

Poster 63

## Cyanobacteria and cyanotoxins in eutrophic reservoirs: exploring challenges for aquatic sustainability

**Ivo Pinto**<sup>1,2,3,4,\*</sup>, **Luísa Azevedo**<sup>1,3</sup>, **Sara C. Antunes**<sup>2,3</sup>

<sup>1</sup> ICBAS, Instituto de Ciências Biomédicas de Abel Salazar, Universidade do Porto, Rua de Jorge Viterbo Ferreira, 228, 4050-313, Porto, Portugal

<sup>2</sup> CIMAR/CIIMAR, Centro Interdisciplinar de Investigação Marinha e Ambiental, Universidade do Porto, Terminal de Cruzeiros do Porto de Leixões, Avenida General Norton de Matos, S/N, 4450-208 Matosinhos, Portugal.

<sup>3</sup> UMIB, Unidade Multidisciplinar de Investigação Biomédica - Instituto Ciências Abel Salazar da Universidade do Porto, Rua de Jorge Viterbo Ferreira n.º 228, 4050-313, Porto, Portugal

<sup>4</sup> FCUP, Departamento de Biologia, Faculdade de Ciências, Universidade do Porto, Rua do Campo Alegre S/N. 4169-007 Porto, Portugal

\* Correspondence: ivofilipemp@fc.up.pt

### Abstract

**Background:** Globally, numerous eutrophic freshwater ecosystems exhibit an overgrowth of cyanobacteria, often coupled with the generation of cyanotoxins [1, 2], with a frequency increase due to climatic changes. These toxins encompass a diverse range of harmful metabolites with various repercussions on the ecosystem. They adversely affect the resilience and integrity of the food chain, contributing to water quality deterioration, oxygen depletion, and species lethality [3]. Additionally, these compounds may lead to the degradation of ecosystem services, particularly impacting recreational activities, agriculture, and the drinking water quality [4]. **Objective:** The present work aims to identify the effects of phytoplankton and cyanotoxins on the ecosystem health, and perceive the limitations of phytoplankton as the only biological element for classifying the water quality of reservoirs, specially eutrophic reservoirs. **Methods:** Water samples were collected in Aguieira reservoir since 2018. The phytoplankton community was analysed regarding the composition and abundance, as well as to investigate the potential for biotoxin production and its potential impacts on the water body quality. **Results:** The cyanobacteria group consistently appeared in all samples, predominantly within the most representative groups. Furthermore, organisms belonging to the genus *Microcystis* sp. were frequently detected in the samples, and these organisms produce toxins that can exert adverse effects on the ecosystem. **Conclusions:** The increasing prevalence of cyanobacteria and cyanotoxins in the environment raises concerns due to their impact on human and animal well-being and biodiversity. Furthermore, these harmful substances possess the ability to bioaccumulate, increasing their concentration in the food chain and presenting a potential threat to individuals who ingest contaminated organisms, such as fish. It is crucial to establish surveillance systems (such as early detection of the presence of cyanobacteria and cyanotoxins), as well as to promote information/sharing to the general public to effectively adopt preventive measures in the ecosystem.

**Keywords:** water quality; ecosystem services; biodiversity impact; environmental health

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