

Amaurodon mustialaënsis
(Basidiomycetes, *Thelephoraceae*), new to Slovakia

KAREL ČÍŽEK¹, LADISLAV HAGARA² and PAVEL LIZOŇ³

¹Kosmonautů 251, CZ – 530 09 Pardubice, Czech Republic
cizek.k.j@seznam.cz

²Mišíkova 20/A, SK – 811 06 Bratislava, Slovakia
irpex@stonline.sk

³Institute of Botany, Dúbravská 14, SK – 845 23 Bratislava, Slovakia
pavel.lizon@savba.sk

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The rare species *Amaurodon mustialaënsis* was collected in the Kopáčsky ostrov Nature Reserve (Dunajské luhy Protected Landscape Area) close to Bratislava – Podunajské Biskupice. The collection is fully described and the taxonomy and variability of related species of *Amaurodon* are discussed.

Key words: *Hypochnus*, *Coniophora*, *Tomentelloideae*, taxonomy, Central Europe

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Vzácný druh *Amaurodon mustialaënsis* byl sbírán v přírodní rezervaci Kopáčsky ostrov (Chráněná krajinná oblast Dunajské luhy) u Bratislavy – Podunajských Biskupic. Popis nálezu je doplněn poznámkami k taxonomii a variabilitě příbuzných druhů rodu *Amaurodon*.

INTRODUCTION

The genus *Amaurodon* J. Schröt., lately emended by Køljalg (1996), includes 9 rare and little known species. Members of the genus have arachnoid-pelliculose, bluish grey to yellowish green fruit-bodies with a smooth, hydroid or poroid hymenophore. Basidia are utriform, spores verruculose, spinose or smooth, the hyphal system is monomitic. Spores and partly also basidia and hyphae stain violet-blue in KOH.

Amaurodon mustialaënsis, having some characters in common with members of *Corticaceae* s. l. and/or *Coniophoraceae*, has been formerly treated in the genera *Hypochnus*, *Hypochnopsis*, *Corticium* and *Coniophora*. It is usually presented as the only genus in the *Tomentelloideae* with smooth spores, but Ginns (1989) illustrated that spores might sometimes be rough. Its blue reaction with

KOH, Melzer's reagent and Cotton blue is the strongest among the European species of the genus.

MATERIAL AND METHODS

Kopáčsky ostrov Nature Reserve is located on the left bank of the river Danube close to Bratislava (Slovakia) and was established to protect steppe grasslands and deciduous thickets (*Asparago-Crataegetum*). Originally the island was covered with flood-plain forests. The collection site represents an open area that was extremely dry in September 2006.

All specimens were studied under a light microscope. Specimens (slides) were mounted either in water, or in a 3 % solution of potassium hydroxide (KOH), a Cotton blue stain solution in lactophenol (CB), and Melzer's reagent (MR).

RESULTS

Amaurodon mustialaënsis (P. Karst.) Kõljalg & K. H. Larss., in Kõljalg, *Tomentella*, p. 33 (1996)

Hypochnus mustialaënsis P. Karst. – *Corticium mustialaënsis* (P. Karst.) Fr. – *Hypochnopsis mustialaënsis* (P. Karst.) P. Karst. – *Coniophora mustialaënsis* (P. Karst.) Masee – *Coniophora cyanospora* D. P. Rogers

Description. Fruit-bodies resupinate, c. 3 cm in diam., fragile, easily separable from the substrate. Hymenium arachnoid pelliculose, blue, yellow or green, smooth or finely granulose, blue-blackish with KOH. Greyish white subiculum thin. Margin white, arachnoid, c. 1.5 mm wide, partly sterile. Hyphal cords and rhizoids in marginal zone numerous. Subicular hyphae cylindrical, thin-walled, clamped, sometimes with simple septa, long-celled, little branched, encrusted, (2.0–)3.5–5.0(–7.0) µm wide, pale yellow or greenish in water, bluing in KOH. Hyphal cords in subiculum free or densely entwisted with thick central hyphae. Individual hyphae similar to those in the base of the fruit-body, in water and KOH yellowish brown, in the upper basal part violet-blue. Subhymenial hyphae cylindrical, thin-walled, clamped and more branched, 3.0–4.0 µm wide, in water and KOH yellowish green, only sporadically violet-blue (Fig. 1). Basidia clavate-utriform, at the base clamped and often attenuated, squeezed in the middle, with four 5.0 µm long sterigmata, violet-blue in KOH, hyaline in water. Spores thick-walled, smooth (no roughness seen under the light microscope), ellipsoid-ovoid in frontal view, ellipsoid in lateral view, often subfusiform to naviculate, 4.5–5.5–7.0

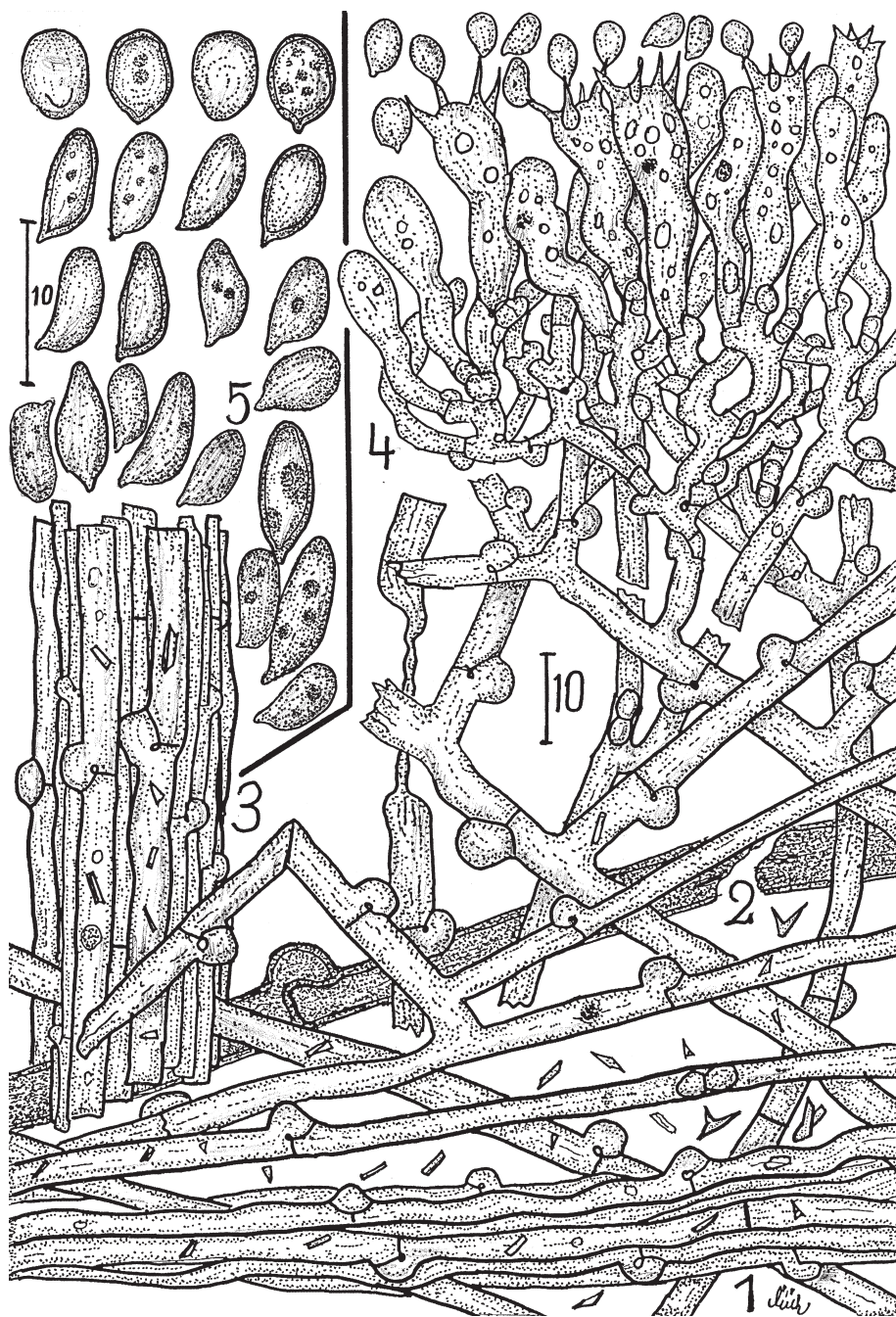


Fig. 1. *Amaurodon mustialaënsis*: 1. Basal hyphal cord. 2. Subicular hyphae. 3. Hyphal cord from the margin of the fruit-body. 4. Subhymenial hyphae and basidia. 5. Spores. Line-drawings by K. Čížek.



Fig. 2. *Amaurodon mustialaënsis*: fruit-body. Photo by L. Hagara.

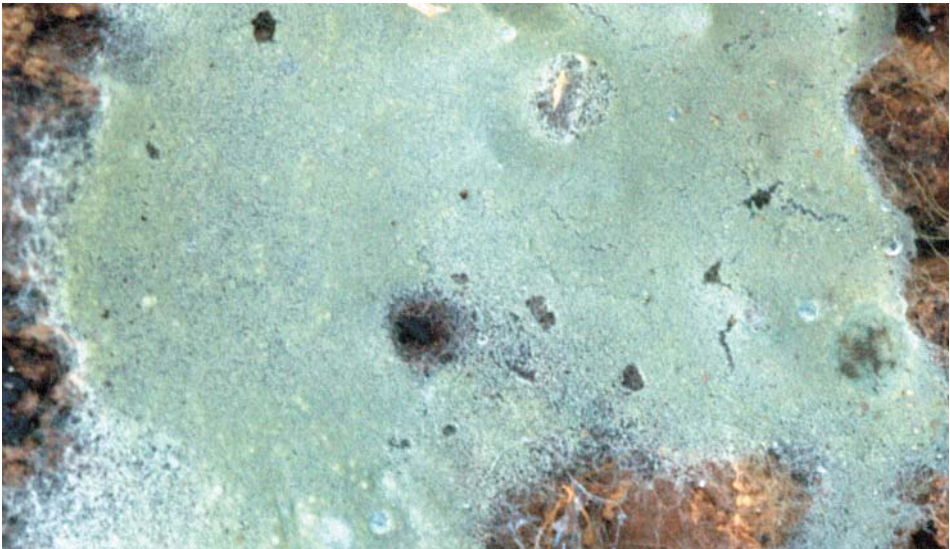


Fig. 3. *Amaurodon mustialaënsis*: detail of hymenium. Photo by L. Hagara.

× 2.8–3.5–4.6 µm, first yellowish in water, in a few minutes bluish with olive tint, in KOH strongly violet-blue (fading away in mounts), in Melzer's reagent and Cotton blue blue-grey to blue-green and lasting. Contents of spores with darker globose and irregular patches.

Distribution and habitat. *Amaurodon mustialaënsis* is an extremely rare species of the Northern Hemisphere occurring in a belt between latitudes 40°N and 60°N. It was reported from Finland, France, Germany, Spain, Sweden, and the United Kingdom in Europe (Bourdot and Galzin 1928, Gärdenfors 2005, Jülich 1984, Karsten 1865, Melo et al. 2006, Wakefield 1952), from Armenia and Dagestan in Asia (Köljalg 1996) and the USA and Canada in North America (Gilbertson 1974, Ginns 1989). Hosts include a wide range of tree genera: *Acer*, *Alnus*, *Betula*, *Castanea*, *Fagus*, *Picea*, *Pinus*, *Platanus*, *Populus*, *Quercus* and *Thuja*.

The Slovak specimen was collected after a period of dry weather. The poplar log on which it was found, lay in a shallow wet depression and was about 120 cm long and 70 cm thick. Additional corticiaceous fungi recorded simultaneously included *Hyphoderma puberum*, *Hyphoderma argillaceum* and *Trechispora farinacea* (on *Crataegus*), and *Hyphoderma clavigerum*, *Hyphodontia barba-jovis* and *Hyphodontia sambuci* (wood of other logs of *Populus*).

Notes. The Slovak collection corresponds well with current descriptions of the species (Ginns 1989, Köljalg 1996, Melo et al. 2006). It has typical straight basal hyphae with conspicuous clamp connections, numerous hyphal cords and strong chemical reactions. It differs from published data in having slender squeezed subfusiform to naviculate spores with darker patches.

Chemical reactions of our specimen of *Amaurodon mustialaënsis* were compared with reactions in specimens of additional European species: *Amaurodon viridis* (Alb. & Schwein.) J. Schröt. from Central Slovakia, and *Amaurodon cyaneus* (Wakef.) Köljalg & K. H. Larss. and *Amaurodon atrocyaneus* (Wakef.) Köljalg & K. H. Larss. (= *Tomentella atrocyanea*) both from the Czech Republic (Čížek 1991), and with published data (Burdsall and Setliff 1974, Kotiranta and Saarenoksa 1993, Krieglsteiner 1991). The reactions of *A. mustialaënsis* were the strongest (violet-blue, cobalt-blue, greyish blue) in all parts of the fruit-body, incl. spores, hyphae and basidia. Specimens of other species reacted well with KOH but weakly (and slowly) with Melzer's reagent and Cotton blue. *A. cyaneus*, as well as *A. viridis*, reacted quite strongly with KOH and Cotton blue but the colour change with Melzer's reagent appeared only after a few minutes. In *A. atrocyaneus* colour changes with all reagents were weak (Čížek 1999).

The North American species *Amaurodon wakefieldiae* (Burds. & M. J. Larsen) Köljalg & K. H. Larss. (= *Lazulinospora wakefieldiae*) is closely related to or identical with *A. cyaneus*. *A. wakefieldiae* has thicker basal hyphae, shorter basidia and almost globose, finely verruculose spores. *Amaurodon aquicoeruleus* Agerer,

collected on *Eucalyptus* in Australia, is related to *A. viridis*. It has a smooth hymenium, a similar hyphal system as *A. viridis* and spores bluing not only in KOH but also in water (Agerer and Bougher 2001). *A. hydroides* Kõljalg and Ryvarden is close to *A. viridis* as well (Kõljalg and Ryvarden 1997). It was collected only once in Venezuela and has a hydroid hymenium, finely rough, ellipsoid spores (in both views), hyphoids on the tops of the spines and incrustation in all parts of the fruit-body. *Amaurodon sumatranus* Miettinen & Kõljalg, just recently described from Indonesia (Miettinen and Kõljalg 2007), is also related to *A. viridis*. It is characterised by having a turquoise to green hydroid hymenophore and verrucose, broadly ellipsoid spores. *Amaurodon aeruginascens* (Hjortstam & Ryvarden) Kõljalg & K. H. Larss. (\equiv *Tomentellago aeruginascens*) has a poroid hymenium, thick-walled hyphae without clamps and rough, subglobose spores (Hjortstam and Ryvarden 1988).

Specimens studied

Amaurodon mustialaënsis: Slovakia. Podunajská nížina lowland, Bratislava-Podunajské Biskupice (Q 7968b, 48°5'39.5" N, 17°9'40.01" E), Kopáčsky ostrov Nature Reserve, on bark on the bottom part of a fallen stem of *Populus nigra*, 132 m a. s. l., 16. IX. 2006, leg. D. Krajný and L. Hagara, det. L. Hagara (SAV, herb. Hagara, herb. Čížek) – Figs. 2, 3.

A. viridis: Slovakia. Krupinská planina plateau, Babiná, Mäsiarsky bok Natl. Nature Reserve, on *Quercus*, 13. X. 1956, leg. Z. Pouzar (PRM 812313). Slovenský kras, Slavec–Gombasek, on *Carpinus*, 25. VI. 1963, leg. F. Kotlaba & Z. Pouzar (PRM 871796). Slanské vrchy, Herľany, Malé Brdo Natl. Nature Reserve, on *Fagus*, leg. Z. Pouzar (PRM 902925, PRM 902925). Strážovské vrchy, Horná Poruba, on *Fagus*, 6. VI. 1970, leg. V. Holubová (PRM 870426). Vtáčnik, Žiar nad Hronom, 18. VII. 1975, leg. V. Holubová (PRM 902983). Štiavnické vrchy hills, Čajkov, Bukovská dolina valley, on *Carpinus*, 6. VIII. 1975, leg. F. Kotlaba (PRM 775386). Ipeľská kotlina, Čebovce, on *Quercus*, 23. IX. 1984, leg. F. Kotlaba (PRM 903081).

A. cyaneus: Czech Republic. Východolabská tabule, Pardubice, on *Populus*, 21. VII. 1988, leg. K. Čížek (PRM 872239).

A. atrocyaneus: Czech Republic. Táborská pahorkatina, Drhovice, on *Picea*, 2. XI. 1994, leg. J. Valter (PRM 857320).

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