



## Molecular and morphological evidences reveal two new species in *Grammothele* and *Theleporus* (Basidiomycota) from southern China

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### Abstract

Two new wood-decaying polypores from southern China, *Grammothele separabillima* and *Theleporus rimosus*, are described and illustrated using morphological characteristics and rDNA ITS sequences. *Grammothele separabillima* is characterized by its easily separable basidiocarps, poroid hymenophore with hymenium restricted to the base of the tubes, a dimitic hyphal system, pale brown skeletal hyphae with dextrinoid reaction, presence of dendrohyphidia, and oblong ellipsoid basidiospores. *Theleporus rimosus* is characterized by its resupinate, cracked basidiocarps, shallow poroid hymenophore with hymenium restricted to the base of the tubes, a di-trimitic hyphal system with dendroid and non-dextrinoid skeletal hyphae, presence of dendrohyphidia and ellipsoid to fusiform basidiospores. The discriminating characters of these two new species and the closely related species are discussed.

**Key words:** ITS, lignicolous fungi, Molecular phylogeny, Polyporales, taxonomy

### Introduction

*Grammothele* Berk. & M.A. Curtis was established based on the type species *G. lineata* Berk. & M.A. Curtis (1869: 327). The genus is characterized by resupinate basidiocarps with brownish to almost black pore surface, irpicoid to poroid hymenophore with hymenium restricted to the base of the tubes, a dimitic hyphal system with dextrinoid skeletal hyphae, presence or absence of dendrohyphidia and ellipsoid to cylindrical, thin-walled basidiospores (Núñez & Ryvarden 2001). The genus comprises 16 species according to Index Fungorum (2015).

*Theleporus* Fr. was established based on the type species *T. cretaceus* Fr. (1848: 138). It is closely related to *Grammothele* by sharing similar hymenial structures that with the hymenium restricted to the base of the tubes. However, the species in *Theleporus* usually have white to ochraceous basidiocarps, a di-trimitic hyphal system and dendroid, non-dextrinoid skeletal hyphae (Ryvarden & Johansen 1980). According to Index Fungorum (2015), the genus comprises 7 species around the world.

*Grammothele* and *Theleporus* were used to be accommodated in Corticiaceae based on morphological characteristics (Núñez & Ryvarden 2001). However, it was revealed that *G. fuligo* (Berk. & Broome) Ryvarden (1979: 15) belongs to the core polyporoid clade in a molecular phylogeny (Binder *et al.* 2005). Recent study confirmed the phylogenetic position of *G. lineata* and the evolutionary relationships among several species of the two genera (Zhou & Dai 2012b).

Investigations on the diversity of wood-decay fungi in subtropical and tropical China have been carried out, and numerous species were reported recently (Cui & Dai 2008, Cui *et al.* 2009, 2010, Dai 2011, Dai *et al.* 2009, 2010, Li *et al.* 2014, Yuan & Dai 2012, Yuan & Wan 2012, Zhao *et al.* 2013, 2015, Zhou & Dai 2012a, 2012b). As a continuation on survey of wood-decay fungi in southwestern China, several specimens belong to *Grammothele* and *Theleporus* were collected from tropical to subtropical areas. Morphological characteristics and molecular evidences suggest they represent two new species in *Grammothele* and *Theleporus*, respectively. The aim of this work is to clarify the taxonomic positions and examine evolutionary relationships of these two new species based on rDNA ITS sequences.