

Antibacterial screening of the hypersaline cyanobacteria *Aphanothece halophytica*

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Natural compounds produced by cyanobacteria have a large structural variety and several biotechnological applications, such as biofertilization, bioremediation, biofuels, food and feed. Some compounds have properties in antiviral, antibacterial, antifungal and anticancer activities. *Aphanothece halophytica* is a halotolerant cyanobacteria which can grow at a wide range of salt concentration and pH values. Due the adaptation strategies to live on these extreme environments, they can be a rich source of bioactive compounds. The salt production in salines consists in the use of different water reservoirs, where natural water evaporation gradually increases salt concentration in each reservoir until salt precipitation. In this study, we collected *Aphanothece halophytica* strains at the crystallizer reservoir, where the salinity was 225, at a saline in Cabo Frio, RJ. The cyanobacteria was identified by microscopic analysis following Komarek and Anagnostidis (1988) method. Four extracts were obtained using solvents with different polarities. The methanol extract was evaluated for antibacterial activity on micro assays using *Pseudomonas sp.*, *Vibrio sp.* and *Pseudoalteromonas sp.*. These bacteria are involved both in health and environmental issues, due to their participation on some pathologies and on the formation of biofilms, one of the first steps of biofouling. The extract affected the growth of some of the assayed bacteria with different intensities, showing that it may have antibacterial compounds. Other extractions methods and biological assays must be tested to elucidate which compounds are responsible for this activity and their mechanism of action. These preliminary results corroborates the biotechnological potential of cyanobacteria from hypersaline environments. The relatively low cost and fast grow of this organisms may facilitate further studies and commercial exploitation.