



Occurrence of contaminants of emerging concern in water resources and the related analytical challenges

N. Đurišić-Mladenović

University of Novi Sad, Faculty of Technology Novi Sad, Novi Sad, Serbia

natasa.mladenovic@uns.ac.rs, natasadjm@tf.uns.ac.rs

Numerous chemicals have entered the environment for decades of industrialization and urbanization from a variety of anthropogenic sources. Currently, more than 350,000 chemicals have been registered for commercial use worldwide, with even more new chemicals expected to appear in the future. Only a small fraction of them, accounting for (far) less than 1%, has been routinely monitored in the environmental compartments. Water resources are especially endangered by chemicals in wastewater treatment plant effluents, urban street run-offs and storm waters, leachates from agricultural fields and landfills, etc. This is a cause for concern for water quality, either drinking, underground, or irrigation water. In the last decade particular attention has been focused on organic micropollutants such plasticizers, flame retardants, industrial chemicals, pharmaceuticals, microplastics, personal care products (PPCPs), etc., all considered as contaminants of emerging concern (CECs). Among them there are many persistent and mobile pollutants, which effects can occur over long, intergenerational time scales. Still, the current scale of the occurrence and exposure to CECs is only partly known due to limitation of routine analytical approaches. The aim of this presentation is to give an overview of the problems associated with the CECs' occurrence in water resources and of the available analytical approaches for its determination. It is of special importance to develop and harmonize methods that may enable detection of as many as possible CECs in one analytical run, contributing to the reliable estimates of the CECs' environmental occurrence and the related ecotoxicological and health risks, which are still largely unknown.

Keywords: CECs, target analysis, suspect screening, non-target analysis

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