

## SALT TOLERANCE AND POLYPHYLY IN THE CYANOBACTERIUM *CHROOCOCCIDIOPSIS (PLEUROCAPSALES)*<sup>1</sup>

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**Abstract :** *Chroococcidiopsis* Geitler (Geitler 1933) is a genus of cyanobacteria containing desiccation and radiation resistant species. Members of the genus live in habitats ranging from hot and cold deserts to fresh and saltwater environments. Morphology and cell division pattern have historically been used to define the genus. To better understand the genetic and phenotypic diversity of the genus, 15 species were selected that had been previously isolated from different locations, including salt and freshwater environments. Four markers were sequenced from these 15 species, the 16S rRNA, rbcL, desC1 and gltX genes. Phylogenetic trees were generated which identified two distinct clades, a salt-tolerant clade and a freshwater clade. This study demonstrates that the genus is polyphyletic based on saltwater and freshwater phenotypes. To understand the resistance to salt in more details, species were grown on a range of sea salt concentrations which demonstrated that the freshwater species were salt-intolerant whilst the saltwater species required salt for growth. This study shows an increased resolution of the phylogeny of *Chroococcidiopsis* and provides further evidence that the genus is polyphyletic and should be reclassified to improve clarity in the literature.