



Metacordyceps shibinensis sp. nov. from larvae of Lepidoptera in Guizhou Province, southwest China

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Abstract

A new entomogenous taxon, *Metacordyceps shibinensis* sp. nov., associated with a larva of Lepidoptera was found in Yuntai Mountains, Guizhou Province, China. It differs from similar species in its white to faint yellow stromata, short ascomata, and very short asci and ascospores. Combined sequence analyses of 5.8S-ITS rDNA, nrSSU, EF-1 α and RPB1 gene-loci also confirmed the distinctiveness of this new species.

Key words: *Metacordyceps*, morphology, new species, phylogenetic analyses

Introduction

Cordyceps sensu lato is regarded as one of the most important genera of invertebrate pathogens (Hywel-Jones 2001) with more than 540 species (Index Fungorum, 2015). About 140 species have been reported from China (Song *et al.* 2006, Liang 2007, Li *et al.* 2008, Gao *et al.* 2010, Zhang *et al.* 2010, Yang *et al.* 2009, Li *et al.* 2008, Lin *et al.* 2008, Li *et al.* 2010, Chen *et al.* 2011, Chen *et al.* 2013, Wen *et al.* 2013, 2014, Yan & Bau 2015, Yang *et al.* 2015). *Cordyceps* has been recently divided and placed in three families and six genera—*Polycephalomyces* (*Ophiocordycipitaceae*) (Kepler *et al.* 2013), *Tyrannicordyceps* (*Clavicipitaceae*) (Kepler *et al.* 2012b), *Metacordyceps* (*Clavicipitaceae*), *Elaphocordyceps* (*Ophiocordycipitaceae*), *Ophiocordyceps* (*Ophiocordycipitaceae*) and *Cordyceps* (*Cordycipitaceae*) (Sung *et al.* 2007a). More than 240 *Cordyceps* species have been placed into these six genera, but about half of *Cordyceps sensu lato* species need to be restudied and re-arranged (Sung *et al.* 2007a). Sung *et al.* (2007a) and (Kepler *et al.* 2012a) suggested that there are 15 *Metacordyceps* species, while 14 epithets are assigned to *Metacordyceps* in Index Fungorum (2015).

In this study, a new *Metacordyceps* species was found parasitizing larvae of Lepidoptera collected from the Yuntai Mountains of Guizhou Province in southwest China. This species is morphologically and phylogenetically distinct from all other *Cordyceps sensu lato* species. The purpose of this paper is to introduce the new species with micrographs and a description, and to compare it with related taxa.

Material and methods

Specimens and host

Collection was made in the Yuntai Mountains, Shibin County of Guizhou Province in May 2013. Specimens were stored in plastic containers at low temperature and transported to the laboratory for identification.

Morphological studies

Fungal fruiting bodies were examined using an Olympus stereo dissecting microscope (Olympus Optec Instrument Co.,