biology and life sciences forum

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Abstract

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

Catarina Churro [1,2,‡]

[1] Phytoplankton Laboratory, Division of Oceanography and Marine Environment, Department of the Sea and Marine Resources, Portuguese Institute for the Sea and Atmosphere (IPMA, I.P.), Av. Alfredo Magalhães Ramalho, 6, 1495-165 Algés, Portugal; catarina.churro@ipma.pt

[2] Blue Biotechnology and Ecotoxicology (BBE) Research Team, Interdisciplinary Centre of Marine and Environmental Research (CIIMAR), Terminal de Cruzeiros de Leixões, Av. General Norton de Matos s/n, 4450-208 Matosinhos, Portugal

† Presented at the 7th Iberian Congress on Cyanotoxins/3rd Iberoamerican Congress on Cyanotoxins, Ponta Delgada, Portugal, 18–20 July 2022.

‡ Presenting author (oral communication).

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

Citation: Churro, C. Survey of Freshwater Cyanobacteria and Related Toxin Genes on Coastal and Transitional Waters in Portugal Mainland. *Biol. Life Sci. Forum* **2022**, *14*, 41. https://doi.org/10.3390/blsf2022014041

Academic Editor: Vitor Gonçalves

Published: 28 July 2022

Funding: This research was funded by SNMB MONIT IV–"Sustainable Development and Management of Bivalve Mollusc Production Areas in Continental Portugal", MAR-02.01.02-FEAMP-0222", cofinanced by the Portuguese Government, Operational Program (OP) Mar 2020, Portugal 2020 and European Union through the European Structural Funds and Investment Funds (FEEI) and European Maritime and Fisheries Fund (EMFF). The Interdisciplinary Centre of Marine and Environmental Research (CIIMAR), Universidade do Porto is funded through the Funding of RD Units Strategic Plan from FCT through the projects UIDB/04423/2020 and UIDP/04423/2020.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The author declares no conflict of interest.