**STABILITY AND VARIATION OF LICHEN MYCOBIOMES**

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Studying symbiotic interactions and identifying the input(s) that each partner brings to the overall fitness of the symbioses is key to understand how they respond to change. Lichens thalli, as self-sustaining, mutualistic, symbiotic systems, house a multiplicity of microorganisms (prokaryotes, algae and fungi), whose roles in the symbioses are unknown. We investigate if diverse ecological guilds of fungi, constituting the lichen mycobiome, shape the phenotypes of the lichen symbioses targeted using metabarcoding, microscopy analyses, and *ad hoc* culture experiments. We specifically ask (i) Do lichens house distinct and core (stable in all conditions) mycobiomes, (ii) What is the role of the environmental/ecological conditions in determining lichen mycobiome composition?, (iii) Among both the core and ecology-related mycobiome taxa, do any consistently mold thallus phenotypes under diverse ecological conditions? To address these questions, we use the well characterized lichen mycobiont species *Rhizoplaca melanophthalma* and *Tephromela atra* as model systems. Trophic and mutualistic interactions between the multiple lichen symbionts will be evidenced and pivotal to generate reliable, simulated symbiotic systems for ‘omics’ analyses.