**SPECIFICITY AND SELECTIVITY OF *Asterochloris* PHOTOBIONTS IN *Lepraria* species IN DIFFERENT ENVIRONMENTAL CONDITIONS**

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*Lepraria* is a widespread lichen genus containing c. 80 species. The species reproduce only asexually, but still were able to speciate. *Lepraria* species are known for their specificity towards the green algal photobiont *Asterochloris,* which is one of the most common genera of green, coccoid photobionts found in lichens. Only few data have been reported about relationships between photobionts and mycobionts of *Lepraria*. It was proven in previous works that partnership between *Lepraria* and *Asterochloris* broke down over evolutionary time and that the symbiont-switching occurred in their evolution. Limited number studies which cover photobiont diversity in species of the genus *Lepraria* are available, therefore, it is necessary to study the diversity of photobionts in those members of the genus *Lepraria* occurring in different habitats. We aim to answer three particular questions: Do different species of *Lepraria* share the same *Asterochloris* species/OTUs in the same habitat conditions (in forests, roadsides)? Do the photobiont switch and horizontal transfer occur between different taxa of *Lepraria* and lead to a better acclimatization of lichens to environmental conditions? Does the same species of *Lepraria* associate with only single or different *Asterochloris* OTU in different geographical regions? The so far obtained data suggest that some *Lepraria* species may be less specific to photobionts and this may allow them to grow in different light conditions, while the others (*L. finkii*) are associated with one type of photobiont, which perhaps has narrower ecological amplitude; however it requires further studies. There is no correlation between the photobionts and the type of substrate (soil, rocks, bark of various tree species), but sequences obtained from *Asterochloris* of *Lepraria* from Italy seem to show that the occurrence of this type of photobiont may be related to the presence of calcium carbonate in the substrate as all samples were collected from calcareous rocks.