Microascus longicollis
Microascus longicollis Hubka, Lysková, Cmokova & M. Kolařík, sp. nov.

Etymology: Refers to the long annellate zone.

Classification — Microascales, Microasaceae, Sordariomycetes.

Ascomata immersed, less commonly superficial, predominantly formed in the colony centre, globose or subglobose, (60–)80–230 μm diam, without ostiolar neck, black, glabrous, ripening after 2–3 weeks of cultivation on OA, ascomata are absent or develop tardily on other media (3–6 weeks on MEA and PDA), peridium with a textura angularis. Asci globose, subglobose, ellipsoidal or pyriform, 10–15–(17.5) × 9–13.5 μm. Ascospores lemon-shaped, pale brown, 4.5–5.5 × 3–4 μm. Conidiophores represented by individual conidiogenous cells (annellides) on the hyphae, sometimes supported by a basal cell of 3.5–5 × 2–3 μm, bearing 1–4 annellides. Annellides with a swollen base, 4.5–7–(9) × 2.5–3.5–(4.5) μm, tapering to a cylindrical annellated zone, up to 30 μm long and 1.5–2.5 μm wide. Conidia 1-celled, thick-walled, hyaline to pale brown, brown in mass, ovate, pyriform or ellipsoidal, with a rounded or pointed apex and truncate base, smooth, 3.5–5–(6) × 2.5–3.5 μm. Chlamydospores globose to ellipsoidal, 5–10 × 6–5.5 μm.

Culture characteristics — (in the dark, 25 °C after 14 d): Colonies on OA attained 25–27 mm diam, flat, predominantly submerged, greyish brown in the centre (ISC-NBS No. 61) due to production of black ascomata, reverse greyish brown (No. 61) in the colony centre. Colonies on PCA attained 24–28 mm diam, flat, predominantly submerged except of granular radially furrowed, surrounded by 5 mm broad submerged zone, light greyish olive (No. 109) to greyish yellowish green (No. 121), reverse pale greyish olive. Colonies on MEA attained 24–29 mm diam, downy, centrally raised, slightly radially furrowed, surrounded by 5 mm broad submerged zone, light greyish olive (No. 109) to greyish yellowish green (No. 122), surrounded by 5 mm broad submerged zone, reverse dark greyish yellow (No. 91) to greyish brown (No. 61). Colonies on MEA after 7 d at 37 °C and 40 °C attained 12–15 and 4–6 mm diam, respectively.


Notes — The ability of this species to grow at 40 °C, ascomata without ostiolar neck, lemon-shaped ascospores and annellides with annellate zone up to 30 μm long make M. longicollis well distinguishable from all species accepted to date (Sandoval-Denis et al. 2016, Jagielski et al. 2016).

Colour illustrations. Czech Republic, toenail with suspected onychomycosis: Colonies, top to bottom: 21-d-old colonies of Microascus longicollis growing on OA, MEA and PDA at 25 °C; micromorphology, left to right: annellides, conidia (top row), ascospores (bottom row), ascomata, asc. Scale bars = 10 μm, scale bar of the subfigure with ascomata = 100 μm.

Microascus longicollis was associated with a case of suspected onychomycosis of the great toenail of a 48-yr-old female living in the Czech Republic. The fungus was isolated in pure culture from the nail scrapings collected during the first visit and the direct microscopic examination was positive for hyphae. The etiological significance of the isolate could not be confirmed because the second mycological examination (negative) was performed several months after initiation of the treatment at the time of significant clinical improvement (naftifine hydrochloride: 2 mo, without effect; changed to cyclopiox olamine: effective). Repeated isolation of the same non-dermatophyte fungus in pure culture is required for confirmation of its etiological role (Summerbell et al. 2005).