



A multiple gene genealogy reveals the phylogenetic placement of *Iodosphaeria tongrenensis* sp. nov. in Iodosphaeriaceae (Xylariales)

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Abstract

During collections of Sordariomycetes in Guizhou Province, China, we collected *Iodosphaeria tongrenensis* sp. nov.. It is unique in the genus because of its ellipsoidal ascospores (18.5–22.5 × 6.5–8.5 μm) with a slimy sheath covering the whole spore, and J+, wedge-shaped, ascus apical apparatus. *Iodosphaeria* is a monotypic genus in Iodosphaeriaceae and phylogenetic analyses of combined LSU, ITS and SSU sequence data indicate that it is a distinct family in the order Xylariales.

Key words: phylogeny, Sordariomycetes, taxonomy

Introduction

Samuels *et al.* (1987) introduced the generic name *Iodosphaeria* in the family Amphisphaeriaceae with type species, *I. phyllophila* (Mouton) Samuels, E. Müll. & Petrini. *Iodosphaeria* species are characterised by their superficial, black, non-papillate ascomata, with unbranched, brown flexuous hairs radiating from the peridium surface. The peridium is composed of two distinct regions; an outer region of angular, pigmented cells, and an inner region of flattened hyaline cells. Asci are 8-spored, unitunicate, cylindrical to narrowly clavate, and usually have amyloid, discoid apical apparatuses staining in Melzer's reagent. Ascospores are allantoid to ellipsoidal, aseptate, hyaline, with or without sheaths (Samuels *et al.* 1987). Selenosporella-like and ceratosporium-like asexual morphs have been observed, both on the surface of host and in culture. There are eight records in the genus *Iodosphaeria* (Index Fungorum 2015), which have been reported worldwide, from Argentina, Europe, Hong Kong, New Zealand South America and USA (Samuels *et al.* 1987, Barr 1993, Hyde 1995, Candoussau *et al.* 1996, Hsieh *et al.* 1997, Taylor & Hyde 1999, Catania & Romero 2012).

Ellis & Ellis (1985) described *Lasiosphaeria phyllophila* Mouton from fallen dead twigs and debris of *Acer*, *Populus* and *Salix*. Because *Lasiosphaeria phyllophila* combined characters of selenosporella-like and ceratosporium-like asexual morphs and forming an amyloid apical apparatus in the sacus, Samuels *et al.* (1987) placed it in a new genus *Iodosphaeria*. *Iodosphaeria* was considered similar to *Phaeotrichosphaeria* Sivan. (Sivanesan 1983) and *Endophragiella* B. Sutton (Hughes 1979). *Iodosphaeria* was included in Amphisphaeriaceae by Samuels *et al.* (1987). Barr (1993) transferred *Trichosphaeria arundinariae* Ellis and Everh. to *Iodosphaeria arundinariae* (Ellis and Everh.) M.E. Barr based on its peridium and centrum structure. Barr (1990, 1994) suggested that *Iodosphaeria* was better placed in the family Lasiosphaeriaceae (Sordariales). Hyde (1995) added a new species, *I. aquatica*, to the genus, and noted that *I. aquatica* is close to *Pseudohalonectria* Minoura & T. Muroi and some species in Lasiosphaeriaceae. Hsieh *et al.* (1997) excluded *I. aquatica* from *Iodosphaeria*, while describing another new species. *Iodosphaeria* was excluded from Amphisphaeriaceae by Kang *et al.* (1998, 1999). Réblová (1999) placed the genus in the family Trichosphaeriaceae and Eriksson *et al.* (2001) placed it in the Amphisphaeriaceae. Iodosphaeriaceae was introduced as a new family by Hilber & Hilber (2002) to accommodate *Iodosphaeria*. Based on phylogenetic analyses of 28S rDNA, *Iodosphaeria* was shown to be similar to *Phomatospora* Sacc., and excluded from the Amphisphaeriaceae by