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Short Communication

Chrysosporium synchronum rediscovered in Slovakia

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Abstract: During a mycological investigation of the presence of cycloheximide resistant fungi on a dog fur sample, carried out in Slovakia in December 2007, the rare species *Chrysosporium synchronum* was encountered. This is the second time that this fungus has been recovered and the first in Europe. The species identification was also confirmed by sequencing the ITS region of the rRNA genes. Description and illustrations of the fungus, as well as notes on its phylogeny are given here. The strain is deposited in the Fungal Collection of Biopure Referenzsubstanzen GmbH in Tulln (Austria).

Key words: *Myceliophthora*; Onygenales; *Thielavia hyalocarpa*; Sordariales

During a mycological investigation of the presence of cycloheximide resistant fungi on a dog fur sample, carried out in Slovakia in December 2007, a rare fungus morphologically identified as *Chrysosporium synchronum* Oorschot was encountered (Fig. 1). This fungus was only known by its type strain, recovered in 1963 from the cultivated mushroom *Agaricus bisporus* in Edmonton, Canada (Oorschot 1980). This species was considered intermediate between the genera *Chrysosporium* and *Myceliophthora*. Young conidia normally have broad points of attachment as in most species of *Chrysosporium*, but they become swollen during maturation finally resembling those of *M. thermophila* (Apinis) Oorschot. As the conidia are not borne on ampulliform swellings the species was placed in *Chrysosporium* by the author. Vidal et al. (2000) also indicated a certain similarity of this species with *Myceliophthora* spp., which are anamorphs of *Corynascus* (Sordariales). In the ITS sequence analysis performed by those authors (Vidal et al. 2000), *C. synchronum* clustered with different species of *Corynascus.*

In our study, *C. synchronum* was isolated on Sabouraud dextrose agar (SGA) supplemented with 100 ppm cycloheximide (Kane et al. 1997). The strain was identified based on its morphology and cultural features according to Oorschot (1980). Its identity was confirmed by sequencing data from a fragment of about 563 bp corresponding to the ITS region of the rRNA genes (GenBank accession no. AM943023). The comparison with the sequences deposited in the GenBank database revealed a 98.0% homology with the type strain of *C. synchronum* IMI 282433 (AJ390388) and 97% homology with *Thielavia hyalocarpa* Arx (AJ271583).

Micromorphologically, the strain was characterized by production of synchronously developing, more or less pyriform conidia on short terminal and/or lateral protrusions, mostly up to 10 μm in length and up to 5.5 μm in width, initially being smooth later becoming thick walled and distinctly rough to slightly echinulate. Neither chlamydospores nor intercalary conidia were observed in the strain studied. When compared with the original species diagnosis given by Oorschot (1980), this Slovakian strain forms conidia that are somewhat broader, i.e. 5.5–6.5 μm vs. 4–5.5 μm. Otherwise, based on typical and unique morphological features, the strain studied here matched perfectly with the *C. synchronum* species concept. It thus may be readily distinguished from similar *Chrysosporium* taxa with synchronous conidiation, namely *C. lobatum* Scharapov, *C. sulfureum* (Fiedl.) Oorschot & Samson, and *C. georgiae* (Varsavsky & Ajello) Oorschot. In addition, the strain showed relatively rapid growth on SGA, reaching 52–55 mm in 7 d, rich sporulation giving a slightly granular appearance to the colonies, nearly pure white coloured colonies and yellowish-orange reverse. No further pigmentation of the colonies was observed. The strain showed no keratinolytic activity in a hair perforation (or degradation) test carried out according to de Hoog et al. (2000), what is in agreement with Oorschot (1980), who described *C. synchronum* as being not keratinolytic. Likewise, the strain was not able to grow at 37 °C. The close association of this isolate with *T. hyalocarpa* suggests that *C. synchronum* is probably the anamorph of that species. However, further studies including more strains and perhaps testing other genes are required to prove that relationship.

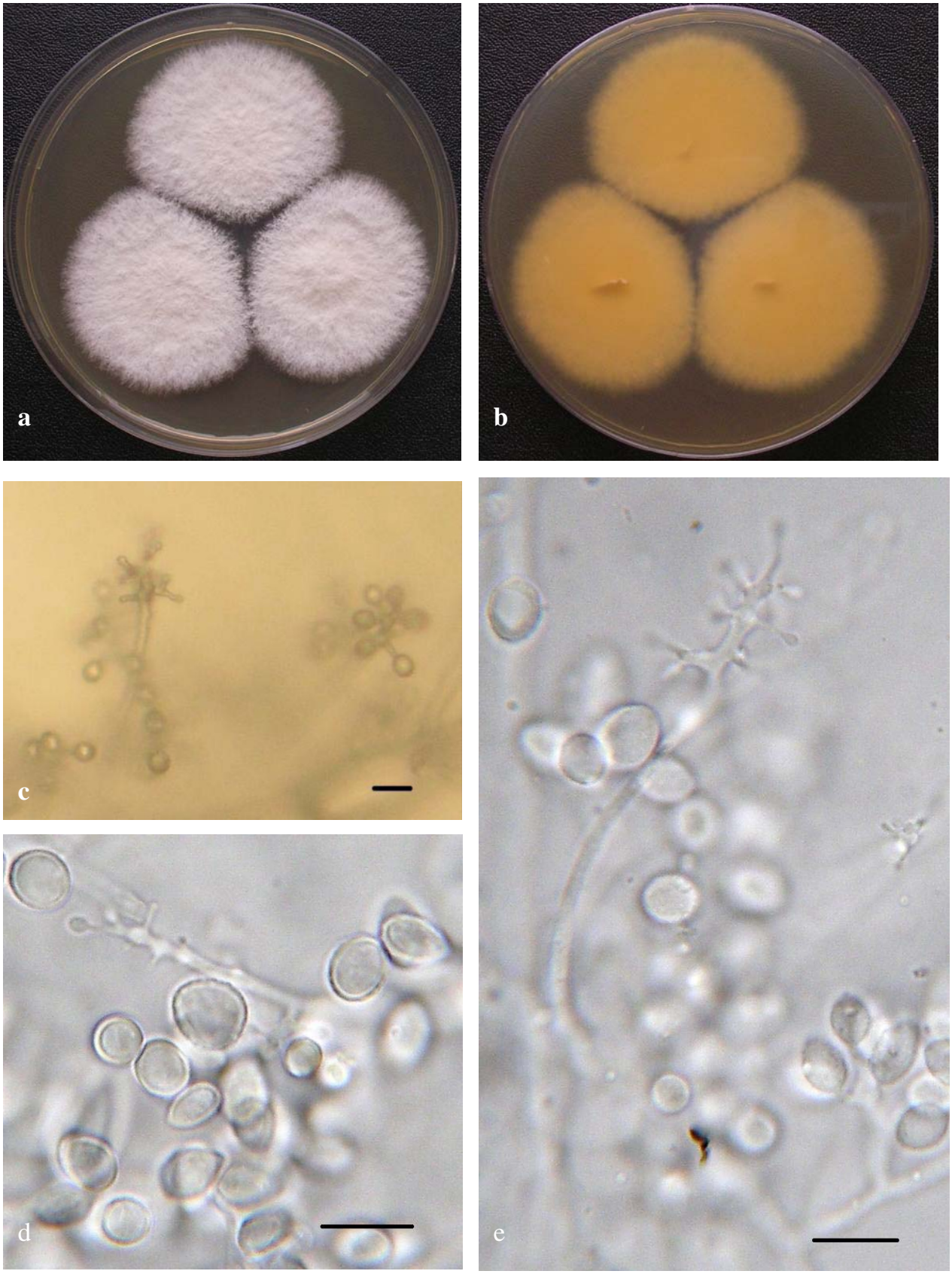

Fig. 1. *Chrysosporium synchronum*; a) obverse and b) reverse of the colonies growing on SGA, 7 d., 25 °C, dark; c–e) micromorphology of conidiophores and conidia (bars = 10 μm).

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References

de Hoog G.S., Guarro J., Gené J. & Figueras M.J. 2000. Atlas of Clinical Fungi, 2nd ed., Centraalbureau voor Schimmelcultures: Utrecht and the Rovira i Virgili University, Reus, Spain, 1126 pp.

Kane J., Summerbell R., Sigler L., Krajden S. & Land G. 1997. Laboratory handbook of dermatophytes. Star Publishing, Belmont, 344 pp.

van Oorschot C.A.N. 1980. A revision of *Chrysosporium* and allied genera. Stud. Mycol. **20:** 1–89.

Vidal P., de los Angeles Vinuesa M., Sánchez-Puelles J.M. & Guarro J. 2000. Phylogeny of the anamorphic genus *Chrysosporium* and related taxa based on rDNA internal transcribed spacer sequences, pp 22–29. In: Kushwaha R.K.S. & Guarro J. (eds), Biology of dermatophytes and other keratinophilic fungi, Bilbao, 174 pp.

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