Toxicity of coastal waters: use of a quick algal bioassay


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Optimization of the SPE step in the analysis of β-blockers and β-adrenoreceptors in natural water samples by SPE–GC technique

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Environmental samplers that collect environmental matrices, especially sewage and marine-water samples are complex and often contain interfering elements that can mask or interfere with the analysed pharmaceuticals. Interfering elements can be natural, e.g. plant secondary metabolites, or can be the result of contamination during sample collection or handling.

The choice of the matrix is critical not only for the target analytes and the interactions of the chosen sorbent through the functional groups of the analytes, but also on the kind of sample and its interactions with both the sorbent and the analytes. This work describes the applicability of different SPE techniques to collect and extract various types of samples.

TU 084

Construction of a water toxicity sensor based on luminescent bacteria

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4Construction of a water toxicity sensor based on luminescent bacteria

A new prototype of a flow-through sensor for on-line water monitoring based on these modified bioluminescent bacteria is being developed at KWR. The bacteria are fixed on an optic fiber or a glass slide and placed in a continuous water flow. The light generated by the bacteria is then measured by photomultiplier tubes. The current prototype is highly adjustable and allows control of pH, temperature, flow, and pressure. Additionally, it is possible to add nutrients as well as other compounds to the system.

This sensor prototype is being tested in both the laboratory and at monitoring stations along Dutch rivers. The ultimate aim is to develop a sensor that measures several types of toxicity and that can be applied continuously in the field, both at surface water inlets and in the distribution network.

TU 085

Toxicity of coastal waters: use of a quick algal bioassay

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3CR-MS Different tools are available to process the raw data and upload the data to MassBank and open access mass spectra database including MS data from all instrument types and with sophisticated data evaluation tools. The web-based database MassBank [1] was developed within a project funded by the European Commission and is coordinated by the Hahn-Meitner-Institut. MassBank allows the storage of a wide variety of spectra including EI-MS, ESI-QTof-MSMS and ESI-FTI-MS. Different tools are available to process the raw data and upload the data to MassBank including a spreadsheet based record editor for the addition of metadata.

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TU 086

Oxidative stress and intracellular microcystins in lake waters during a Planktothrix rubescens algal bloom: HPLC quantification and crustacean acute toxicity tests

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4TU 086

Oxidative stress and intracellular microcystins in lake waters during a Planktothrix rubescens algal bloom: HPLC quantification and crustacean acute toxicity tests

In the current project, a simple and fast method to determine toxicity to algae based on changes in photosynthetic efficiency will be developed and tested. An Effect Directed Analysis (EDA) will be performed to unravel which chemical compounds are responsible for the toxic effect on the algae. In 2010-2011 passive samplers were exposed at Hansweert (Westerschelde, The Netherlands) and collected every 6 weeks to include the seasonal dynamics of both anthropogenic as well as natural compounds. This first results of this study are presented and discussed. The results of the EDA analysis will be used in experiments where mixture toxicity, multi stress and community effects are taken into account to describe the overall toxic effect under relevant field conditions.

TU 087

Toxicology of coastal waters: use of a quick algal bioassay

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TU 089

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