**CHEMOSYSTEMATICS AND FUNGAL-ALGAL ASSOCIATION PATTERN-INSPIRED DISCOVERY OF THE NEW *Trebouxia delisei* CLADE: INSIGHTS FROM ICELANDIC CETRARIOID LICHENS**

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A survey on the chemical fingerprints and fungal-algal association patterns of Icelandic cetrarioid lichens has revealed that the lichen *Cetrariella delisei* is unique, in terms of its chemistry and symbiotic association. The depside-producer *C. delisei* only associates with one algal lineage, while the other related taxa associate with the algae belonging to the “*Trebouxia simplex*” group. The algal lineage associated with *C. delisei* turned out to be a new algal clade in parallel to the known four *Trebouxia* clades (i.e. “A”, “C”, “I” and “S” clades), which was supported by multi-locus phylogenetic analyses. Ultrastructural examinations on axenic algal cultures revealed that the algae do not show a typical pyrenoid morphology and it has pyrenoglobuli distributed across the chloroplast membranes. A new *Trebouxia* species was therefore described, and we name the algae lineage as the *Trebouxia delisei* clade (i.e. “D” clade).