



## *Cylindrosporus flavidus* gen. et comb. nov. (Hymenochaetales, Basidiomycota) segregated from *Onnia*

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### Abstract

*Onnia* is one of the seven genera of *Inonotus* s.l., belonging to Hymenochaetaceae. According to the current concept, *Onnia* differs from the other six genera of *Inonotus* s.l. mainly by its either stipitate or sessile basidiocarps, duplex context, presence of hymenial setae and hyaline, thin-walled basidiospores. As the only species with sessile basidiocarps and cylindrical basidiospores in *Onnia*, *O. flavida* was transferred from *Inonotus* without molecular test. In this study, for the first time, *Onnia flavida* is included in nLSU- and ITS-based phylogenetic analyses. Phylogenetic analyses showed that *Onnia flavida* belonged to Hymenochaetaceae and was clearly separated from *Onnia* and other six genera of *Inonotus* s.l. Moreover, there is no other current genus in Hymenochaetaceae fit to accommodate this species from both morphological and phylogenetic perspectives. Therefore, a monotypic genus *Cylindrosporus* is newly proposed to accommodate the new combination *C. flavidus*. The distinct characters of *Cylindrosporus* that distinguish it from other morphologically and phylogenetically related genera are discussed.

**Key words:** Hymenochaetaceae, *Inonotus* s.l., phylogeny, polypores, taxonomy

### Introduction

*Inonotus* P. Karst., typified by *Boletus hispidus* Bull. (Donk 1960), is one of the largest genera in the Hymenochaetaceae (Basidiomycota). In a broad sense, *Inonotus* has more than 100 species and is characterized by an annual habit, poroid basidiocarps and a monomitic hyphal system in the family (Ryvarden 2005). Several more natural genera were later proposed to accommodate species originally belonging to *Inonotus*. Among these genera, *Inocutis* Fiasson & Niemelä, *Inonotopsis* Parmasto, *Mensularia* Lázaro Ibiza and *Onnia* P. Karst. were first confirmed to be separated from the reduced concept of *Inonotus* by molecular evidence (Wagner & Fischer 2001, 2002b) and accepted by later taxonomic studies (Dai 2010, Zhou 2014). Recently, two additional genera, *Sanghuangporus* Sheng H. Wu, L.W. Zhou & Y.C. Dai and *Tropicoporus* L.W. Zhou, Y.C. Dai & Sheng H. Wu, were further segregated from *Inonotus* (Zhou *et al.* 2015). Prior to the present study, seven genera of *Inonotus* s.l. were accepted.

According to the current concept emended by Dai (2010), *Onnia* differs from the other six genera of *Inonotus* s.l. mainly by its duplex context, presence of hymenial setae and hyaline, thin-walled basidiospores. It is also characterized by including species developing either stipitate basidiocarps growing on the ground or sessile basidiocarps on wood (Dai 2010). As the only species with sessile basidiocarps and cylindrical basidiospores in *Onnia*, *O. flavida* (Berk.) Y.C. Dai was transferred from *Inonotus* to *Onnia* without molecular work by Dai (2001). The main morphological characters of *Onnia flavida* supporting this transfer are the combination of duplex context with a black line, presence of setae and hyaline, thin-walled basidiospores that are more close to the delimitation of *Onnia* (Dai 2001).

In the present study, I try to establish whether *Onnia flavida* belongs to *Onnia* from a phylogenetic perspective.

### Materials and methods

*Morphological studies.*—The studied specimens are deposited at the herbarium of the Institute of Microbiology, Beijing Forestry University (BJFC). The microscopic procedure follows Dai (2010). Sections were prepared in Cotton Blue and Melzer's reagent, and were examined using a Nikon Eclipse 80i microscope at magnifications of 1000×.