PhotobiontDiversity.org: genetic diversity of lichen photobionts and related organisms

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Molecular phylogenetics has revolutionised our understanding of the diversity of *Trebouxia* and other lichen-associated algae over the last 20 years by revealing cryptic diversity that is belied by the simple, reduced morphology of these unicellular microbes. However, formal taxonomic classification has not kept pace with these new insights. This has given rise to a situation where various informal names have been assigned to the clades that emerge from phylogenetic analyses. Unfortunately, these names are not always applied consistently in different studies, which usually include only a small subset of sequences from earlier studies as reference points. This makes it difficult to compare results among studies and has resulted in contradictory conclusions being drawn about host specificity and geographic ranges of lichen associated algae simply because different levels of phylogenetic resolution have been examined. PhotobiontDiversity.org is an effort to rectify this situation by assembling a database of all available sequence data from lichen associated algae and cyanobacteria, along with geographic and host association information and to develop a unified phylogenetic framework and user interface that will provide consistent measures of phylogenetic diversity across disparate studies and enhance our understanding of the ecological forces shaping the genetic diversity of these enigmatic organisms.