

*Knufia tsunedae*



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## *Knufia tsunedae* Madrid, Guarro & Crous, *sp. nov.*

*Etymology.* Dedicated to Dr Akihiko Tsuneda, in recognition of his contributions to the study of meristematic and endoconidial fungi.

*Hyphae* septate, branched, pale olivaceous to dark olivaceous-brown, smooth to asperulate, 1.5–5 µm wide. *Endoconidia* mostly broadly ellipsoidal to subglobose, aseptate to muriform, pale olivaceous to pale olivaceous-brown, smooth-walled, (7–)9.5–16(–20.5) × (6–)8–14(–17) µm, formed singly or in groups within cells of torulose hyphae and in intercalary and terminal, ellipsoidal to subglobose, pale olivaceous to dark brown, smooth-walled mother cells up to 21.5 µm wide.

*Culture characteristics* — Colonies on oatmeal agar attaining 42 mm after 21 d at 24 °C, olivaceous-black, umbonate and yeast-like at the centre, flat, with scarce tufts of aerial mycelium toward the periphery; reverse olivaceous-black, no exudates or soluble pigments observed. Growth positive between 6–33 °C, optimum between 24 and 27 °C. No growth observed at 36 °C.

*Typus.* SPAIN, León Province, near Besande, from soil, 12 May 2009, coll. M. Hernández & J. Mena, isol. H. Madrid (holotype CBS H-21340, cultures ex-type CPC 22931 = FMR 10621; ITS sequence GenBank HG003669, LSU sequence GenBank HG003672, MycoBank MB804798).

*Notes* — The genus *Knufia* currently includes six species. The generic type, *K. cryptophialidica*, was isolated from tumour-like stem and branch deformities of *Populus tremuloides* in Canada (Hutchison et al. 1995). Other species have been reported from bark of *Populus*, rocks and clinical samples (Tsuneda & Currah 2004, Tsuneda et al. 2011, Saunte et al. 2012). One species, *K. epidermidis*, causes opportunistic skin infections in humans (Li et al. 2008, Li & Chen 2010). The species described herein does not grow at body temperature and is not expected to pose a danger to humans.

*Knufia tsunedae* produced some smooth-walled arthroconidia in the primary culture, but they were not observed in subcultures, including the one used for the species description. After some transfers the ex-type isolate became sterile. Morphologically, *K. tsunedae* is similar to *K. endospora*, but the endoconidia in the latter species are much smaller (3–5 × 4.5–6 µm) and aseptate (Tsuneda & Currah 2004).

The closest BLAST hits for the ITS sequence of *K. tsunedae* were members of the *Chaetothyriales* (*Eurotiomycetes*) such as *Bahusakala australiensis* GQ272637 (identities 519/534, 97%), *Knufia chersonesos* JN040514 (identities 515/551, 93%) and *Knufia perforans* JN040506 (identities 510/553, 92%). Though *B. australiensis* showed higher ITS identity than *Knufia* spp., the latter genus was considered more appropriate for the new species because the phylogenetic placement of type species of *Bahusakala*, *B. olivaceonigra* is unknown, and no strain of this species is available for DNA sequence studies. Furthermore, *B. olivaceonigra* does not produce endoconidia and has rugose and striate arthroconidia (Ellis 1971). According to Seifert et al. (2011 and references therein), the genus *Bahusakala* probably has sexual morphs in *Aulographina* (*Asterinaceae*, *Dothideomycetes*) or *Xylogone* (*Leotiomycetes*). Further studies are required to assess if *B. australiensis* needs to be transferred to *Knufia*.

*Colour illustrations.* Sample area near Besande; colony on oatmeal agar after 21 d at 24 °C; mother cells; broken mother cell and endoconidium (arrow); endoconidia (arrows). Scale bars = 10 µm.

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