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# *Macroskyttea parmotrematis* gen. et sp. nov. (Helotiales, Leotiomycetes, Ascomycota), a new lichenicolous fungus from Bolivia

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## Abstract

A new genus and species of lichenicolous fungi, *Macroskyttea parmotrematis,* inhabiting thalli of *Parmotrema aberrans* and *P. ultralucens*, is described from montane forests in Bolivia. The new genus is similar to *Skyttea* and *Diplolaeviopsis* from which it clearly differs in larger apothecia with widely exposed black pigmented discs, macroscopically easily visible long excipular hairs covering the whole exciple, and different ascus structure. Our results based on Maximum Likelihood (ML) and Bayesian analysis of three loci (nuSSU, nuLSU and 5.8S of the ITS) suggest that the new genus belong to Helotiales and is sister to *Diplolaeviopsis ranula* within encoelioid-clade. The conidial-ascosporic connection of *Diplolaeviopsis ranula* is shown here based on the nucleotide match of rDNA sequences.

**Key words:** Andes, biodiversity, *Diplolaeviopsis*, Neotropics, South America, taxonomy

## Introduction

The order Helotiales Nannf. *ex* Korf & Lizon (2000: 501) is a morphologically highly diverse group of non-lichenized ascomycetes with different nutritional strategies. At present the order comprises c. 4000 species of saprophytes, mycorrhizal fungi, root endophytes, and plant and fungal (including lichens) parasites (Schoch *et al.* 2009). The specialization to grow on lichens appeared in the evolution of Helotiales several times, and so far eleven genera from this order are known to be obligately lichenicolous (Suija *et al.* 2015).

During our study of lichenicolous and lichenized mycobiota of Bolivia, we found an additional, yet undescribed fungus, which at first glance seemed to represent a new *Skyttea* species (Helotiales) due to the urceolate ascomata, presence of excipular hairs and colourless, non-septate ascospores. The preliminary phylogenetic analyses based on rDNA sequences, however, has shown that it represent an evolutionary lineage unrelated to the *Skyttea*-clade and other morphologically similar taxa. Therefore, basing on the morphological features and phylogenetic position, we introduce a new genus for this fungus, which is described in this paper.

This work is a further contribution to the knowledge on lichen and lichenicolous biota of Bolivia, which is a result of our current study focusing on the taxonomy and diversity of lichenicolous fungi in the country (e.g. Flakus & Kukwa 2012a, b; Kukwa *et al.* 2012; Etayo *et al.* 2013a, b).

## Material and Methods

The studied material of the new species is deposited in LPB, UGDA and herb. Etayo. We examined the morphology and the anatomy using NIKON SMZ 800 and ECLIPSE 80*i* (DIC) microscopes. The anatomy was studied in water, KOH solution (K), lactophenol cotton blue (LPCB), and the ascus structures in Lugol's iodine solution without (I) or

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