

***Pyrrhoglossum moliniophilum* sp. nov.
(Basidiomycota, Cortinariales), a new species
and first record of the genus in Europe**

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Abstract – Based upon collections from the French Pyrenees, the new species *Pyrrhoglossum moliniophilum* is fully described. This taxon is the first European record for a genus whose few other representatives are usually restricted to habitats in subtropical to tropical climates. Apart from its morphology, *P. moliniophilum* is also very well characterized by its habitat: the crepidotoid basidiomes growing on tussocks of *Molinia caerulea* (L.) Moench, a commonly encountered grass in marshes and bogs. Morphologically, the new taxon is compared with the other known species of *Pyrrhoglossum*. Awaiting future comprehensive molecular data, no effort was made here to morphotaxonomically delimit *Pyrrhoglossum* from the evidently closely related genera *Crepidotus* and *Gymnopilus*.

Résumé – Sur la base de collections en provenance des Hautes-Pyrénées (France), une nouvelle espèce, *Pyrrhoglossum moliniophilum* est décrite. Ce taxon représente la première donnée d'une espèce appartenant à ce genre en Europe, dont les autres représentants sont exclusivement restreints aux régions tropicales ou subtropicales. En plus de ses caractères macro- et micro-morphologiques, les basidiomes crépidotoïdes se trouvent en grand nombre dans la localité type, exclusivement sur des touradons de *Molinia caerulea* (L.) Moench (une graminée commune dans les tourbières et marais). Le nouveau taxon est comparé morphologiquement avec les autres espèces de *Pyrrhoglossum* publiés à ce jour. Dans l'attente de nécessaires travaux de biologie moléculaire complémentaires, la séparation morphologique entre *Pyrrhoglossum*, *Crepidotus* et *Gymnopilus*, les deux genres les plus apparentés, n'a pas été étudiée plus en détail.

***Pyrrhoglossum* / *Gymnopilus* / *Crepidotus* / taxonomy / peat-bog / *Molinia caerulea* / Hautes-Pyrénées / France**

INTRODUCTION

During the survey of a peat-bog situated in the northern foothills of the Pyrenees (Hautes-Pyrénées, France) in September 2003, numerous basidiomes of a small crepidotoid agaric have been discovered on tussocks of live *Molinia caerulea* (L.) Moench (Poaceae). At first glance the specimens were believed to represent a graminicolous species of *Melanotus*. Subsequent microscopical analysis revealed small reddish-brown, dextrinoid, verrucose spores and lecithiform cheilocystidia, two characters that, together with the bitter taste, directed our attention to *Gymnopilus*. However, the European literature on *Gymnopilus* (Kühner & Romagnesi, 1953; Moser, 1978; Høiland, 1990; Hansen & Knudsen, 1992; Watling & Gregory, 1993; Breitenbach & Kränzlin, 2000; Ludwig, 2001; Bon & Roux, 2002; Holec, 2005; Horak, 2005), did not reveal any species that matches the features and the unusual ecological habitat of the present species. Also a more general search for similar taxa in publications treating pleurotoid and crepidotoid taxa (Watling & Gregory, 1989; Roux, 1997) remained unsuccessful.

In September 2004 many basidiomes were gathered again at the same locality. This time, a thorough bibliographic search finally was leading to *Pyrrhoglossum* Singer (1944), a genus typified by the Cuban *P. pyrrium* (Berk. & M.A.Curtis) Sing. The discriminating morphological, ecological and chorological characters between our collections and the known species of *Pyrrhoglossum* show clearly that *P. moliniophilum* represents a distinctive and new species.

Singer (l.c.) defined the genus *Pyrrhoglossum* in *Cortinariaceae* for species with small, red-brown basidiomes that lack a stipe or have a reduced, laterally or excentrically placed stipe producing, verrucose, ellipsoid spores without germ pore and with smooth suprahilar disc, without pleurocystidia and with inconspicuous cheilocystidia, with regular trama, clamped and growing on wood in tropical regions. Later, he specifies the presence of cheilocystidia (Singer, 1986). The type species from Cuba, *P. pyrrium* (Berk. & M.A. Curtis) Singer, was based on the basionym *Agaricus (Crepidotus) pyrrium* (Berkeley & Curtis, 1868). This pantropical taxon has later been reported from Martinique, Guadeloupe, Dominican republic, Trinidad (Pegler, 1983), Venezuela, Brazil, Florida (USA), New-Zealand, New-Caledonia, New-Guinea (Horak, 1989), Australia (Rees & Ye, 1999- although may be not conspecific- see below) and Hawaiï (Hemmes & Desjardin, 2002), always on dead wood.

Singer (1986) quotes 6 species for the genus, segregated in two sections: 1) sect. *Pyrrhoglossum*, without lilac pigment, including *P. pyrrium*, *P. stipitatum* Singer, *P. hepatizon* (Berk.) Dennis, *P. ferruginosum* (Lloyd) Singer (under the erroneous name *P. ferruginatum*); 2) unnamed section, characterized by the presence of a lilac pigment at least in one part of the carpophore, including *P. lilaceipes* Sing. and *P. lilacinum* E. Horak (the latter taxon being a nom.inval. as it concerns a still unpublished taxon from E. Horak).

Horak (1989) keeps only 4 species in the genus: *P. pyrrium*, *P. hepatizon*, *P. ferruginosum* and a new species from New Zealand: *P. viriditinctum* E. Horak. He synonymises *P. stipitatum* and *P. lilaceipes* with *P. hepatizon* arguing that lilaceous tints potentially occur in all taxa except *P. viriditinctum*, the latter showing a greenish hue. The lilaceous pigmentation, very fugitive, should be at least observable in very young and perfectly fresh basidiomata.

Kirk *et al.* (2001) mention 10 taxa for the genus. The available list on the CABI website (www.indexfungorum.org as accessed in Feb. 2009) mentions

11 taxa: apart from the species accepted by Singer (1986) and Horak (1989), the list includes the more recently published taxa *P. subpurpureum* (S. Ito & S. Imai) E. Horak & Desjardin and *P. yunnanensis* P.G. Liu. On the other hand, it also lists three taxa that are currently excluded from the genus:

– *P. recedens* Singer (Singer, 1973), recombined in the genus *Galerina* by Horak (1987) especially because of its pip-shaped to subamygdaliform spores a poorly delimited smooth suprahilar disc and particularly slender and narrow lecitiform cheilocystidia and pileocystidia;

– *P. holocrocinum* (Berk.) Singer and *P. macrosporum* Singer (Singer, 1973), recombined in *Gymnopilus* by Singer (1986), an opinion shared by Horak (1989), especially because of their large and well developed stipe and larger spores.

In the past, *Pyrrhoglossum* species have often been taken for *Crepidotus*. The former genus is, however, easily separated from the latter by the more richly colored, warty spores that darken in alkali and the presence of a distinctive plage. Also, the cheilocystidia in *Crepidotus* seem more variable than in *Pyrrhoglossum*.

Recently, following the results of Rees *et al.* (2002b), Ryvarden (2007) describes an astipitate *Gymnopilus* species from Colombia: *G. epileatus*. He produces a small determination key for neotropical *Pyrrhoglossum* species including only four taxa, based on Pegler's publication (1983).

Two recent publications aiming to test the monophyly of the genus *Gymnopilus*, both based on ITS sequences, give contradictory results (as can be expected when using exclusively specific markers to solve generic problems). For Rees *et al.* (2002b) *Pyrrhoglossum* is included in *Gymnopilus*. Guzmán-Dávalos *et al.* (2003), found *P. pyrhum*, the type of the genus *Pyrrhoglossum*, to be outside the *Gymnopilus* clade and closely related to *Cortinarius phoeniceus* (Bull.: Fr.) Maire. According to L. Guzmán-Dávalos (pers. comm.), this surprising result could likely be explained by a DNA-sample mixed-up. On the other hand, the unique Australian collection attributed to *P. pyrhum* analyzed by Rees & coll. (2002b) presents an atypical morphology: the very developed stipe (Rees & Ye, 1999) makes it more related to the *P. hepatizon*-group.

Since the generic delimitation between *Pyrrhoglossum* and *Gymnopilus* as well as the delimitations of a wider range of saprotrophic genera within the Cortinariaceae, seem far from being resolved (Kühner, 1980; Rees *et coll.*, 1999; Rees *et coll.*, 2002a; Guzmán-Dávalos *et coll.*, 2003; Gulden & Schalchian-Tabrizi, 2005), we have decided to follow in this paper the traditional concepts of Singer (1986) and Horak (1989) and to describe our new species in the genus *Pyrrhoglossum*.

MATERIALS AND METHODS

The description of the basidiomes of *Pyrrhoglossum moliniophilum* is based on fresh material. Microscopical examination was carried out in KOH (5%), Congo Red SDS (Cléménçon, 1999) and Melzer Reagent both on living and preserved material. Spore measurements follow Fannechère (2005) and relate to 30 spores (taken from spore prints, in Melzer reagent). For other microscopical features only maximum and minimum values are noted with exceptional deviations in between brackets.

DESCRIPTION

Pyrroglossum moliniophilum Corriol sp. nov.

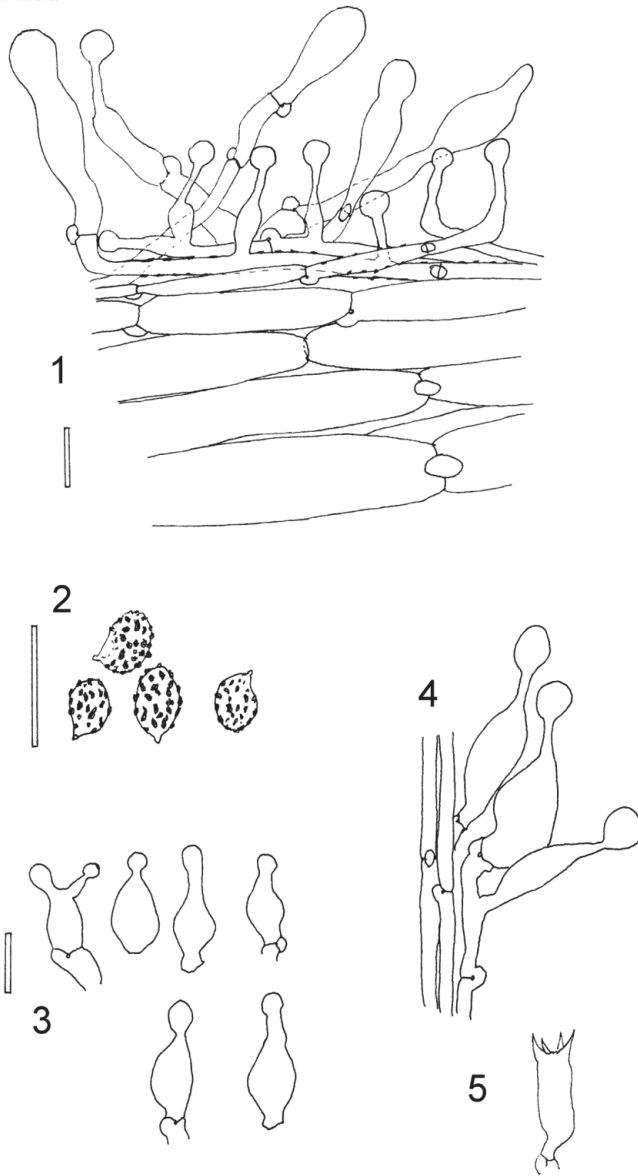
Figs. 1-6

Etymology: the epithet refers to the graminicolous habitat on tussocks of *Molinia caerulea* (L.) Moench.

Pileus 1-10(-15) mm, convex, ochraceorufus vel griseocremeus, marginem estriatum versus lilacinus, minute pruinosis, siccus. *Lamellae* adnatae vel subdecurrentes, primo pallide lilacinogriseae dein ochraceorufae, albomarginatae. *Stipes* 1-5 × 1-1.5 mm, excentricus rare lateralis, cylindricus, basim versus attenuatus, saepe curvatus, albopruinosus ad apicem, albopilosus (lilacino tinctu) basim versus, siccus, mycelio albo ad substratum affixus, cortina nulla. *Caro* lilacinea dein pileo concolor. *Odor* nullus. *Sapor* amarus. *Basidiosporae* in cumulo rufobrunneae, 4-5.5 × 3-3.5 μm, ovoideae vel lacrymiformes, grosse verrucosae, subferruginosae, depressione supraapicali distincta, poro germinativo nullo. *Cheilocystidia* 12-24 × 4-11 μm, lecythiformes, capitulo 3-5 μm diam. *Instructa*, hyalina. *Pleurocystidia* nulla vel sparsa. *Caulocystidia* cheilocystidiis similia sed larga. *Pileipellis* ex hyphis cylindratis cutem formantibus, cellulae terminales (pileocystidia) distincte lecythiformes vel clavatae, 25-40 μm longae, pigmento luteoferrugineo grosse incrustatis. *Ad radices* *Moliniae caeruleae* in paludine. *Gallia*. *Holotypus* GC 03092001 in herb. *BBF*.

Pileus 1-10(-15) mm diam., convex, margin at first incurved becoming expanded in age and more or less crenelate-lobate, pale reddish ochre, but with distinctive lilac tinge towards margin, in young specimens covered with a greyish-cream web (7.5 YR 6/8) but minutely pubescent towards margin, thin, dry, veil remnants absent (even in button stage). **Lamellae** adnate to subdecurrent, rather distant, 2-3 lamellulae, narrow (0.5-0.7 mm wide), occasionally forked, at first pale grey with distinctive lilac near edges, becoming reddish-ochre in age, entire edges whitish. **Stipe** 1-5 × 1-1.5 mm, eccentric, usually well developed, cylindrical, equal or attenuating towards base, curved, rarely rudimentary and lateral, base with white mycelial pad-like tomentum attached to substrate, at first whitish-pruinose in upper half and whitish-villose in lower half (but in very young specimens distinctly lilaceous), finally concolorous with pileus. **Context** thin, fragile, pale ochre-cream with distinctive lilac tinge in lower half of stipe which turns reddish brown upon exposure. **Taste** strongly bitter. **Smell** not distinctive. **Spore print** reddish-brown.

Spores D1.9; (3.6) 4.2-5.2 (5.7) × (2.9) 3.1-3.5 (3.6) μm, Q = (1.1) 1.3-1.6 (1.65), ovoid, lacrymiform or pip-shaped, supraapical depression with distinctive smooth plage (in front view), coarse isolated warts embedded in perispore, germ pore absent, reddish-brown (KOH), dextrinoid in Melzer Reagent). **Basidia** 15-22 × 5-6 μm, 4-spored, subclavate, often constricted-urniform, sterigmata up to 5 μm long, clamped. **Cheilocystidia** 12-24 × 4-11 μm, distinctly lecythiform, globose capitulum 3-5 (-7.5) μm, sitting on short neck, hyaline, apex often covered with resinous, refringent, highly congophilous incrustation (KOH, Congo Red). **Pleurocystidia** absent or scattered, if present shape and size like cheilocystidia. **Caulocystidia** (20-)25-40 × (3.5-)5-10 μm, scattered, distinctly more robust as compared to cheilocystidia and pileocystidia, capitellum on average also larger, (3-)4-6 μm wide. **Pileipellis** a cutis (or trichoderm) composed of repent (or semierect) cylindrical hyphae, 8-15(-20) μm diam., non-gelatinized hyphae thin, distinctly encrusted with rust yellow-brown pigment, terminal cells (pileocystidia) 15-40 × 3-7 μm, × 2.5-5 μm), conspicuous, shape like cheilocystidia, clavate or fusoid, occasionally with yellowish, refringent content (KOH, ammonia). **Pileitrama** about 110 μm thick, composed of 7-15 μm wide, thin walled hyphae.



Figs 1-5. *Pyrrhoglossum moliniophilum* [holotype]. 1. Pileipellis (bar = 10 μ m). 2. Spores (bar = 10 μ m). 3. Cheilocystidia (bar = 10 μ m). 4. Stiptipellis (bar = 10 μ m). 5. Basidia (bar = 10 μ m).

Hymenophoral trama 60 μ m thick, made of 4-17 μ m-wide hyphae, similar to the pileitrama, with numerous swollen cells. **Stiptipellis** of slender cylindrical hyphae, oleiferous hyphae absent. **Mycelium** at base of stipe composed of cylindrical hyphae, 2-5 μ m diam., often ramified, with slightly thickened, non-gelatinized wall, not constricted at the septa. **Clamp connections** present in all tissues.



Fig 6. *Pyrrhoglossum moliniophilum* photographed in situ, on tussocks of *Molinia caerulea*. Holotype. Photo G. Corriol.

Material examined: France. Depart. of “Hautes-Pyrénées” (65), Clarens, right bank of La Galavette rivulet, below Courtalou, Clarens peat-bog, 20.IX.2003, *leg.* G.Corriol (holotype, GC 03092001). – Ibidem, 9.IX.2004, *leg.* G.Corriol (GC 04090403).

Additional material examined for comparison (*P.pyrrhum*): France. Martinique, Saint Esprit, Morne David, 23.VIII.2004, *leg.* C. Lécuru, *det.* C. Lécuru & J.-P. Fiard (CL/Mart04.007 in LIP). – Guadeloupe, Petit Bourg, vallon de la rivière Tambour, 3.IX.2005, *leg.* and *det.* R. Courtecuisse (RC/GUAD05055 in LIP). – Martinique, Mare au Perdrix, 5.IX.2003, *leg.* and *det.* R. Courtecuisse (RC/MART 03088 in LIP). – Without information, *leg.* J. Chabrol (JC 05 09 27 03 in LIP).

Additional material examined for comparison (*P.hepatizon*, see discussion) [as *P.stipitatum*]: France. Guadeloupe, Petit Bourg, 1.IX.2004, *leg.* and *det.* R. Courtecuisse (RC/GUAD 04019 in LIP). – Martinique, Saint-Esprit, Bois La Charles, 29.VIII.2005, *leg.* and *det.* C. Lécuru (CL Mart/05206 in LIP). – Without information *leg.* J. Chabrol (JC 04060701 in LIP). [*as P. lilaceipes*]: France. Martinique, Trinité, presqu’île Gravelle Bas, 27.VIII.2005, *leg.* and *det.* R. Courtecuisse (RC/MART 05163 in LIP). – Without information *leg.* J. Chabrol (JC 05053001 in LIP). – Guadeloupe, Petit-Bourg, Bois Sergeant, 2.IX.2005, *leg.* and *det.* C. Lécuru (CL/Guad 05087 in LIP).

Habitat and ecology: Growing on high tussocks of live *Molinia caerulea* (L.) Moench ssp. *caerulea* (*Poaceae*) towards the margin of a peat bog, but still on peaty soil saturated with water. The vegetation at the site had probably been burnt the

year before the first collection was gathered, so that the specimens colonized the dead leaves of the last year and thus found shelter and adequate microclimatic conditions under the fresh, green leaves of the current season.

The small *Molinia* stand of the type locality, only a few square meters large, is situated within an acidic, atlantic fen with *Sphagnum*, under thermoatlantic mesoclimate. Species of *Caricion fuscae* W. Koch [*Anagallis tenella* (L.) L., *Parnassia palustris* L., *Narthecium ossifragum* (L.) Hudson, *Sphagnum papillosum* Lindb. (dominant *Sphagnum* species), *Sphagnum* sp. sect. *Subsecunda*, *Carex flava* L. ss. str. (surprising here because usually found in alkaline fens), *Erica tetralix* L.] and of *Juncion acutiflori* Br.-Bl. [*Molinia caerulea* (L.) Mœnch, *Juncus acutiflorus* Ehrh. ex Hoffm., *Cirsium palustre* (L.) Scop.] are combined here.

DISCUSSION

No *Pyrrhoglossum* species have been found so far to grow on a substrate other than rotting bark or wood. Among the known European species of *Gymnopilus* (BON & ROUX, 2002; HOLEC, 2005), only the rare *G. flavus* (Bres.) Sing. is found on graminicolous substrate, mainly tufts of *Dactylis glomerata* L. Most of the other *Gymnopilus* are lignicolous or more rarely turficolous or carbonicolous (sometimes on burnt coal dump). Our taxon growing in a peat-bog on living but burnt *Molinia caerulea* tussocks presents an ecological originality, the various conditions of which still have to be more elucidated (infeodation level to the substrate species? fire influence? peat-bog microclimate influence? thermoatlantic mesoclimate influence?).

The substrate (a eurosiberian phanerogam), as well as its natural habitat (an oceanic peat-bog), suggest strongly that this species has not been introduced. It is more probably a native species that passed unnoticed on account of its small size and its very singular habitat.

The type locality appeared relatively rich in small basidiomycetes species, such as *Resinomyces saccharifera* (Berk. & Broome) Redhead, *Entoloma sericellum* (Fr.: Fr.) P. Kumm., *Arrhenia acerosa* (Fr.: Fr.) Kühner (all on *Molinia*), *Gerronema* aff. *cyathellum* (J. Favre & Schweers ex Kuyper) Bon, *Entoloma aethiops* (Scop.) G. Stev. and *E. moliniophilum* Walley & Noordel. The biodiversity and taxonomic interest of the fungi question the low interest awarded by many naturalists to these peat-bog vegetation types. It questions also the usual conservation management that often consists in merely re-opening or “rejuvenating” such vegetations into lower and more open plant communities in view of a higher plant diversity. This study once again illustrates the necessity to take also the fungal community into account when evaluating the conservation value of natural sites.

Based on the literature, the type species of the genus seems to be the closest relative of *P. moliniophilum* by its macromorphology. Basidiomata are however less slender (cap up to 25(40) mm), with gills which can reach 2.5 mm in width a stipe reaching 6 × 4 mm. The taste of the flesh variously specified by Horak (1989, as raphanoid), Rees & Ye (1999, as a blend with a slightly bitter after-taste) and Hemmes & Desjardin (2002, as very bitter). According to C. Lécure (pers. comm.), who tasted collectings from the Lesser Antilles, it would



Fig. 7. View of the burnt *Molinia* tussock top supporting a *Pyrrhoglossum moliniophilum* colony. Photo G. Corriol, september 4th 2004.

be immediately astringent then slowly bitter. Microscopically *P. pyrhum* also comes very close to *P. moliniophilum* because of its cheilocystidia, basidia, and pileipellis according to Pegler's (1983) description of frequent terminal dermatocystidioid cells. At the opposite, Horak (1968, 1989) asserts the lack of dermatocystidia, as well as Rees & Ye (1999) for their atypically stipitate Australian collection. The habitus is a significant difference between *P. pyrhum* and *P. moliniophilum*. The only authors describing the stipitipellis anatomy of *P. pyrhum*, Horak (1968, 1989) and Rees & Ye (1999, although an atypical Australian collection) both mention abundant caulocystidia, similar to the cheilocystidia. *P. moliniophilum* has caulocystidia in average distinctly larger in all parts than cheilocystidia. Moreover, *P. pyrhum* lives on rotten wood of angiosperms (*Fagaceae*) and gymnosperms (*Podocarpaceae*) with a pantropical distribution (Horak, 1968, 1989; Pegler, 1983; Hemmes & Desjardin, 2002; Saccardo, 1887 [under *Crepidotus pyrhus*]; Patouillard, 1902 [under *Crepidotus laceratus*]).

According to our own observations (we studied several collections of *P. pyrhum* from the Lesser Antilles – see additional material cited above and Tab. 1), the basidiomata of *P. pyrhum* are much more robust (exsiccata distinctly more fleshy, up to 2.8 cm thick), with a dense tomentum covering the center of the pileus and the main lower part of the stipe. It also has smaller and more widely ellipsoid spores, darker and more dextrinoid (reddish-brown in Melzer reagent) with more projecting warts, measuring D1,9; (3.7) 4.0-4.7 (4.9) × (2.9) 3.1-3.5

Tab. 1. Differences between *P. moliniophilum* and *P. pyrrium*, its closest relative, as based on our observations.

	<i>P. moliniophilum</i>	<i>P. pyrrium</i>
Pileus	≤ 10 mm, araneous	up to 40 mm, tomentose at center
Gills	very narrow gills (0.5-0.7 mm)	narrow (1-2.5 mm)
Stipe	1-1.5 mm wide	2-3 mm wide
Taste	immediatly and strongly bitter	only lately bitter
Spores	pip-shaped (Q = 1.3-1.6)	widely ellipsoid (Q = 1.2-1.4)
Pileocystidia	tibiiform to lecithiform, numerous	sparse and fewly differenciated
Stipitipellis	with numerous capitate cystidia more voluminous than hymenial cystidia	with a dense felting of septate, cylindric hairs, with some more or less cystidioid elements at the top, but neither as remarkable nor as voluminous
Trama	thin-walled	thick-walled (up to 1-2 μm diam.)
Habitat	on <i>Molinia caerulea</i> tussocks	on rotten wood
Distribution	temperate Europe	pantropical

(3.6) μm, Q = (1.1) 1.2-1.4 (1.5) (on 60 spores from spore deposits from exsiccates RC/GUAD 05055 and RC/MART 03088), whereas cheilocystidia show a straight capitellum in average (× 2-3.5(4.5) μm). The pileipellis shows a dense felting made of slender, erected, septate, hyphae, 3-5 μm wide. Some rare cystidioid elements are seen at the margin of the pileus where the covering is more appressed, but these cystidioid elements are not as remarkable as the hymenial cystidia (often only subcapitate). The underlying flesh is made of densely imbricated, wavy, short-celled (× 4-17 μm) hyphae, with 1-2 μm thick walls and a yellow, smooth pigment. The stipitipellis shows, in its upper part, terminal cylindro-clavate or more rarely cylindro-capitate cells. Lecithiform articles are rarer or poorly differentiated, with a short neck and poorly differentiated capitellum. In the lower part, we only observed a dense felting of septate, cylindric hairs. The lamellar trama shows a structure similar to the pileitrama, with 4-15 μm wide, thick-walled hyphae. As stated by Rees & Ye (1999) for their atypical Australian collection, we also found (on the exsiccatum JC 05092703) unambiguous and numerous, typically capitate pleurocystidia, in addition to those near the gill edge.

In *P. pyrrium*, the bitter taste and the pileipellis anatomy, especially the occurrence and abundance of lecithiform pileocystidia should be checked on collections from different localities worldwide. Both characters proved to have an important systematic value in the closely related genus *Gymnopilus* (Corriol, 2005).

Again according to the literature, *P. hepaticum* described from Ceylan (Saccardo, 1887; Singer, 1951; Pegler, 1986) and the South-American *P. stipitatum* (Singer, 1948; Pegler, 1983; Courtecuisse, 2006) also seem to be closely related taxa, as already stated by Singer (1951) who studied the type of *P. hepaticum*. The only differences indicated by this author concern the darker colors of the

basidiomata and more prominent warts on the spores of *P. hepatizon*. The only difference given by Pegler (1983) between *P. stipitatum* and *P. lilaceipes* is the lilaceous tint on the stipe of the latter. Nevertheless Petch (1924, cited in Horak 1989) described purplish colors on the stipe of *P. hepatizon* specimens coming from the same region as the holotype. Horak (1989) concludes that the three species are a single, pantropical taxon with very fugacious lilac pigment that is only evident on very young specimens.

Several collections attributed to *P. stipitatum* and *P. lilaceipes* from the Lesser Antilles (see additional material cited above) showed quite important differences in spore morphology thereby questioning Horak's (1989) position. Microcopically, the spores of *P. moliniophilum* are similar to those observed in *P. lilaceipes*. *P. stipitatum* showed widely ellipsoid, shorter and more strongly dextrinoid (reddish-brown) spores, with more projecting warts (e.g. D1,9; (3.7) 4.0-4.4 (4.7) × (2.9) 3.1-3.5 (3.6) μm, Q = (1.1) 1.2-1.4 (1.4) on RC/GUAD 04019). The pileipellis anatomy in the *P. hepatizon* group is variously described, in particular with regard to the occurrence of typical lecithiform cystidia. Only Pegler (1983) observed "...dermatocystidioid elements, 16-26 × 3-5 μm, clavate, cylindrical or digitate, with rounded apex" for *P. lilaceipes*, and nothing is said about the occurrence of lecithiform caulocystidia. According to our observations, *P. lilaceipes* and *P. stipitatum* show some lecithiform cystidia near the marginal part of the cap, where the tomentum is shorter and more adpressed, mixed with numerous cylindro-clavate, cylindro-lageniform or multi-constricted terminal cells. Toward the disc, which is densely hirsute and formed of multiseptate hairs that are arranged in a 120 μm thick trichoderm, we did not detect any such cystidia. The stipitipellis is in its upper part covered by utriform, clavate, multi-constricted, cylindro-fusiform cells, with some typically lecithiform (ex.: 30 × 6.5 × 4.5 μm) and tibiiform (ex.: 24 × 3 × 3.5 μm) cystidia. Its inferior part, densely hirsute, is covered with dense tufts of multiseptate wavy hyphae with cylindro-clavate terminal cell. Pileitrama is similar to what we observed on *P. pyrhum*, with markedly thickened wall. Finally, all taxa of this group grow on rotten wood in tropical area. (Horak, 1989; Pegler, 1986; Singer, 1951; Saccardo, 1887 [*Crepidotus hepatizon*]; Singer, 1948 [*P. stipitatum*]; Singer, 1961 [*P. lilaceipes*], Pegler, 1983 [*P. stipitatum* et *P. lilaceipes*]).

Taxa in the *P. hepatizon*-group macroscopically differ from *P. moliniophilum* by a markedly larger and more fleshy, initially golden-brown orange-brown or yellow cap 20-70 mm long, , the even possibly central and generally much more developed and distinctly more robust (25-58 × 2-7 μm) stipe, even in the excentric forms (0-18 × 2-2.5 mm), their much wider gills (× 2-5 mm), their tougher and less putrescent flesh. According to C. Lécure, flesh taste is slightly bitter in *P. stipitatum* (CL/Guad05114) and *P. lilaceipes* (CL/Guad05087).

Therefore, *P. moliniophilum* differs from all taxa of the *P. hepatizon* group by the structures of pileipellis and trama structures, as well in their ecology and chorology.

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