Dissertation Title	Taxonomy of Lichenicolous Fungi with Emphasis on Hengduan Mountains in China
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ABSTRACT

Lichenicolous fungi, are a special group growing on the thallus or apothecia of lichens, and exhibit saprobic, symbiotic or parasitic life styles. I conducted a series of studies on lichenicolous fungi from three aspects, discovery of new species and records, molecular clock analysis, and review and illustration of obligated lichenicolous genera.

We collected 292 samples from five nature reserves (Baima Mountain, Jiaozi Mountain, Laojun Mountain, Meili Mountain, and Yulong Mountain) belonging to Hengduan Mountains region in Yunnan Province of China. A total of 201 sequences belonging to 71 samples were successfully sequenced. Based on morphological and molecular analysis, one species, Sclerococcum glaucomarioides growing on Ochrolechia sp., was reported from China for the first time. In addition, another species, Sclerococcum sticta growing on thallus of Sticta sp., was described as new to science. The collection, Kirschsteiniothelia laojunensis, growing on bark, surrounded by a thallus of Pertusaria sp., was identified as new to science. A novel genus Lijiangomyces, and new species L. laojunensis were introduced and placed within Mytilinidiaceae (Mytilinidiales, Dothideomycetes). Five new species of Abrothallus were described and illustrated based on morphological comparison and phylogenetic analysis. Molecular clock analysis was conducted for Abrothallales and 12 adjacent orders using three fossils (Aigialus 34 Mya, Muyocopron 54 Mya and Microthyriales 145 Mya) as the first calibration point and the divergence time of the class Dothideomycetes as the second calibration point. The results indicated that

Abrothallales had a divergence time of 99 Mya, 40 Mya earlier than previous research estimates. Among the other 12 neighboring orders, divergence times of nine orders are significantly earlier than the previous estimates, and four of which are slightly later.

A comprehensive lichenicolous species checklist has been compiled, encompassing all published lichenicolous species worldwide, totaling 2,673 species belong to two phyla (Ascomycota and Basidiomycota), 15 classes (Arthoniomycetes, Ascomycetes, Candelariomycetes, Dothideomycetes, Eurotiomycetes, Laboulbeniomycetes, Lecanoromycetes, Leotiomycetes, Lichinomycetes, Pezizomycetes, Sordariomycetes, Agaricomycetes, Tremellomycetes, Agaricostilbomycetes, Microbotryomycetes), 67 orders, 132 families and 424 genera. Among these genera, 225 genera are classified as obligated lichenicolous genera, meaning that more than half or even all of their species are lichenicolous. Notes are provided for these genera, along with redrawn illustrations of their type species based on the original descriptions.

Keywords: Divergence Time, Fungalpedia, Molecular Clock Analysis, New Species, New Genus, Collections, Taxonomy