

5th International Conference on Environmental Toxicology and Ecological Risk Assessment

September 12-13, 2016 Phoenix, USA

Optimization of growth conditions for laboratory and field assessments using immobilized benthic diatoms

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Benthic diatoms are key role players at lotic freshwater environments and the lack of availability of rapid and effective methodologies for assessing lotic systems are still quite scarce. The primary goal of this study was to optimize the growth conditions of the sensitive and ubiquitous benthic diatom *Navicula libonensis* for laboratorial and field assessments. The first set of experiments started with testing the effect of different conditions of temperature, photoperiod, initial cell density, test duration and cell encapsulation into calcium alginate. Results showed growth profiles of free versus immobilized cells was fairly variable but a slight increase in growth was observed in free and immobilized cell densities at 23°C, at lower initial cell densities and at the shortest experimental period (6 days). A second experimental trial involved the validation of selected conditions, applied to the eco-toxicological testing of *N. libonensis* to two reference chemicals - 3,5-dichlorophenol and potassium dichromate - and a natural stream water besides the synthetic medium. The sensitivity of *N. libonensis* to standard chemicals spiked in synthetic medium and natural plain stream water was similar for free and immobilized cells. This outcome suggests that *N. libonensis* may potentially provide reliable responses under direct in situ exposures.

Biography

Tânia Vidal is a young Researcher at the CESAM (Centre for Environmental and Marine Studies) and the Department of Biology (University of Aveiro, Portugal). After concluding her PhD thesis in 2013, her line of research became focused on ecotoxicology studies applied to the water quality evaluation on lotic environments. Presently, she is the PI of the SHIFT project, financed by the Portuguese National Funding Agency for Science, Research and Technology, which deals with this oral presentation issue.

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