

Assessing species boundaries in the lichen photobiont *Trebouxia*

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The objective of this work was to assess the species boundaries in the trebouxoid photobionts of the lichen-forming fungus *Lasallia pustulata*. We applied a multifaceted approach based on coalescent methods, phylogenetic relationships, and morphological evidence. Additionally, we analyzed species-to-species and species-to-community interactions based on *Trebouxia* putative species. Our investigation revealed that *L. pustulata* is associated with several species of *Trebouxia*. These algae may also associate with other lichen-forming fungi that exhibit various ecological requirements. The species delimitation method here presented is a promising tool to disentangle species diversity in the genus *Trebouxia*.