**LICHEN SYMBIOSES IN HIGH ANDEAN FRESHWATER HABITATS: DIVERSITY, PHYLOGENETIC RELATIONSHIPS AND PHOTOBIONT SELECTIVITY**

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Lichen-forming fungi are mostly terrestrial organisms with excellent performance under conditions characterized by frequent changes in water availability, including extended periods of desiccation. However, evolutionary events have led to the establishment of a small but highly specialized group of lichens, which can survive under temporary or permanent submersion, and are adapted to complete their life cycles in aquatic habitats. This group is an integral part of freshwater environments and their biodiversity. However, still little is known about the association between mycobionts and photobionts in freshwater lichen communities. Our research focuses on mostly under-investigated freshwater habitats located at high elevations (above 3800 m) in the Bolivian Andes. The molecular and morphological analyses reveal a high diversity of lichens in studied habitats, making the Andes an essential center of species diversity of freshwater lichens requiring further research and individual protection. The most divers single locality in the Choquetanka River revealed about 30 species, which is the highest number of freshwater lichens ever reported for a single locality. Andean freshwater lichens represent a polyphyletic group of about 20 genera dispersed in Eurotiomycetes, Lecanoromycetes and Lichinomycetes, including six species unknown to science. We compared DNA sequences of both symbionts to better understand the diversity and selectivity of photobionts in freshwater lichen symbioses. The results indicated that local freshwater lichen communities interact with a large number of photobionts. Strong selectivity of the mycobionts for the photobionts was observed. It may be a result of adaptation to the extreme local environment that allows the establishment of successful symbioses with locally adapted photobionts. This research was financed by the National Science Centre (project DEC-2018/02/X/NZ8/02362).