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Two new species of *Hymenochaete* (Hymenochaetaceae, Basidiomycota) and *H. colliculosa* new to China from Shanxi Province

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Abstract

Hymenochaete angustispora and *H. verruculosa spp. nov*. are described and illustrated from Shanxi Province, northern China. *Hymenochaete angustispora* was collected on *Vitex negundo*, and is characterized by resupinate basidiocarps, the absence of a hyphal layer, and narrowly cylindrical to allantoid basidiospores 5–7 × 1.8–2.2 µm. *Hymenochaete verruculosa* was collected on *Cornus sp.*, and is distinct by the effuso-reflexed basidiocarps with a verruculose hymenophore, the presence of a cortex and hyphal layer, and small ellipsoid basidiospores 3.5–4.5 × 2–2.8 µm. *Hymenochaete colliculosa*, collected on *Berberis sp.*, is reported in China for the first time. The phylogeny of 57 *Hymenochaete* species was inferred from a concatenated dataset of nuc rDNA ITS1-5.8S-ITS2 (ITS barcode) and D1-D2 domains of nuc 28S rDNA (28S) sequences.

Key words: Hymenochaetales, ITS, 28S, taxonomy, wood-inhabiting fungi

Introduction

Hymenochaete Lév. (1846:150) is an important group of wood-inhabiting fungi, and includes more than 120 species with different morphological characters, for example, the hymenophores are smooth, tuberculate, lamellate, poroid or hydnoid; the hyphal system is monomitic or dimitic; and the basidiospores are narrowly cylindrical to globose (Léger 1998, Parmasto 2001, He & Dai 2012). However, several characters can be used to circumscribe the genus, such as brown basidiocarps darkening in potassium hydroxide, simple-septate generative hyphae, brown setae, and causing a white rot (Léger 1998, Parmasto 2001). In phylogenetic trees of Hymenochaetaceae or Hymenochaetales, species of *Hymenochaete* form a monophyletic clade sister to *Hymenochaetopsis* S.H. He & Jiao Yang (2016:2) that is almost indistinguishable from *Hymenochaete* in morphology (Larsson *et al*. 2006, He & Dai 2012, Baltazar *et al*. 2014, Parmasto *et al*. 2014, Yang *et al*. 2016).

Hymenochaete has been studied since the 1940s by many mycologists. Léger (1998) monographed 106 species of the genus. Parmasto studied *Hymenochaete* specimens from almost all over the world and published a series of papers (Parmasto 1986, 2001, 2005, 2012, Parmasto & Gilbertson 2005, Parmasto *et al.* 2014). The first phylogenetic study of *Hymenochaete s.l.* was conducted by Wagner & Fisher (2002), who separated *Pseudochaete* T. Wagner & M. Fisch. (2002:100) from *Hymenochaete* based on the analyses of 28S sequences. Their results were later confirmed by further studies (Larsson *et al*. 2006, He & Dai 2012, Baltazar *et al*. 2014, Parmasto *et al*. 2014).

Shanxi, located in northern China, is a mountainous province of relatively high altitude. The plants and associated wood-inhabiting fungi belong to temperate flora. In 2016, two field trips focusing on wood-inhabiting fungi were carried out in northern and southern Shanxi Province, and over 100 specimens were collected. A preliminary checklist of wood-inhabiting fungi in the province based on these specimens and the deposited specimens in the herbarium of Beijing Forestry University (BJFC) has been published (Wu *et al.* 2017). Later, morphological and molecular studies reveal two undescribed species of *Hymenochaete* and *H. colliculosa* (Sacc.) Parmasto (1986:375) new to China from those specimens collected in 2016. Illustrated descriptions of the three species are given in the present paper.