An ex-type culture cannot always tell the ultimate truth

This note is prompted by the case of the generic name *Ochroconis,* a rather common genus of saprotrophic soil hyphomycetes, some of which grow occasionally on humans and fish. Von Arx, in the 1970s, being mainly interested in producing keys to identify fungal genera in culture morphologically, did not believe that *Scolecobasidium terreum* E.V. Abbott 1927 with Y-shaped yellowish conidia, and other species of this genus with darker, unbranched conidia were congeneric, as proposed by Barron & Busch (1962). Therefore, he let his young staff member G. Sybren de Hoog describe a separate genus, *Ochroconis*, for the latter, larger group (de Hoog & von Arx 1974). In addition to mycologists who regarded the similar colony characters and rhexolytic conidial liberation of all species involved as significant (e.g. Ellis 1971, 1976, Domsch *et al.* 1980), molecular findings (Horré *et al.* 1999, Machouart *et al.* 2014) have clearly shown this generic separation to be unwarranted. In addition two faster-growing halophilic species, *S. salinum* and *S. arenarium* were included in the genus by Ellis (1976), but they are now rightly excluded again and classified in *Paradendryphiella* Woudenb. & Crous 2013 (Woudenberg *et al.* 2013). The probable ex-type culture of *S. terreum*, CBS 203.27, no longer sporulates and phylogenetically falls outside the genus. It no longer shows the features that the ex-type would be expected to support, a misfortune that sometimes happens with a culture after decades of preservation.

Other comparable cases are *Acremonium domschii* W. Gams 1971, a species originally described as closely related to the anamorph of the species now named *Cosmospora viridescens* (C. Booth) Gräfenhan 2011 (Gräfenhan *et al.* 2011), but lacking green pigmentation; the ex-type culture of Gams' name, CBS 764.69, however, now shows a fungus unrelated to *Cosmospora* and therefore that species name was omitted in the cited paper. *Monocillium arctiicola* W. Gams 1971 was described by Gams (1971) as characterized by rather large conidia, but the ex-type culture, CBS 994.69, now has narrow conidia and is unrelated to other isolates accurately matching the description of this species. The dried type culture still shows the correct fungus and DNA sequences of the other isolates representing this species can be taken as correct.

Unfortunate consequences arise when a wrongly identified fungus is designated as an epitype of a species, as happened with *Hypocrea farinosa* Berk. & Broome 1851 for which Overton *et al.* (2000) designated an epitype without studying the extant holotype. It was left to Jaklitsch *et al.* (2008) to correct the situation and to resurrect the generic name *Protocrea* Petch 1937 for this fungus and its relatives, while Overton *et al.*'s fungus is now known as *Hypocrea decipiens* Jaklitsch *et al.* 2008.

Sybren de Hoog, in order to retain the generic name *Ochroconis*, let his student K. Samerpitak declare *Scolecobasidium* a dubious genus, because the identity of the type was uncertain to them (Samerpitak *et al.* 2014), in spite of many reliably named cultures of *S. terreum* being available all over the world, which clearly define the identity of this characteristic fungus. One of these cultures discovered by Domsch *et al.* (1980) was the CBS 510.71 ex-type of *Humicola minima* Fassat. 1967, whose author had not seen the characteristic Y-shaped conidia that were formed on certain media by the original culture. Without mentioning the source of this informtion, Samerpitak *et al.* (2014) made the combination *Ochroconis minima* (Fassatiová) Samerp. & de Hoog 2014, which would have to replace *Scolecobasidium terreum.* Needless to say, *Ochroconis* has not been recognized by Seifert *et al.* (2011). In the era of production of lists of fungal names for protection, the responsible committee should not be misguided and recognize the incorrect name for this genus.

Thanks to David L. Hawksworth for helpful suggestions.

Barron GL, Busch LV (1962) Studies on the soil hyphomycetes *Scolecobasidium*. *Canadian Journal of Botany* **40**: 77–84.

de Hoog GS, Arx JA von (1974) ["1973"] Revision of *Scolecobasidium* and *Pleurophragmium*. *Kavka* **1**: 55–60.

Domsch KH, Gams W, Anderson T-H (1980) *Compendium of Soil Fungi.* London: Academic Press.

Ellis MB (1971) *Dematiaceous Hyphomycetes*. Kew: Commonwealth Mycological Institute.

Ellis MB (1976) *More Dematiaceous Hyphomycetes*. Kew: Commonwealth Mycological Institute.

Gams W (1971) *Cephalosporium-artige Schimmelpilze (Hyphomycetes).* Stuttgart: G. Fischer.

Gräfenhan T, Schroers H-J, Nirenberg HI, Seifert KA (2011) An overview of the taxonomy, phylogeny, and typification of nectriaceous fungi in *Cosmospora*, *Acremonium, Fusarium, Stilbella,* and *Volutella*. *Studies in Mycology* **68**: 79-113.

Horré P, de Hoog GS, Kluczny C, Marklein G, Schaal KP (1999) rDNA diversity and physiology of *Ochroconis* and *Scolecobasidium* species reported from humans and other vertebrates. *Studies in Mycology* **43**: 194–204.

Jaklitsch,WM, Põldmaa, K, Samuels, GJ (2008) Reconsideration of *Protocrea* (*Hypocreales*, Hypocreaceae). *Mycologia* **100**: 962–984.

Machouart M, Samerpitak K, de Hoog GS, Gueidan C (2014) A multigene phylogeny 539 reveals that *Ochroconis* belongs to the family *Sympoventuriaceae* (*Venturiales*, 540 *Dothideomycetes*). *Fungal Diversity* **65**: 77–88.

Overton BE, Stewart EL, Geiser DM (2006) Taxonomy and phylogenetic relationships of nine species of *Hypocrea* with anamorphs assignable to *Trichoderma* section *Hypocreanum*. *Studies in Mycology* **56**: 39–65.

Samerpitak K, van der Linde E, Choi H-J, Gerrits van den Ende AHG, Machouart M, Gueidan C, de Hoog GS (2013) ["2014"] Taxonomy of *Ochroconis*, genus including opportunistic pathogens on humans and animals. *Fungal Diversity* **65**: 89–126.

Seifert KA, Morgan-Jones G, Gams W, Kendrick WB (2011) *The Genera of Hyphomycetes*. Utrecht: CBS-KNAW Fungal Biodiversity Centre.

Woudenberg JHC, Groenewald JZ, Binder M, Crous PW (2013) *Alternaria* redefined. *Studies in Mycology* **75**: 171–212.

Walter Gams
(walter.gams@online.nl)