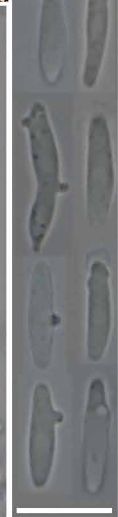
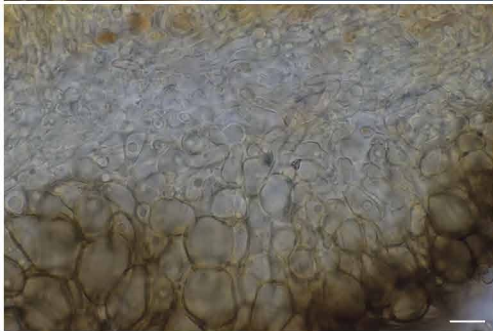
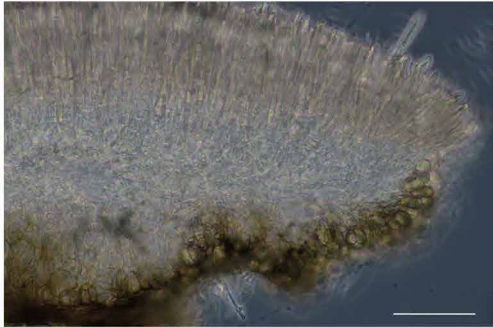


Mollisia gibbospora



Fungal Planet 1093 – 29 June 2020

Mollisia gibbospora I. Kušan, Matočec, Pošta, Tkalčec & Mešić, *sp. nov.**Etymology.* Named after the protuberances on living, mature ascospores.Classification — *Mollisiaceae*, *Helotiales*, *Leotiomyces*.

Ascomata apothecial, shallowly cupulate to plate-shaped when young, becoming sub-pulvinate to pulvinate when fully mature, superficial, sessile, ± circular from the top view, *0.4–1(–1.4) mm diam, solitary or gregarious (up to few apothecia). *Hymenium* whitish grey to pale lead-grey, not wrinkled but notably finely pruinose; margin slightly irregular, ± sharp, whitish, not concolourous with the hymenium, smooth, entire, finely wavy; excipular surface brownish from base to the upper flank, smooth. Basal hyphae macroscopically indistinguishable. *Asexual morph* not seen. *Hymenium* *80–95 µm thick. *Asci* cylindrical with conical-subtruncate apex, *67–89 × (5.8–)6.2–7.2 µm, *pars sporifera* *22–29 µm, 8-spored, of which 4–8 are gibbose, in living state protruding above ordinary paraphyses up to 17 µm, base cylindrical-truncate, arising from croziers, in Lugol's solution (IKI) apical ring of medium amyloidity (2bb) of *Calycina*-type. *Ascospores* subcutuloid, with rounded poles, majority of them having lateral or apical protuberation(s) already in *mature asci, 1-celled, *8.9–11.3–13.7(–14.7) × 2.2–2.6–3 µm, *Q = 3.3–4.4–5.7(–6.8), 1–2(–3) protuberances per spore, up to 1.4 µm high and 0.8–1.1 µm wide, hyaline, smooth, uninucleate, *sporoplasm with one to few non-refractive vacuoles, freshly ejected apically with sheath remnants persisting mostly around protuberances, biserial inside *asci, lipid bodies scanty, over-matured partly with single septa; in IKI unstained, nucleus slightly contrasted, vacuoles hyaline and non-refractive. *Paraphyses* cylindrical-obtuse, widest in the subapical or in the middle part, apical cell *28–57.5 × (2.8–)3.6–5.2 µm, some far projecting, exceeding living asci ('macroparaphyses'), *85–116 × 4.2–5.2 µm, straight, simple, *containing single cylindrical strongly refractive vacuolar body (VB), wall thin and hyaline; in KOH without yellow reaction; in IKI VBs not stained, soon collapse. *Subhymenium* *12–15.5 µm thick at the middle flank, hyaline, composed of densely packed epidermoid cells *3.5–7.1 µm wide. *Medullary excipulum* *24.5–31 µm thick at the middle flank, reaching 42 µm in the central part, hyaline, composed of *textura intricata*, cells *2.1–4 µm wide, at the border with ectal layer somewhat swollen, reaching 6.5 µm in width, thin-walled, KOH-soluble globules present, in IKI not stained, 1.3–3 µm wide, devoid of crystals. *Ectal excipulum* *36–54 µm thick at the middle flank, reaching 70 µm in the basal part, composed of *textura angularis*, cells *9.3–23.8 × 7.6–17.9 µm, upper flank and inner layers of lower flanks subhyaline and contain refractive KOH-soluble and IKI unstainable globules, while outer layer of lower flanks tobacco brown with cell walls *0.6–0.8 µm thick, most of the terminal clavate cells in the cortical layer of upper and middle flank contain single, hyaline and highly refractive VB. *Marginal tissue* very thin, *15–18.5 µm thick, composed of several cylindrical-clavate cells, *3.5–5.1 µm wide, thin-walled, each containing short cylindrical or elongated VB. *Subicular hyphae* confined to an apothecial base only, forming plaques, smooth, greyish

Colour illustrations. Croatia, Mt Velebit, subalpine beech forest in Javornik area - type locality. *Apothecia; vertical median section of the apothecium; upper excipular flank; lower exc. flank; margin; *asci and paraphyses, asci in IKI; mature ascospores in *asci; *ascospores; **macroparaphyses'. Scale bars = 1 mm (apothecia), 50 µm (apothecial anatomy) and 10 µm (microscopic elements).

brown, *2.4–3.3 µm wide, walls *0.4–0.6 µm thick. Asterisk (*) denotes living material. Ascus amyloidity is termed after Baral (1987) and spore shape after Kušan et al. (2014).

Distribution & Habitat — Sporogenous phases of the species are known so far from the type locality on Mt Velebit, Croatia, and (?)New Zealand (unpubl. data). Croatian collection is found on a decorticated fallen branch of *Fagus sylvatica* (originally a part of the trunk), lying in a moist litter at the edge of a natural karstic pond in a subalpine type of forest while New Zealand collection originates from decorticated wood.

Typus. CROATIA, Lika-Senj County, Paklenica National Park, southern part of the Mt Velebit, Javornik area, 1170 m SW from Badanj peak (1638 m), 1360 m asl, N44°23'03" E15°27'22"; on fallen decorticated large branch of *Fagus sylvatica* (*Fagaceae*) in a virgin subalpine forest of *F. sylvatica*, 24 Oct. 2019, N. Matočec (holotype CNF 2/10951; ITS and LSU sequences GenBank MT179560 and MT178276, MycoBank MB834871).

Notes — Tanney & Seifert (2020) performed the first multi-gene analysis of the *Mollisiaceae* s.lat. A detailed polyphasic taxonomic analysis in this group is still missing. According to our analysis of ITS1-5.8S-ITS2 nrDNA data (see FP1093), *M. gibbospora* is conspecific with *Mollisia* sp. (GenBank MG195520) whose DNA sequence is derived from germinated ascospores of specimen PDD 58612 (unpublished) as well as with *Ascomycota* sp. (GenBank KC514847) isolated from wooden structures on Antarctica (Held & Blanchette 2017). Several other unidentified sequences from GenBank share identities higher than 99 % with *M. gibbospora* (Kausarud et al. 2005, Klaubauf et al. 2010). This group of isolates form the youngest phylogenetic lineage in *Mollisiaceae* among analysed sequences. It is evident that the mollisiaceous group comprises a number of generic representatives whose species, assigned to large genera such as *Mollisia* and *Pyrenopeziza* are mixed together thus clearly showing polyphyly in both genera. Numerous species attributed to some other genera, such as asexual *Acidomelania* and *Phialocephala* (cf. Crous et al. 2019a), sexual-aquatic *Loramycetes* spp. and *Obtectodiscus aquaticus* form phylogenetic groups along with certain members ascribed to the genus *Mollisia*. Tanney & Seifert (2020) synonymised *Acidomelania* with *Mollisia*, while *Loramycetaceae* falls into synonymy with *Mollisiaceae*, which is supported in our analysis.

Until now, regularly present lateral and apical protuberances in fully mature, dormant and freshly ejected ascospores were not reported in the genus *Mollisia*. Even though *M. gibbospora* is macroscopically very much alike to a number of species in the genus (including its type *M. cinerea*), it is readily distinguishable according to the following microscopical differential characters: 1) living inner ectal excipular and some medullary excipular cells contain freely floating, hyaline and moderately refractive globules which are not stainable by CRB nor by IKI, and are soluble in KOH; 2) living mature asci containing four to eight gibbose ascospores; 3) ascospore sheath is fairly long-lived after spore ejection but retained around individual spore protuberances; and 4) some paraphyses are extremely long, far projecting above living mature asci, giving finely pruinose appearance of hymenial surface on living apothecia.

Supplementary material

FP1093 Maximum likelihood phylogenetic tree inferred from the dataset of ITS1-5.8S-ITS2 gene sequences from *Mollisia gibbospora* and related species.