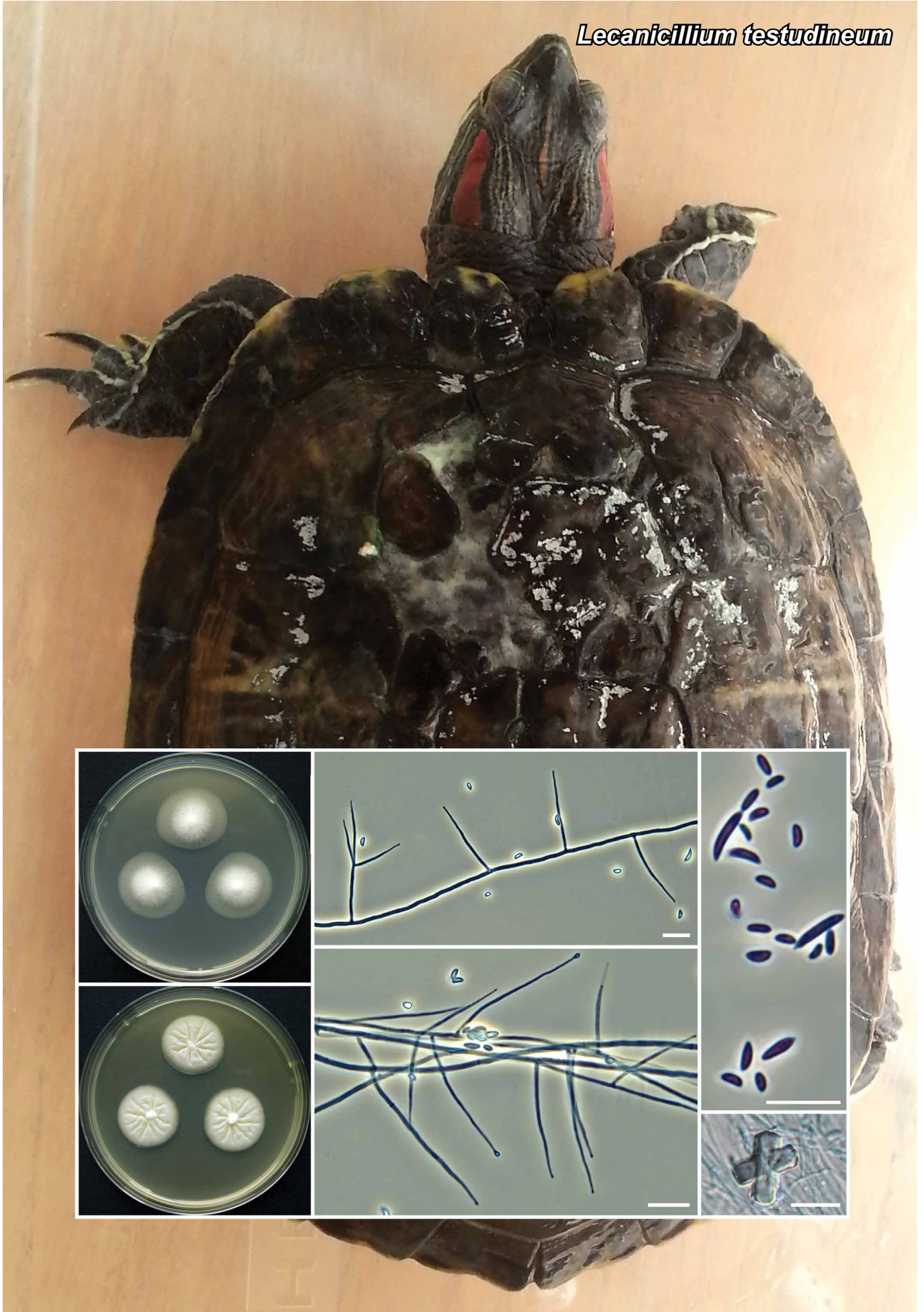


Lecanicillium testudineum



Fungal Planet 735 – 13 July 2018

Lecanicillium testudineum Hubka, Kubátová, Schauflerová, Déniel & Jany, sp. nov.

Etymology. *testudineum* (tes.tu.din'e.um. L. neut. adj.); referring to the turtle, the source of isolation of the ex-type strain.

Classification — *Cordycipitaceae*, *Hypocreales*, *Sordariomycetes*.

On PCA: *Phialides* produced on aerial hyphae, solitary or aggregated in whorls of 2–4 phialides, tapering toward the tip, (13–)16–45(–53) µm long (mean ± standard deviation; 25.9 ± 8.4), exceptionally up to 80 µm long, basal part 0.5–1 (0.8 ± 0.2) µm wide, 0.5–1 µm wide on the tip. *Conidia* dimorphic, macroconidia with pointed ends, fusiform or slightly falcate, smooth-walled, 1-celled, 3.5–6(–6.5) × 1–1.5 µm (4.8 ± 0.7 × 1.3 ± 0.1), microconidia usually with rounded ends, ovate, ellipsoidal, or fusoid, frequently asymmetric, curved to reniform, smooth-walled, 1-celled, 2–3.5 × 1–1.5 µm (2.7 ± 0.3 × 1.2 ± 0.1). Microscopic prismatic crystals occasionally present in culture, single or twinned (cruciform penetration twinning), up to 16 × 6 µm; no octahedral crystals observed.

Culture characteristics — (in the dark, at 25 °C after 14 d): Colonies on PCA 16–41 mm diam (9–21 mm after 7 d), white, cottony, centrally raised, margin entire, submerged, no exudate and soluble pigments, reverse yellowish white (4A2; Kornerup & Wanscher 1967). Colonies on MEA 16–33 mm diam (9–21 mm after 7 d), white, cottony and raised (ex-type strain CCF 5201) or yellowish white (4A2) to pale yellow (4A3), waxy and radially wrinkled (strains UBOCC-A-116026 and UBOCC-A-112180), margin entire, no exudate and soluble pigments, reverse yellowish white (4A2) to light yellow (4A4). Colonies on PDA 20–41 mm diam (9–21 mm after 7 d), white, cottony, centrally raised, colony surface or at least marginal parts radially wrinkled, margin entire, no exudate and soluble pigments, reverse pale yellow (4A3) to greyish yellow (4B5). Growth rates at 15 °C on PCA/MEA/PDA: 5–7/4–8/4–6 mm after 7 d and 9–15/8–14/8–12 mm after 14 d, respectively. Growth rates at 20 °C on PCA/MEA/PDA: 7–13/8–13/8–13 mm after 7 d and 15–25/13–19/17–25 mm after 14 d, respectively. Growth at 27 and 30 °C slower than at 25 °C; no growth at 37 °C.

Typus. CZECH REPUBLIC, Prague, scales from the carapace of the captive red-eared slider (*Trachemys scripta elegans*), Aug. 2015, coll. A. Schauflerová, isol. J. Koubková (holotype PRM 935078, isotype PRM 935079, culture ex-type CCF 5201 = CBS 141096; SSU-ITS-LSU, *tef1-α* and *tub2* sequences GenBank LT548278, LT626942 and LT548284, MycoBank MB824886).

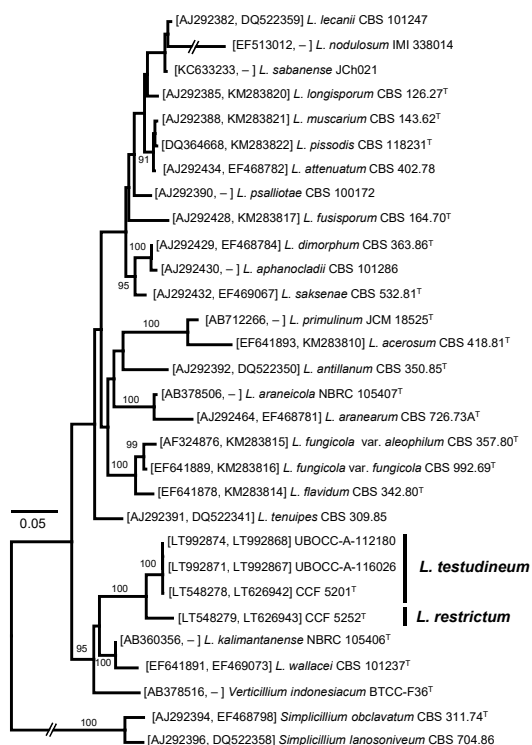
Additional material examined. FRANCE, Tours, chemical solution of nickel, Feb. 2012, isol. F. Déniel, UBOCC-A-112180 = CCF 5545, ITS, LSU, SSU, *tef1-α* and *tub2* sequences GenBank LT992874, LT992876, LT992875, LT992868 and LT992870; chemical solution of nickel, Oct. 2016, isol. F. Déniel, UBOCC-A-116026 = CCF 5546, ITS, LSU, SSU, *tef1-α* and *tub2* sequences GenBank LT992871, LT992873, LT992872, LT992867 and LT992869.

Colour illustrations. A red-eared slider (*Trachemys scripta elegans*) with superficial lesions on the carapace; 14-d-old colonies of *L. testudineum* on PCA (upper Petri dish) and MEA at 25 °C; whorls of phialides and solitary phialides; micro- and macroconidia; twinned prismatic crystals occasionally present in culture. Scale bars = 10 µm.

Notes — For BLAST analysis results see description of *Lecanicillium restrictum*. *Lecanicillium testudineum* has a higher optimum temperature for growth and smaller macroconidia than *L. restrictum*. Both micro- and macroconidia of *L. kalimantanense* and *L. wallacei* are longer than those of *L. testudineum* (Zare & Gams 2001, Sukarno et al. 2009). Phialides of *V. indonesiacum* are most frequently produced in a single whorl at the end of erect hyphae (Sukarno et al. 2009).

Intraspecific variability among isolates of *L. testudineum* was observed in colony morphology on MEA and PDA (see above) and growth parameters. Colony diameters of UBOCC-A-116026 were smaller on all media by 20–40 % compared to UBOCC-A-112180, and by 25–55 % compared to CCF 5201^T. The isolates UBOCC-A-116026 and UBOCC-A-112180 sporulated less intensively compared to CCF 5201^T, but otherwise there was a low degree of phenotypic variability in micromorphology, similarly to a low genetic variability in all five examined loci.

Lecanicillium testudineum has been isolated from nickel-containing solution and superficial lesions on carapaces of two captive red-eared sliders (*Trachemys scripta elegans*). We believe that the species was a causal agent of these infections, because it was isolated in pure culture during two subsequent examinations and fungal hyphae were observed in the direct microscopic examination. A more detailed case report will be published elsewhere. Infections due to *Lecanicillium* spp. in reptiles are rare and have only been reported in captive Guthaga skinks (*Liopholis guthaga*) (Scheelings et al. 2015).



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