



Abstract

Bioprospection of Toxin-Producing Cyanobacteria in the BACA Culture Collection [†]

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Abstract: With the increased eutrophication of water bodies due to anthropogenic activities and climate change, aquatic environments have increased the growth of cyanobacteria blooms worldwide. In addition, these microorganisms may produce toxic secondary metabolites (cyanotoxins), such as microcystins, saxitoxins, cylindrospermopsins, and anatoxin-a. These are harmful to human health and to other organisms that come into contact with contaminated waters, resulting in hepatotoxic, dermatotoxic, neurotoxic pathologies, and death. As we still do not know all the cyanobacteria species that can produce them, this study aimed to search for the presence of cyanotoxin biosynthesis genes in cyanobacteria strains isolated from the lakes of the Azores and to assess the risk of toxicity to public health. Therefore, molecular techniques were used to identify the cyanotoxins biosynthesis genes in thirty cultured strains deposited in the Azorean Bank of Algae and Cyanobacteria (BACA). The results revealed the presence of eleven strains with the the *anaF* gene, of which, two had the the *anaC* gene. Given that the presence of these strains in lakes may represent a public health risk, the continuous monitoring of water quality and cyanotoxin presence in water bodies of the region is essential so that risk can be determined. Measures must be implemented to minimize this problem while preserving the population's life quality.

Keywords: microcystin; saxitoxin; anatoxin-a; cylindrospermopsin; PCR; public health; Azores



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