Morpho-genetic groups of species in the genus *Trebouxia*

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Today the genus *Trebouxia* officially includes 26 species, however it still requires further taxonomical analysis of existing data. The high morphological variability in culture and lack of good identification keys lead to significant errors and inaccuracies in the identification of these algae. Nowadays molecular phylogeny and comparison of molecular data with the sequences of authentic strains available in GeneBank is the most accurate method of photobionts identification.
Based on the results of cultural studies of 26 authentic strains of Trebouxia obtained from the collections of cultures SAG (Germany), CCAP (Scotland), UTEX (USA), and taking into account all available data, we distinguish four morpho-genetic groups of species in the genus Trebouxia. Group **«arboricola»** includes *T. aggregata*, *T. arboricola*, *T. asymmetrica*, *T. crenulata*, T. cretacea, T. *decolorans*, *T. gigantea*, *T. jamesii*, *T. incrustata*, *T. showmanii*, *T. solaris*, *T. vagua*; group **«impressa»** includes *T. anticipata*, *T. gelatinosa*, *T. impressa*, *T. flava*, *T. potteri*; group **«corticola»** consists of *T. corticola*, *T. galapagensis*, *T. higginsiae*, *T. usneae*; group **«simplex»** includes *T. angustilobata*, *T. australis*, *T. brindabellae*, *T.simplex*, *T. suecica*. According to molecular phylogenetic research of ITS and partial LSU nuclear rDNA, these groups correspond with a particular clade with high support. Rappresentative *Trebouxia* strains selected from the different groups, were analyzed and show to have, within the same group, similar dimensional characteristics, very similar ultrastructure of the pyrenoids, and the similar ratio of pigment content, which plays an important role in ecophysiology and geographical distribution of *Trebouxia* species.