Abstract

Survey of Freshwater Cyanobacteria and Related Toxin Genes on Coastal and Transitional Waters in Portugal Mainland †

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Abstract: Marine toxic microalgae frequently bloom on the Portuguese coast causing toxin accumulation in shellfish with the consequent harvesting interdiction in the affected production area. Likewise, freshwater cyanobacteria blooms are a constant in Portuguese inland waters, with high levels of toxins reported in the reservoirs. With this constant and persistent eutrophication of freshwater reservoirs, concerns exist whether toxic freshwater cyanobacteria are reaching marine shellfish production areas. For this purpose, a screening was made crossing information from microscopical observations from monitoring samples with cyanobacterial toxin gene presence across several periods in time. Toxin gene presence was based in conventional PCR using primers selected from previous reports. The results showed that freshwater toxin genes markers are present in marine and transitional waters across Portugal, and that the presence of potential toxic freshwater cyanobacteria is recurrent in microscopical observations in monitoring samples. This preliminary information gives us clues to where possible incidences of toxic freshwater cyanobacteria in marine shellfish production areas might occur, in order to assess the areas at greatest risk for shellfish toxification from freshwater blooms transport and remains.

Keywords: cyanobacteria; dinoflagellates; toxin genes; transitional waters

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