Culturable mycobiota from Karst caves in China, with descriptions of 20 new species

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Karst caves are distinctly characterised by darkness, low to moderate temperatures, high humidity, and scarcity of organic matter. During the years of 2014–2015, we explored the mycobiota in two unnamed Karst caves in Guizhou province, China, and obtained 563 fungal strains via the dilution plate method. Preliminary ITS analyses of these strains suggested that they belonged to 246 species in 116 genera, while 23.5 % were not identified to species level. Among these species, 85.8 % (211 species) belonged to *Ascomycota*; 7.3 % (18 species) belonged to *Basidiomycota*; 6.9 % (17 species) belonged to *Mucoromycotina*. The majority of these species have been previously known from other environments, mostly from plants or animals as pathogens, endophytes or via a mycorrhizal association. We also found that 59 % of these species were discovered for the first time from Karst caves, including 20 new species that are described in this paper. The phylogenetic tree based on LSU sequences revealed 20 new species were distributed in six different orders. In addition, ITS or multi-locus sequences were employed to infer the phylogenetic relationships of new taxa with closely related allies. We conclude that Karst caves encompass a high fungal diversity, including a number of previously unknown species. Novel species described include: *Amphichorda guana*, *Auxarthronopsis guizhouensis*, *Biscogniauxia petrensis*, *Cladorrhinum globisporum*, *Collariella quadrum*, *Gymnoascus exasperatus*, *Humicola limonisporum*, *Metapochonia variabilis*, *Microascus anfractus*, *Microascus globulosus*, *Microdochium chrysanthemoides*, *Paracremonium variiforme*, *Pectinotrichum chinense*, *Phaeosphaeria fusispora*, *Ramophialophora globispora*, *Ramophialophora petraea*, *Scopulariopsis crassa*, *Simplicillium calcicola*, *Volutella aeria*, and *Wardomycopsis longicatenata*.

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