

REGATA

Rede Galega de Tratamento de Augas

Research Stays 2015

Study of UV filters in water samples by SPE-UPLC-MS/MS

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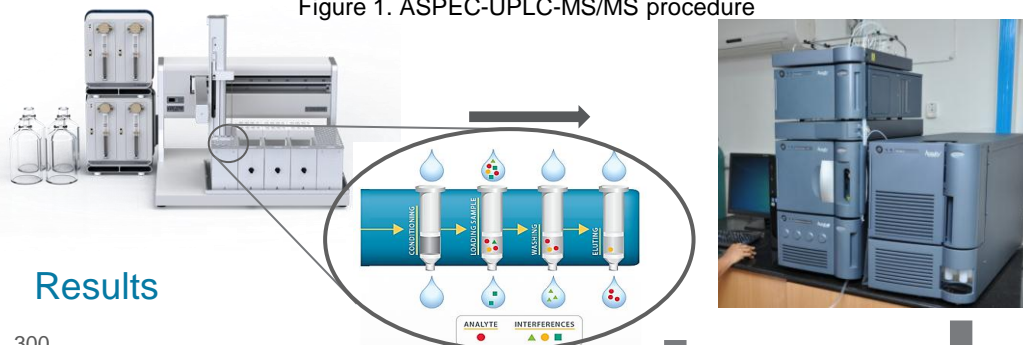
Objectives

UV filters are compounds included in personal care formulations to protect the skin from the UV radiation to prevent the occurrence of cancer. They are also found in waters of rivers, lakes, pools and wastewater among others because they can enter the environment through the bath, swimming, shower, etc. In fact, UV filters are already classified as environmental emerging contaminants. Therefore, the aim of the present work was to optimize, validate and put into practice a simple methodology based on solid-phase extraction (SPE) followed by Ultra Performance Liquid Chromatography-tandem mass spectrometry (UPLC-MS/MS) for the simultaneous analysis of different classes of UV filters in water samples of different nature.

Methodology

- Solid-phase extraction (SPE) was employed to extract the target compounds from water samples
- A method based on Ultra Performance Liquid Chromatography (UPLC) coupled to tandem mass spectrometry (MS/MS) was optimized to determine 18 UV filters
- The developed SPE-UPLC-MS/MS was applied to river and waste-water treatment plant (WWTP) water samples

Figure 1. ASPEC-UPLC-MS/MS procedure



Results

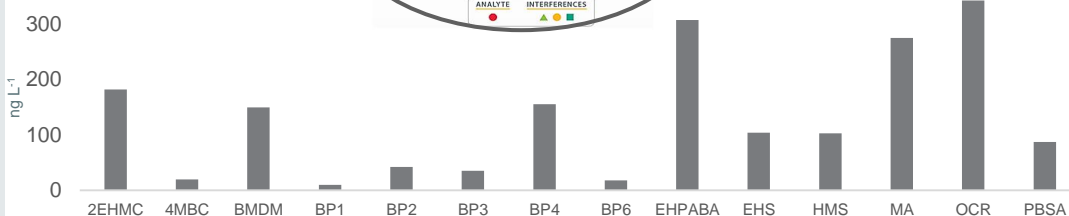


Figure 2. Concentration of the target UV filters in a river water

Highlights

Fourteen out of the eighteen target compounds were found in the studied samples at the ng L⁻¹ level

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