

DIVERSE WORLD WITHIN

Age-Dependent Photobiont Diversity And Selectivity In The Lichen *Protoparmeliopsis muralis*.

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PROTOPARMELIOPSIS MURALIS

- Large diversity of known photobiont partners
- Well defined thalli, even in early stages
- Mostly sexual reproduction – new algal partners from the environment
- Cosmopolitan distribution, even in extreme environments

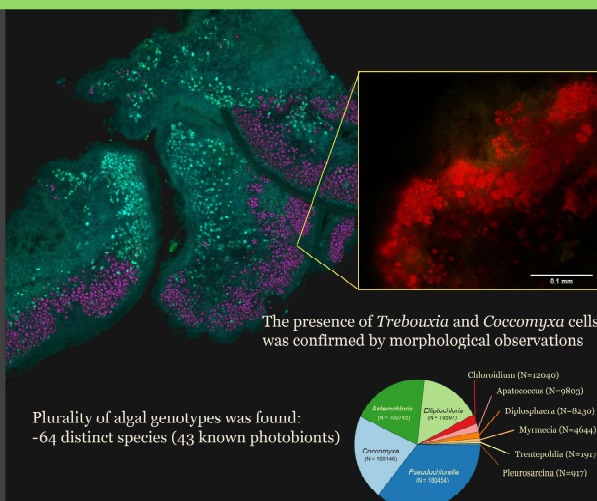
AIMS OF THE PROJECT

- Uncover the composition of photosynthetic endosymbionts in various developmental stages of selected model lichen
- Assess whether lichen exhibits less selective photobiont choice in the early stages of ontogeny, later transitioning to a single, most favorable partner

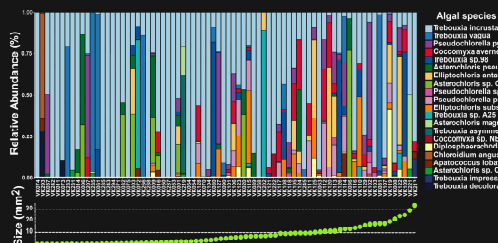
LICHEN COLLECTION



RESULTS

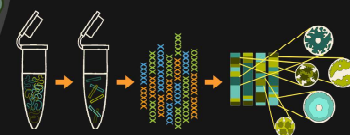


- in older thalli the diversity increases -> suggesting lichens don't choose only 1/or few algal genotypes later in life

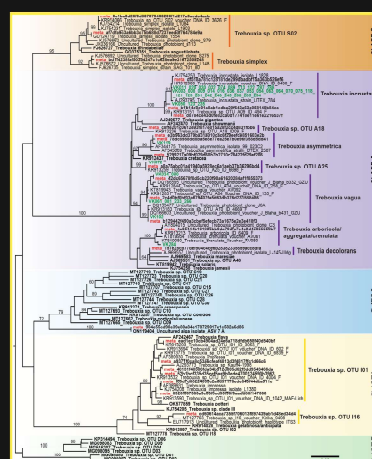


DNA METABARCODING

- Identification of the major symbionts through Sanger sequencing of the photobiont ITS rDNA
- Establishment of the overall photobiont diversity using the method of DNA metabarcoding

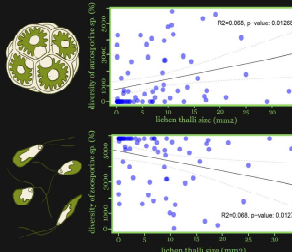


RESULTS



Even within a single algal genus, the diversity of species present in a single lichen species is striking. For example, in the genus *Trebouxia*, species from different clades coexist -> each exhibiting distinct ecological adaptations

Significant correlation in diversity of photobionts and thalli size with respect to means of algal reproduction



Significantly higher amount of rare species in younger thalli – could it suggest that the initial stages are less selective?

