Lisbon School of Health Technology | Park of Nations

TEMPH 2014

TRENDS IN ENVIRONMENTAL MICROBIOLOGY FOR PUBLIC HEALTH

18 - 21 SEPTEMBER 2014

WWW.TEMPH2014.COM

EXECUTIVE COMMITTEE

João Brandão
Carla Viegas
Susana Viegas
Raquel Rodrigues
Ferry Hagen

LOCAL SCIENTIFIC COMMITTEE

Manuela Cano
Cristina Veríssimo
Raquel Sabino
Paulo Pereira
Jorge Machado
Manuela Caniça
Cristina Belo Correia
Laura Rosado
Leonor Falcão
José Calheiros
Paula Alvito
Benilde Mendes
João Brandão
Carla Viegas
Susana Viegas
Raquel Rodrigues

INTERNATIONAL SCIENTIFIC COMMITTEE

Helena Solo-Gabriele
Andrew Wither
Richard Whitman
Robert Samson
Mike Sadowsky
Valerie Harwood
Huw Taylor
Ariane Vettorazzi
Anne Hyvärinen
Martin Täubel
Tom Edge
Sandra McLellan
Ferry Hagen

COMMITTEE

Temporal variability of microcystin (*mcy*A) genotypes in a toxic cyanobacterial bloom.

Churro C.[1,3], Silva B.[2], Pereira P.[1], Valério E.[1], Vasconcelos V.[3,4]

(1) Laboratório de Biologia e Ecotoxicologia, Departamento de Saúde Ambiental, Instituto Nacional de Saúde Dr. Ricardo Jorge, Avenida Padre Cruz, 1649-016 Lisboa, Portugal.

(2) Departamento de Genética Humana, Instituto Nacional de Saúde Dr. Ricardo Jorge, Avenida Padre Cruz, 1649-016 Lisboa, Portugal.

(3) Departamento de Biologia, Faculdade de Ciências, Universidade do Porto, Rua do Campo Alegre, 4069-007 Porto, Portugal.

(4) Centro Interdisciplinar de Investigação Marinha e Ambiental, CIIMAR/CIMAR, Universidade do Porto, Rua dos Bragas 280, 4050-123 Porto, Portugal.

Email: catarina.churro@insa.min-saude.pt, Phone number: (+351) 217 519 200.

The cyanobacterium *Planktothrix agardhii* forms persistent blooms in water reservoirs and is often associated with the production of microcystins (hepatotoxins). However, high cell densities of *P.agardhii* are not always accompanied with high levels of microcystins and contrariwise. The genotype abundance and composition can be an important driver of toxicity in these natural blooms. In this work a perennial bloom was monitored during two years (2012-2014) in order to characterize the genotype structure and succession. A real-time PCR protocol was developed to quantify *P.agardhii* using the *rpoC*1 gene and to quantify potential microcystins producers using the microcystin syntethase gene (*mcy*A). The *mcy*A was quantified by targeting two gene regions: a generic region for all microcystin producers and a specific region for *Planktothrix.* Phytoplankton diversity and abundance was quantified by direct cell inspection and counting. The total microcystin concentration in water was measured using ADDA-ELISA kit. The results showed that two different *mcy*A genotypes are present in this water reservoir. The temporal variability accessed by cyanobacteria cell density, real-time PCR and microcystin concentration will be discussed. Furthermore, the real-time PCR protocol developed in this study enabled to determine and quantify genotype bloom composition, thus representing a promising tool in cyanobacteria bloom monitoring.