Toxicity of coastal waters: use of a quick algal bioassay
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TU 081
Optimization of the SPE step in the analysis of β-blockers and β-agonists in environmental water samples by SPE-GC technique

M. Caluza, A. Michalik, M. Cieślik, M. Michalik, P. Stepnowski, J. Kumiska

Environmental samples, especially sewage and marine-water samples are complex and often contain interfering elements that can mask or interfere with the analyzed pharmaceuticals. In this study the isolation and/or extraction step is the best choice among SPE methods. Fractionation on natural solid matrices is the best approach to separate complex samples.

This work describes the application of SPE for the isolation of target analytes from complex sample matrices. The SPE column is filled with a pre-packed SPE cartridge containing a solid matrix, such as silica gel or other sorbents.

TU 082
Optimization of the SPE step in the analysis of β-blockers and β-agonists in natural water samples by SPE-GC technique

M. Czerniak, J. M. Acosta, H. Budzinski, S. Ait-Aissa

The aim of the study is to improve the SPE step in the analysis of selected β-blockers and β-agonists in natural water samples. The choice of the sorbent and its interactions with the target analytes highly depend on the sample matrix and the interactions with the sorbent and the analytes. The sorbent selection is a critical step in the SPE procedure.

TU 083
Towards a common mass spectra database for the identification of unknowns in environmental samples


The identification of unknown active chemicals is still time consuming and will be the subject of the current study. This fractionation step on SPE that will be followed by a RP-HPLC fractionation.

TU 084
Construction of a water toxicity sensor based on luminescent bacteria


The aim of this study is to develop a sensor that detects water toxicity. 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 can detect several types of toxicity and that can be used 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


The aim of this study is to develop a sensor that detects water toxicity. 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 can detect several types of toxicity and that can be used continuously in the field, both at surface water inlets and in the distribution network.

TU 086
Dissolved and intracellular microcystins in lake waters during a Planktothrix rubescens algal bloom: HPLC quantification and crustacean acute toxicity test

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Microcystins, highly toxic cyclic peptides, are a group of hepatotoxins produced by a number of aquatic species of cyanobacteria, such as Microcystis, Anabaena and Plankothrix. Worldwide occurrence in water has prompted the development of detection methods for their identification and quantification. A massive seasonal development of Plankothrix rubescens in a reservoir destined for crop irrigation located in Southern Italy has lead to quantify algal toxin content in water to verify the possible health risk. Microcystins dissolved into the water were isolated and fractionated by SPE-C18 cartridges. Extracted solutions were treated with methanol/water solutions after frozen/refrozen treatment over night. Water samples were concentrated and extracted by SPE-C18 cartridges. Toxicity test was performed using a crustacean acute toxicity bioassay (Daphnia magna), which was performed with the cladoceran Daphnia magna. The main advantage of this method is that it allows the determination of the acute toxicity of a sample without the need for a full production of microcystin to the animals. The results obtained in this study indicate that the aquatic biota in this area is exposed to a significant risk of toxic effects from microcystins.