**SPECIATION IN LICHENIZED FUNGI – INTERACTIONS BETWEEN REPRODUCTIVE TRAITS AND SUBSTRATE PREFERENCES**

Annina Kantelinen1\*; Péter Poczai1; Leena Myllys1

1 Finnish Museum of Natural History, Botany Unit, Finland; \*E-mail: annina.kantelinen@helsinki.fi

Speciation is among the most fundamental events in the history of life. Interactions between reproductive traits and different environmental factors have been found to influence diversification in many groups. However, these mechanisms are poorly known in lichen-forming fungi, and particularly in crustose lichens, even though they constitute the majority of world´s lichen diversity. Reliable species boundaries and reconstruction of evolutionary relationships are a backbone for studies of speciation. Our aim is to generate a multi-locus time-calibrated phylogeny, and to use also metagenomics to study the diversity of symbiotic relationships within the selected model group *Micarea*. We examine how substrate preferences, mode of reproduction and other traits, such as secondary chemistry, affect speciation and diversification within the group. We have selected *Micarea* as a model, because it is widespread, shows intricate variation in reproductive traits and in substrate requirements, and is one of the most important microlichen genera on dead wood. Our previous studies have also given us a deep taxonomic understanding of the group and a unique phylogenetic dataset. Diverse reproductive strategies in lichens are partly related to symbiotic lifestyle, and therefore, our study can also offer us new insights on the evolution and speciation of symbiotic organisms. Funding: Societas pro Fauna et Flora Fennica (2017), Finnish Museum of Natural History (2018), Academy of Finland (2019-2023).