



## A new species and a new combination in the genus *Aureoboletus* (Boletales, Boletaceae) from southern China

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### Abstract

Two lineages of *Aureoboletus* (Boletales, Boletaceae) from southern China were revealed by using molecular data based on combined dataset of the nuclear ribosomal large subunit RNA (nrLSU), the translation elongation factor *apha-1* (*tef1-a*) and the largest subunit of RNA polymerase II (*rpb1*). One of them corresponds with the previous morphology-based taxon, viz. *Boletellus longicollis*, another one is different from those taxa described based on morphological features. And, thus, *Aureoboletus clavatus* sp. nov. and *A. longicollis* comb. nov. were proposed. A detailed description, colour photos of fresh basidiomata, and a line-drawing of microscopic features of the two taxa were provided.

**Key words:** boletes, molecular phylogenetics, new taxon, taxonomy

### Introduction

*Aureoboletus* Pouzar (Boletaceae, Boletales), typified by *Aureoboletus gentilis* (Quél.) Pouzar, was erected in 1957 (Pouzar 1957; Klofac 2010). Until now, 18 taxa of the genus have been described in the world ([www.mycobank.org](http://www.mycobank.org)). Most of them are from temperate regions (Pouzar 1957; Yang *et al.* 2003; Klofac 2010; Shi and Liu 2013; Zhang *et al.* 2014, 2015; Halling *et al.* 2015). With more field investigations made, species from subtropical and tropical regions are expected to be revealed (Yang *et al.* 2003; Shi and Liu 2013; Zhang *et al.* 2014, 2015). Recently, the boletes from southern China have been re-evaluated by using molecular phylogenetic evidence (Zeng *et al.* 2012, 2013, 2015), several collections nested into the *Aureoboletus* clade (Nuhn *et al.* 2013; Halling *et al.* 2015), forming two independent lineages. One of them corresponds with the previous morphology-based taxon, viz. *Boletellus longicollis* (Ces.) Pegler & T.W.K. Young, another one is different from those taxa described based on morphological features. And, thus, one new species, i.e., *A. clavatus* sp. nov., and one new combination, i.e., *A. longicollis* comb. nov., were presented herein.

### Materials and Methods

**Morphological studies**—Specimens were described and photographed in the field, and deposited in the Herbarium of Cryptogams, Kunming Institute of Botany, Chinese Academy of Sciences (HKAS), the Fungal Herbarium of Guangdong Institute of Microbiology (GDGM), and the Fungal Herbarium of Hainan Medical University (FHMU). Colour codes are from Kornerup and Wanscher (1981). Sections of the squamules on the pileus were cut tangentially and halfway between center and margin of the pileus. Sections of the squamules on the stipe were taken from the middle part along the longitudinal axis of the stipe. Five percent KOH was used as a mounting medium for microscopic studies. All microscopic structures were drawn by free hand. Basidiospores of dried specimens were examined with a Hitachi S-4800 scanning electron microscope (SEM) at 10.0 kV (Li *et al.* 2011; Zeng *et al.* 2012, 2013). The