



Abstract

Sampling Campaign along Moroccan Atlantic Coast: Cyanobacteria Isolation and Molecular Screening of Cyanotoxins [†]

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Abstract: Cyanobacteria are considered a rich source of secondary metabolites with potential biotechnological applications. Additionally, they have the capability to produce some potent toxins (cyanotoxins) that can have consequences for both environmental and human health. This group of microorganisms with a long evolutionary history and a remarkable adaptability can be found both in aquatic and terrestrial ecosystems, including extreme environments (e.g., freshwater, marine, terrestrial, hot springs, deserts, etc.). Cyanotoxins can be classified into five functional groups according to their primary target organ or effects being designated as hepatotoxins, neurotoxins, cytotoxins, dermatotoxins, and irritant toxins. In this work, the presence of genes involved in the biosynthesis of cyanotoxins (microcystin, saxitoxin, cylindrospermopsin, and anatoxin) were screened from more than 200 strains of cyanobacteria. The isolates were obtained from different samples along the Moroccan Atlantic coast (several sampling sites from El Jadida to Essaouira), and from an ancient Portuguese cistern located at El Jadida. There is a gap in the literature regarding the presence of cyanotoxins in this region and some of the isolated strains are related to genera (e.g., *Phormidium* sp., *Pseudanabaena* sp., *Leptolyngbya* sp., *Lyngbya* sp., and *Geitlerinema* sp.) that have been reported as potential cyanotoxins producers. Future work will include detection by liquid chromatography–mass spectrometry (LC-MS) to confirm the production of cyanotoxins. Furthermore, the isolates will be deposited in our in-house culture collection (LEGE-CC), and will be available for future studies, increasing the size and diversity of the collection.

Keywords: cyanobacteria; cyanotoxins; screening; Morocco; LEGE-CC



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