**HYPERDIVERSITY OF ASCOMYCETOUS FUNGI INHABITING *Lobariella* LICHENS IN THE ANDEAN CLOUD FORESTS**

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The tropical Andes, one of the world's most significant biodiversity heritage, are characterized by having unusual and hyperdiverse symptomatic fungi inhabiting lichens. The great majority of these lichenicolous fungi remains undescribed, and their phylogenetic relationships are mostly unknown. Here we report the results of a study focusing on ascomycetous fungi inhabiting the genus *Lobariella*, a species-rich genus of lichen-forming fungi, known to be endemic to neotropical cloud forests. Prior to our study, 19 species of lichenicolous Ascomycota and three species of Basidiomycota had been described or reported from *Lobariella*. We found that *Lobariella* hosts more than 40 species and is one of the most important hosts of lichenicolous fungi in the Andean cloud forests. Based on molecular and morphological data, three new genera and nine new species of lichenicolous fungi are described, and phylogenetic placements of 13 species are reported. Teleomorph-anamorph connections were established for many species using molecular methods and/or visual observations in nature. We also discovered that the anamorphic species *Cornutispora ophiurospora* inhabiting *Lobariella* was often accompanied by ascomata of *Spirographa*. Results of phylogenetic analyses, including newly generated sequences of several *Cornutispora* and *Spirographa* species inhabiting various host lichens, support the conclusion that *Cornutispora* is a synonym of *Spirographa*. Our phylogeny shows that all studied *Spirographa* (including former *Asteroglobulus*, *Cornutispora,* and *Pleoscutula*) belong to a new lineage within Ostropales. Based on this phylogenetic result and their distinctive conidiomata, a new family – *Spirographaceae* – is proposed. This new lineage includes broadly distributed mycoparasites, inhabiting lichen and fungal hosts, and represents an early divergence that preceded the origin of the lichen-forming Fissurinaceae, Gomphillaceae, and Graphidaceae. Four new species and 15 new combinations of *Spirographa* are proposed to accommodate these new results. Species within this genus are strongly host-specific at the generic level of their host.