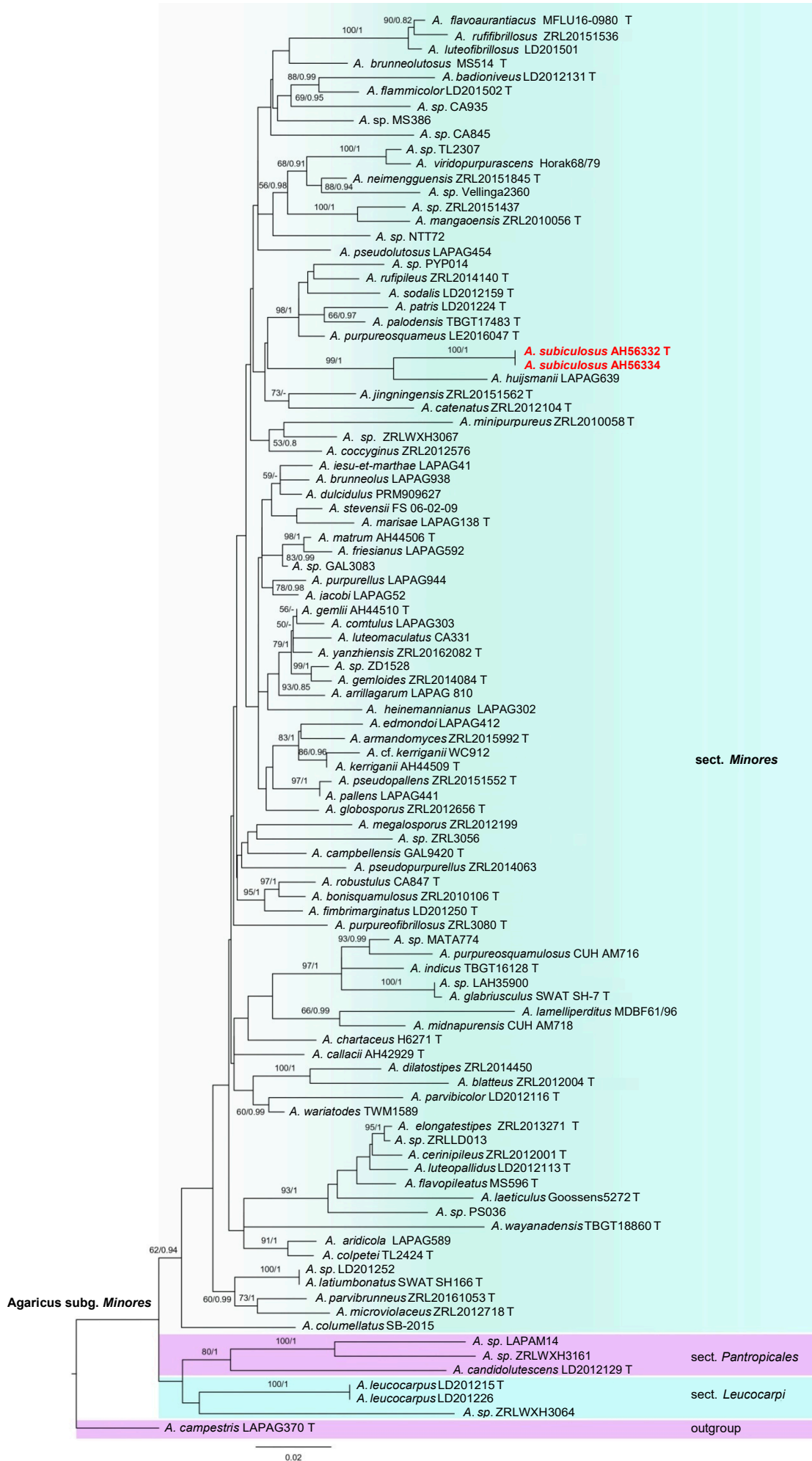


Fig. 1: Maximum likelihood phylogram of *Agaricus* subg. *Minores* resulting from analysis of ITS, LSU and *tef1-α* sequence data. The best scoring RAxML ITS tree is rooted with *A. campestris*. The bootstrap support values greater than 50% and Bayesian posterior probabilities greater than 0.8 are indicated. New species are in red. T = Type

TAXONOMY

Agaricus subiculosus Miller, Angelini, L.A. Parra & Linda J. Chen *sp. nov.*

Mycobank: MB 852410

Etymology. Referring to the basidiomata emerging from a *subiculum* covering the substrate

Macroscopic description (Fig. 2)

Pileus 5 – 15 mm diam., at first conical-truncate or convex, then broadly conical, sometimes slightly umbonate, finally almost plane, usually uniformly of a bright and dark purple-pink color, excepting a very narrow white zone on the margin, sometimes or with age becomes darker at the centre and paler towards the margin. Surface radially fibrillose, smooth, dull, strongly flavescent on bruising or with age, covered by scattered white arachnoid remnants of the universal veil. Margin exceeding the lamellae, appendiculate by denticulate white woolly remnants of the partial veil.

Lamellae free, intercalated with lamellulae, not crowded, up to 2.5 mm broad, with finely eroded paler edge under a magnifying glass, at first persistently white, then pinkish-cream, finally blackish-brown.

Stipe 15 – 20 × 1.5 – 2 mm, cylindrical, curved towards the usually bulbous (3 – 4 mm) base, fistulous, provided with an annulus in its upper third, at first entirely white and fibrillose-woolly, then discoloring ochre yellow from the base towards the apex and with scattered fibrils, remaining fibrillose-woolly at the base, sometimes as a peronate sheath, turning yellow when rubbed. Annulus simple, fibrillose-woolly then fibrillose, fragile, evanescent, sometimes completely attached to the margin of the pileus as appendiculate remnants and absent in the stipe.

Subiculum white, covering the surface of the wood (apparently without penetrating it), sometimes exuding amber-coloured drops, crossed by evident mycelial threads from which the primordia emerge.

Context first white becoming yellow to ochre-yellow on cutting. Odour of almonds.

Microscopic description (Fig. 3)

Spores 3.9 – 4.7 × 2.8 – 3.3 μm, on average 4.3 × 3.1 μm, Q = 1.26 – 1.53, on average 1.40, broadly ellipsoidal to ellipsoid, smooth, light brown, mostly uniguttulate, without apical pore.

Basidia 12 – 16 × 6 – 7 μm, tetrasporic, hyaline, clavate or slightly truncated at the apex, sterigmata up to 3 μm long.

Cheilocystidia hyaline, in clusters composed by few elements, only slightly larger than the basidioles, simple, usually claviform (14 –) 17 – 25 × 7 – 9 μm.

Pleurocystidia absent.

Annulus not observable in the dried specimens.

Pileipellis a cutis composed by cylindrical hyphae, 4 – 13 μm diam., the wider the more constricted at septa. The outermost hyphae with a pale reddish-brown diffuse or granular intracellular pigment. Terminal elements abundant with rounded tips.

Subiculum and mycelial threads consisting of hyaline cylindrical hyphae, 1.5 – 4 μm wide, not or slightly constricted at the septa.

Clamp-connections absent in all structures.

Macrochemical reactions

In dried basidiomata the pileus surface is almost black. Therefore, the reagents were applied on the white subiculum and stipe. Schäffer's reaction positive, reddish orange on the subiculum and the stipe. 30% KOH reaction positive, pale yellow, difficult to read on subiculum, yellow-orange on the stipe.

Habit, habitat and distribution: Gregarious in more or less dense groups, lignicolous, growing on dead and partially degraded stems or fallen culms of ornamental bamboo (*Bambusa vulgaris*) in the humid, lowland hills region in very rainy weather. Rare, to date only two collections made from the same place in Puerto Rico.

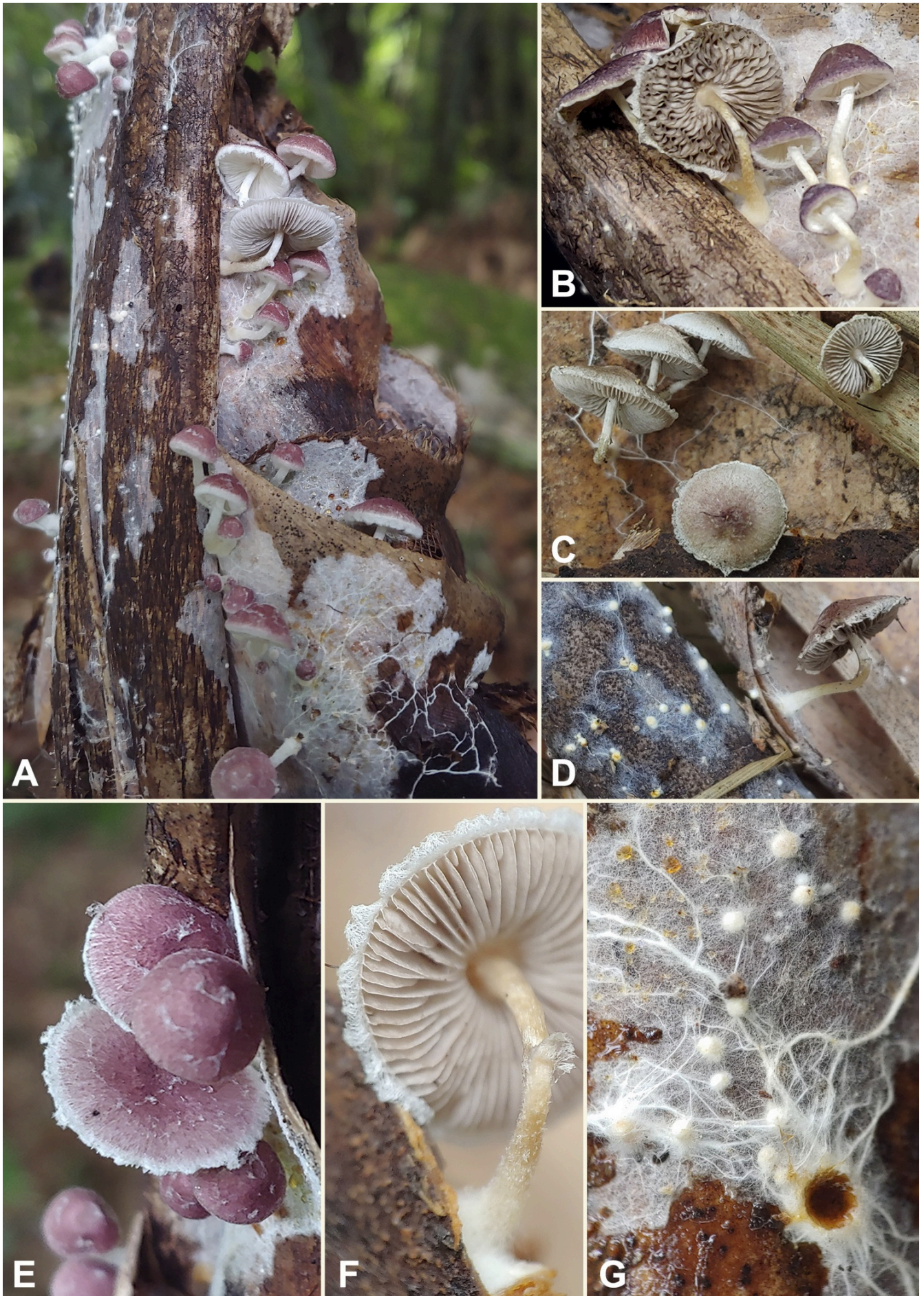


Fig. 2: Macroscopical characters. A-D: General aspect in the field; E: Detail of the pileus surface with velar remnants; F: Detail of the appendiculate margin of the pileus and the annulus; G: Detail of the subiculum. A-B, E: AH56332; C-D, F-G: AH56334. Photographs: Kurt O. Miller

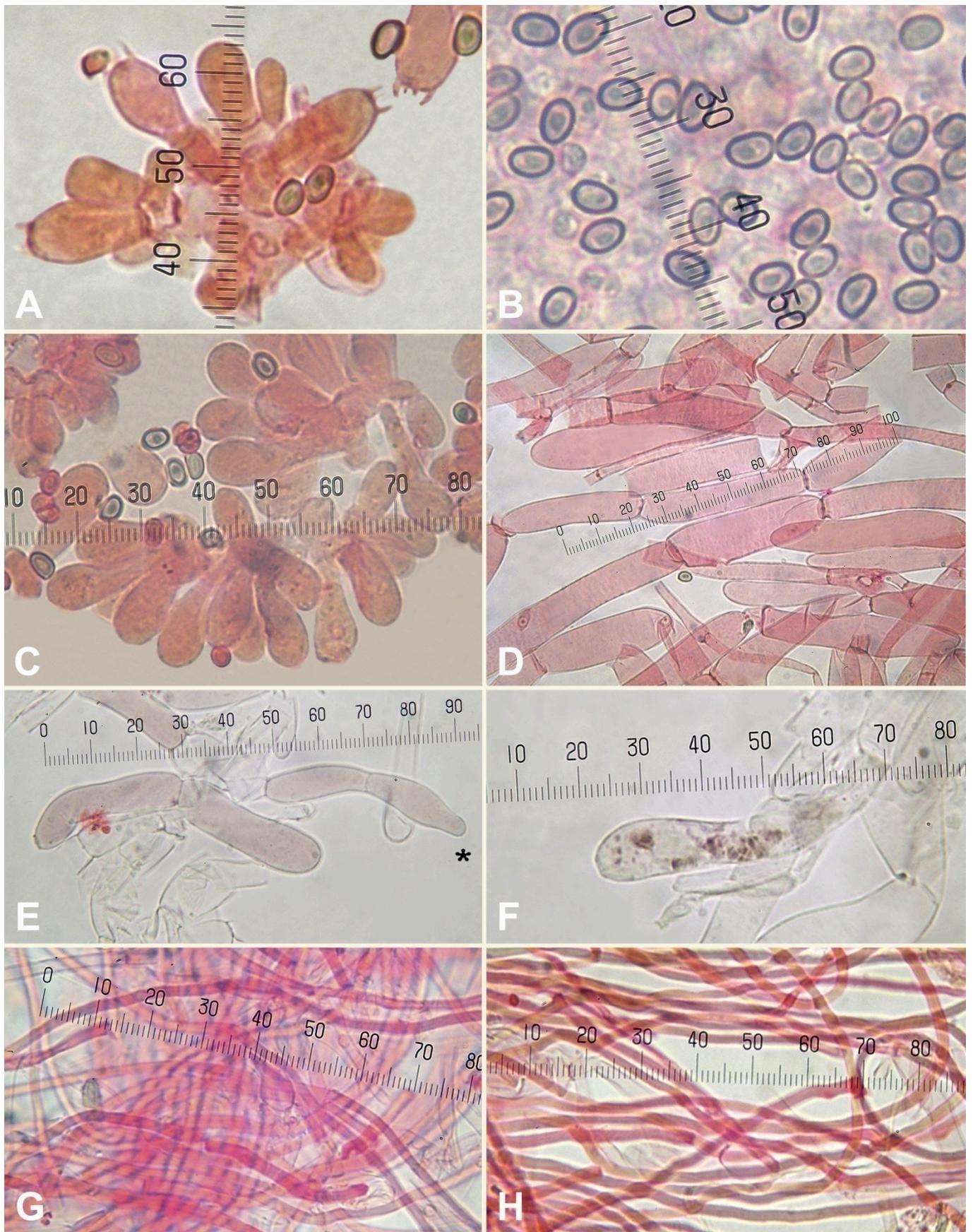


Fig. 3: Microscopical characters. A: Basidia; B: Spores; C: Cheilocystidia; D-F: Pileipellis; E: Some terminal and anteterminal elements with diffuse intracellular pigment. A terminal element is marked with an asterisk; F: Some elements with granular intracellular pigment. G: Subiculum; H: Mycelial threads. A-D and G-H mounted in Congo red, E-F mounted in water. All from AH56332. Photographs: Luis A. Parra.

Typus. USA: Puerto Rico, Mayagüez municipality, Miradero, Urbanización Bellas Lomas, 18°13'28.9"N; 67°07'58.4"W, 55 m.a.s.l., on degraded bamboo (*Bambusa vulgaris*) stump in a garden, 21.9.2021, *leg.* Kurt O. Miller (Holotype: AH56332).

Additional material examined. USA: Puerto Rico, Miradero, Mayagüez municipality, Urbanización Bellas Lomas, 18°13'28.9"N; 67°07'58.4"W, 55 m.a.s.l., on degraded bamboo stump and fallen culms in a garden, 28.8.2022, *leg.* Kurt O. Miller; AH56334 (duplicate LAPAM197).

DISCUSSION

Agaricus subiculosus belongs to *A. sect. Minores*. Due to the extremely small size, the abundant white cottony velar remnants on the pileus margin, the peculiar growth emerging from a *subiculum* adhering to the wood, and the very small spores, no described species can be confused with this species. Molecularly it is also easy to identify by its species-specific ITS markers tcaga[TC]cg-tt@220-221, and tctctCc-ttt@700 among all the available ITS sequences of *A. sect. Minores*. Phylogenetically, *A. subiculosus* is most related to *A. huijsmanii*, however, their ITS and *tef1-α* sequences still differ at more than 20 positions.

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Entoloma cocles in the Nordio forest

(versione italiana a pag. 47)

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Key words:

Agaricales
Entolomataceae
Mediterranean

Abstract: A finding of the rare *Entoloma cocles* is reported from the Nordio forest (Italy) with morphological descriptions, colour images of the basidiomes and main microcharacters, and comments on sister taxa of the *Rhombisporum* clade.

INTRODUCTION

This is one of many interesting old undetermined or dubious collections from the Nordio forest the author is re-examining in an attempt to correctly identifying the species to which they belong. Unluckily, since its first finding in 2005, it was never found again. Recently, upon consulting the paper by Noordeloos, Jansen, Jordal *et al.* (2022) focused on species of *Entoloma* with peculiar lageniform to mucronate hymenial cystidia just as observed in this collection and following the general key in Noordeloos, Morozova, Dima *et al.* (2022) its recognition was led towards the species belonging to what these authors refer to as the /*Rhombisporum* clade with *E. cocles* placed basally to it in their phylograms.

MATERIALS AND METHODS

Fresh specimens were photographed on the collecting site and all the microcharacters described were observed on fresh material coloured with Congo red. All images by the author.

TAXONOMY

Entoloma cocles (Fr.) Noordel.
Persoonia 11(2): 149 (1981)



Macroscopic characters

Basidiomes with a collybioid-omphalioid habit.

Pileus (young specimens not observed) 25 – 53 mm wide, when mature applanate, striate up to centre, centre depressed and occasionally low umbonate around the depression, margin undulating; surface with squamules at centre more or less extending towards the margin; sub hygrophanous, colour at centre blackish with blue-violaceous nuance, in the outer area grey-brown to whitish inbetween distinctly darker striae.

Lamellae moderately crowded, approx. 28 – 35 reaching the stipe, emarginate to subdecurrent, ventricose, straight to flexuous, 2 – 3 tiers of lamellulae also present, white then pinkish; edge slightly uneven to strongly irregular, not fimbriate, concolorous.

Stipe 20 – 30 × 1.7 – 2 mm in the median part, more or less cylindrical or broadening downwards to 3.5 – 4 mm wide at base, sometimes compressed; glabrous, polished, base white tomentose; colour grey with blue-violaceous shades.

Context not examined.

Microscopic characters

Basidiospores 9.0 – 12.5 × (6.3) 7.3 – 8.5 (9.0) μm in side view, Q 1.20 – 1.36 – 1.49 (1.67), heterodiametrical, with 5-9 angles in profile.

Basidia not measured, 4-spored.

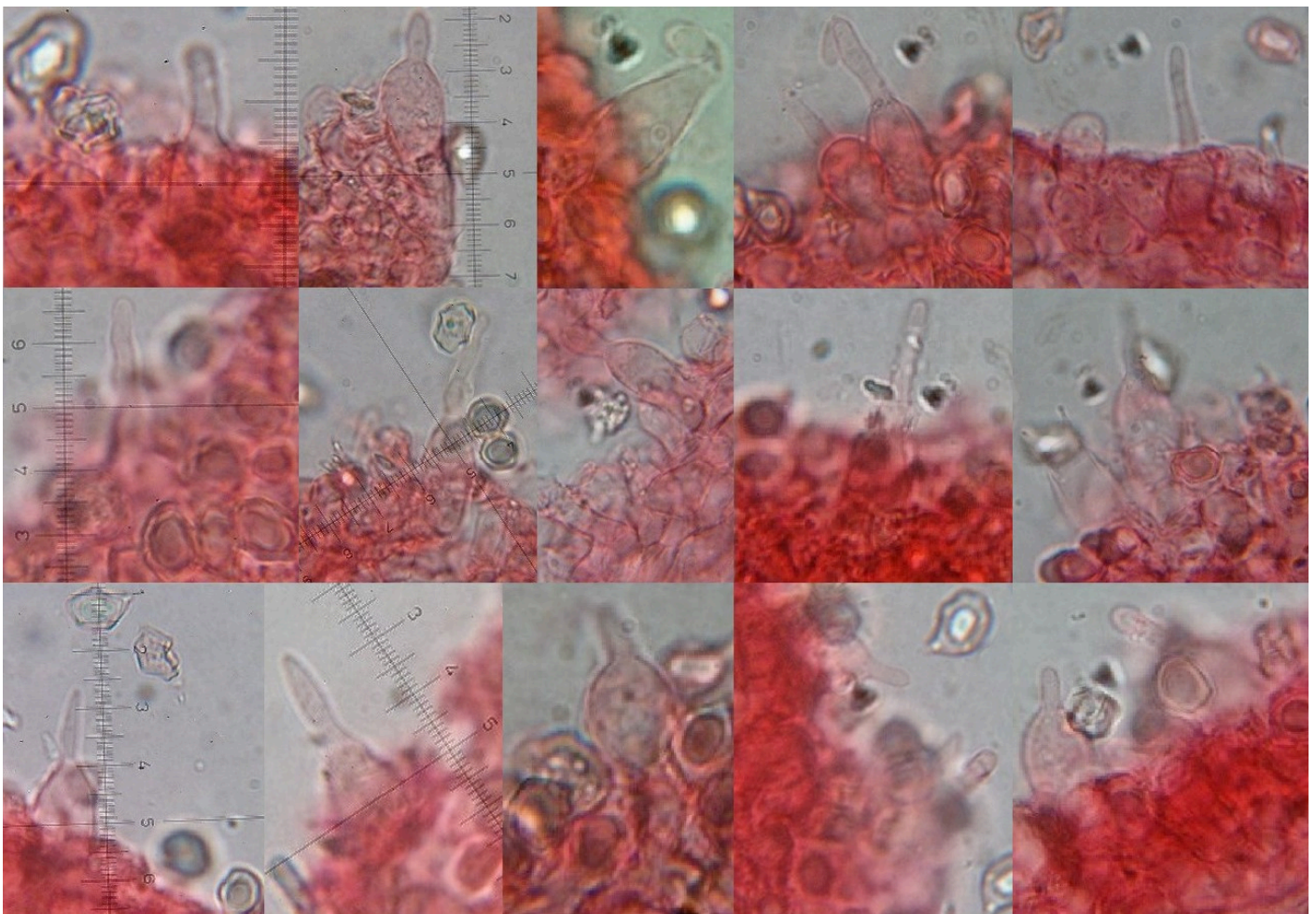
Pleurocystidia 47 – 115 × 16.5 – 30 μm (inclusive of 23 – 55.5 × 4.5 – 8 μm neck), lageniform to rostrate, neck cylindrical to fusiform, apex equal to tapering or swollen; scattered.

Cheilocystidia similar to the pleurocystidia, more numerous.

Pileipellis composed of a trichoderm at centre.

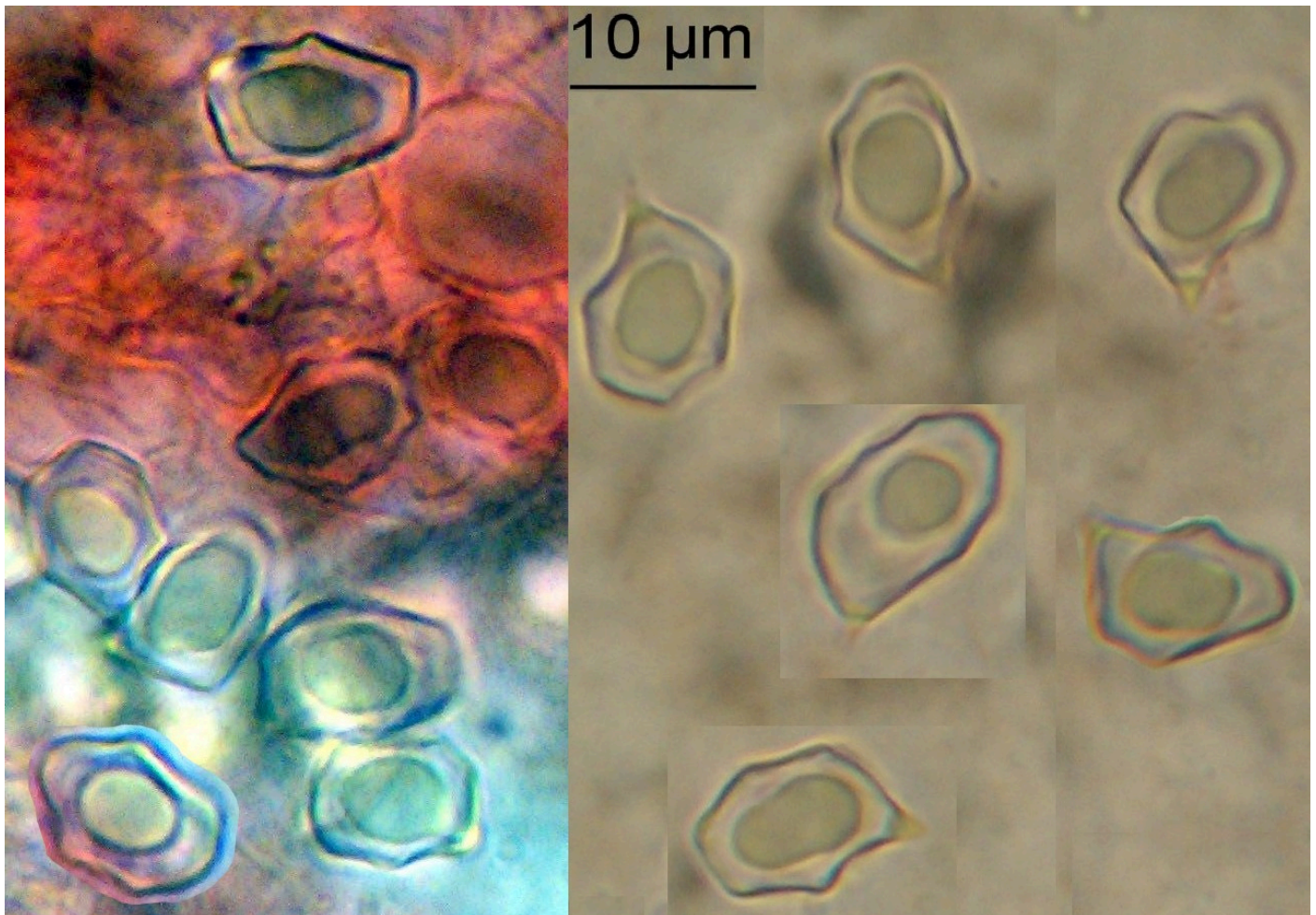
Caulocystidia not observed.

Clamp connections present in hymenium.



Cheilocystidia in Congo red / cheilicistidi in rosso Congo

micrometric scale / scala micrometrica = 2.5 μm



Spores in Congo red / spore in rosso Congo

Habitat and collection examined: Italy, Veneto, Venezia, S. Anna di Chioggia, Nordio forest, just inland from the Adriatic coast and few meters a.s.l.; gregarious, among gramineous plants along the margin of a forest path with *Quercus ilex* and *Quercus pubescens*, on a sandy calcareous substrate, 26 November 2005, legit & det. P. Voto, the dried material was lost by the person who had it in its care.

NOTES

On a morphological base, *E. cocles* shares its peculiarly shaped hymenial cystidia with a cluster of species phylogenetically well supported which Noordeloos, Jansen, Jordal *et al.* (2022) and Noordeloos, Morozova, Dima *et al.* (2022) call the *Rhombisporum* clade.

It is further separated from the taxa of this clade by being the only species with heterodiametrical spores, rarely rhomboidal and mostly with irregular 5-7 angles (compared to more or less isodiametrical to subheterodiametrical, rhomboidal to pentagonal spores).

The aforementioned authors report this species from west-central and northwestern Europe in a variety of habitats including '*in calcareous loam and in deciduous forest on loamy soil*' which is a kind of environment present in the Nordio forest. Therefore, this finding could be the first report from the Mediterranean area.

Only two minor divergences were noted from the description of the neotype in Noordeloos, Jansen, Jordal *et al.* (2022). The spore size in the collection from the Nordio forest has a somewhat lower interval compared to (9.0) 10.0 – 14.5 (18) × 7.5 – 10.5 μm (however the quotient remains similar), and pilei reach a larger size compared to 10 – 25 mm wide; the latter datum possibly due, in part, to only well mature specimens having been found.

Due to a wide distribution in lowland and colline habitats, *E. sororpratulense* J.B. Jordal, Karich, Dima & Noordel. was compared with this collection. It likewise lacks caulocystidia but differs by shorter (7 – 10 × 6.0 – 8.5 μm), consequently with a lower quotient (1.0 – 1.4), irregularly 5(–6) angled spores, cheilocystidia often

wavy-irregular, without a tapering neck apex, and the pileus blackish only in the central spot. Moreover, as regards tree connections, it is reported only with spruce, not with deciduous trees (Noordeloos, Jansen, Jordal *et al.* 2022).

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Entoloma cocles nel bosco Nordio

Key words:

Agaricales
Entolomataceae
 Mediterraneo

Riassunto: Viene documentato un ritrovamento del raro *Entoloma cocles* nel bosco Nordio (Italia) con descrizioni morfologiche, immagini a colori dei basidiomi e dei microcaratteri principali, e commenti sui taxa affini del clado *Rhombisporum*.

INTRODUZIONE

Questa è una delle tante vecchie raccolte interessanti del bosco Nordio rimaste indeterminate o dubbie che l'autore sta riesaminando nel tentativo di giungere a una corretta identificazione della specie cui appartengono. Sfortunatamente, dal suo primo ritrovamento nel 2005, questa non è più stata ritrovata. Recentemente, consultando l'articolo di Noordeloos, Jansen, Jordal *et al.* (2022) focalizzato sulle specie di *Entoloma* dotate di peculiari cistidi imeniali lageniformi o mucronati proprio come osservati in questa raccolta e seguendo la chiave generale in Noordeloos, Morozova, Dima *et al.* (2022) il suo riconoscimento è stato indirizzato verso le specie appartenenti a quello che questi autori denominano clado *Rhombisporum* con *E. cocles* posizionato alla sua base nei loro filogrammi.

MATERIALI E METODI

Gli esemplari freschi sono stati fotografati sul luogo della raccolta e tutti i microcaratteri descritti sono stati osservati su materiale fresco colorato con rosso Congo. Tutte le immagini sono dell'autore.

TASSONOMIA

Entoloma cocles (Fr.) Noordel.
Persoonia 11(2): 149 (1981)

Caratteri macroscopici

Basidiomi con habitus collybioide-omphalioidi.

Cappello (giovani esemplari non osservati) 25 – 53 mm diam., da maturi spianati, striati fino al centro, centro depresso e occasionalmente con basso umbone intorno alla depressione, margine ondulato; superficie con squamule al centro più o meno estese verso il margine; sub igrofano, colore al centro nerastro con sfumatura blu violacea, all'esterno da grigio-bruno a biancastro tra strie distintamente più scure.

Lamelle moderatamente fitte, ca. 28 – 35 che raggiungono il gambo, da smarginate a subdecorrenti, ventricose, diritte o flessuose, lamellule presenti in 2 – 3 livelli, bianche poi rosastre; filo da leggermente a fortemente irregolare, non fimbriato, concolore.

Gambo 20 – 30 × 1.7 – 2 mm in mediana, più o meno cilindrico o allargato inferiormente fino a 3.5 – 4 mm alla base, a volte compresso; glabro, lucido, base bianca tomentosa; di colore grigio con sfumature blu-violacee.

Carne non esaminata.

Caratteri microscopici

Basidiospore 9.0 – 12.5 × (6.3) 7.3 – 8.5 (9.0) µm in vista laterale, Q 1.20 – 1.36 – 1.49 (1.67), eterodiametriche, con 5-9 angoli in profilo.

Basidi non misurati, 4-sporici.

Pleurocistidi 47 – 115 × 16.5 – 30 µm (incluso il collo 23 – 55.5 × 4.5 – 8 µm), da lageniformi a rostrati, collo da cilindraceo a fusiforme, apice da uguale a rastremato o rigonfio; sparsi.

Cheilocistidi simili ai pleurocistidi, più numerosi.

Pileipellis composta di un trichoderma al centro.

Caulocistidi non osservati.

Giunti a fibbia presenti nell'imenio.

Habitat e raccolta esaminata: Italia, Veneto, Venezia, S. Anna di Chioggia, bosco Nordio, poco all'interno della costa Adriatica e pochi metri s.l.m.; gregari, tra piante di graminacee lungo il margine di un sentiero boschivo con *Quercus ilex* e *Quercus pubescens*, su substrato calcareo sabbioso, 26 novembre 2005, legit & det. P. Voto, il material essiccato fu perso dalla persona che ne aveva custodia.

COMMENTI

Su base morfologica, *E. cocles* condivide i suoi cistidi imeniali peculiarmente conformati con un gruppo di specie filogeneticamente ben supportato che Noordeloos, Jansen, Jordal *et al.* (2022) e Noordeloos, Morozova, Dima *et al.* (2022) chiamano clado *Rhombisporum*.

Esso si separa ulteriormente dai taxa di questo clado per essere l'unica specie con spore eterodiametriche, raramente romboidali e per lo più con 5-7 angoli irregolari (in confronto a spore da più o meno isodiametriche a subeterodiametriche, da romboidali a pentagonali).

I succitati autori riportano questa specie dall'Europa centro-occidentale e nord-occidentale in una varietà di habitat tra cui '*in argilla calcarea e in bosco deciduo su suolo argilloso*' (trad. dell'autore) che è un tipo di ambiente presente nel bosco Nordio. Pertanto, questo ritrovamento potrebbe rappresentare la prima segnalazione dall'areale mediterraneo.

Sono state riscontrate solo due divergenze minori rispetto alla descrizione del neotypus in Noordeloos, Jansen, Jordal *et al.* (2022). La dimensione sporale nella raccolta del bosco Nordio ha un intervallo un po' inferiore rispetto a (9.0) 10.0 – 14.5 (18) × 7.5 – 10.5 µm (tuttavia il quoziente rimane simile), e i cappelli raggiungono una dimensione maggiore rispetto a 10 – 25 mm di diametro; l'ultimo dato possibilmente dovuto, in parte, al fatto di avere trovato solo esemplari ben maturi.

Data la sua ampia distribuzione in habitat di pianura e collina, *E. sororpratulense* J.B. Jordal, Karich, Dima & Noordel. è stato confrontato con questa raccolta. Anche esso è privo di caulocistidi ma differisce per spore più corte (7 – 10 × 6.0 – 8.5 µm), di conseguenza con un quoziente minore (1.0 – 1.4), irregolarmente con 5(–6) angoli, cheilocistidi sovente ondulati-irregolari, senza apice del collo rastremato, e il cappello nerastro solo nella zona centrale. Inoltre, riguardo ai legami arborei, esso è riportato solo con pecci, non con alberi decidui (Noordeloos, Jansen, Jordal *et al.* 2022).