

International Conference and Expo on

# Water Microbiology & Novel Technologies

July 18-19, 2016 Chicago, USA

## HABs Identification system based on mobile Networked technologies Morphologic, genetic and optic characterization of toxic and non toxic *Microcystis Aeruginosa* HABs

Susana Deus Alvarez<sup>1,2</sup>, Claudia Piccini<sup>1</sup>, Carla Kruk<sup>2</sup> and Martín Montes<sup>3</sup><sup>1</sup>Instituto de Investigación Biológica Clemente Estable (IIBCE), Uruguay<sup>2</sup>Universidad de la República (UDELAR), Uruguay<sup>3</sup>Université du Québec Rimouski Institute des Sciences de la Mer (ISMER), Quebec, Canada

Harmful Algal Blooms (HABs) are globally distributed and represent a serious threat for human health and aquatic ecosystems due mainly to the production of neuro and hepatotoxins and deterioration of water quality and biodiversity. The frequency of *Microcystis* blooms usually increases during summer, when aquatic ecosystems are highly used and visited. Some studies have found differences in toxin production related to the size of *Microcystis* colonies, suggesting that colony-size could be used as a characteristic toxicity marker. In addition, optical properties of water can be related to the shape and size of the colonies present, therefore, we hypothesize that optical properties of water could be used to characterize *Microcystis* communities dominated by different colony-sizes. Smartphones and other compact electronic devices are now ubiquitous and have numerous picture-capturing, sensing and processing capabilities, that have useful applications in geosciences; such as calculation of water turbidity or concentration of suspended particulate matter based on color pictures. The objective of this project is to develop a smartphone-based model to detect harmful algal blooms (HABs) dominated by *Microcystis* spp. in aquatic systems, combined to toxicity data. We will show results concerning the relation between size and toxicity of *Microcystis* spp. colonies and how these characteristics relate to their optical properties measured through a Smartphone application. The final intention of this project is to foster citizen science by promoting environmental monitoring and science education.

### Biography

Susana Deus has completed his master degree at the age of 24 years old from Autónoma de Madrid University and after a few years working some over Europe, in some laboratories and inside the European Commission, she arrived to Uruguay three years ago. After being working in the Environmental Ministry and teaching in the public University she has decided to start her PhD at the water microbiologist area and trying to develop new technologies for water quality assessment.

[susanadeus.deusalvarez@gmail.com](mailto:susanadeus.deusalvarez@gmail.com)

### Notes: