



Shiraiaceae, new family of Pleosporales (Dothideomycetes, Ascomycota)

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Abstract

Shiraia bambusicola is an economically important medicinal fungus on bamboo. In this paper we re-describe the holotype and designate an epitype based on fresh specimens collected from Zhejiang Province in China. Morphological characters agree with those of the holotype and phylogenies based on combined partial LSU-rDNA, EF and RPB gene sequence data from the epitype, suggest that it is a new family of Pleosporales. The new family is introduced and the holotype and epitype are both illustrated.

Key words: asexual state, bamboo, new family, phylogeny, taxonomy, traditional Chinese Medicine

Introduction

The genus *Shiraia* was introduced by Hennings (1900) based on *Shiraia bambusicola* Henn. and has remained monotypic until now. *Shiraia bambusicola* is parasitic on branches of several species of bamboo, and is distributed in the southern region of China and in Japan (Kishi *et al.* 1991). Ascstromata of this taxon are used as a traditional Chinese medicine and is of medicinal importance because of the metabolite hypocrellin, which has promising applications in photodynamic therapy (PDT) for anti-cancer treatments (Deining *et al.* 2002, Miller *et al.* 2008, Yang *et al.* 2001, Zhang *et al.* 1998).

The genus *Shiraia* was initially placed in the family *Nectriaceae* (Hennings 1900), but was transferred by Saccardo (1902) to the *Hypocreaceae* (*Hypocreales*) based on its large persistent ascstromata, which was considered to be one of the characteristics of this family. This classification was subsequently followed by Dai (1979), Rogerson (1970) and Teng (1934). Amano (1980) observed the isotype specimen, and concluded that the fungus does not have unitunicate asci as described by Hennings (1900). Amano (1980) transferred *Shiraia* to the order *Pleosporales* because it has bitunicate asci and its centrum is of the *Pleospora* type. However, Amano (1983) referred the genus to *Dothideales*. Subsequently, most researchers (Lumbsch & Huhndorf 2010, Zhang *et al.* 2012), place *Shiraia* in *Dothideales incertae sedis*.

Previous classifications of *Shiraia* were mainly based on morphological characteristics of ascstromata, asci, and ascospores, and sequence data available in GenBank was from the ITS region. Based on rDNA sequence data Cheng *et al.* (2004) showed that *Shiraia* should be classified in *Pleosporales*. More recently, *Shiraia* was segregated as an unpublished family, *Shiraiaceae*, in GenBank (see taxonomy of *S. bambusicola* in NCBI); this family name has not yet been validly published.