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## Book of Abstracts



## Wide-Scope Target Screening of Pharmaceuticals in the Danube River Water Samples by Ultra-Performance Liquid Chromatography Coupled with High-Resolution Mass Spectrometry

J. Živančev<sup>1\*</sup>, O. Gómez-Navarro<sup>2</sup>, N. Montemurro<sup>2</sup>, S. Pérez<sup>2</sup>, I. Antić<sup>1</sup>, M. Buljovčić<sup>1</sup>, D. Rakić<sup>1</sup> and N. Đurišić-Mladenović<sup>1</sup>

<sup>1</sup>University of Novi Sad, Faculty of Technology, Bulevar cara Lazara 1, 21000 Novi Sad, Serbia

<sup>2</sup>ONHEALTH, Dept. Environmental Chemistry, IDAEA-CSIC, Jordi-Girona 18-26, 08034, Barcelona, Spain

*jelena.zivancev@tf.uns.ac.rs*

Water resources, such as rivers and other water bodies, are at great risk of becoming more contaminated by various pollutants, among which contaminants of emerging concern (CECs) attract a lot of attention from the scientific community and the general public due to their potential long-term adverse effects as well as degradation of the quality of water resources. This imposes the need to understand their occurrence, levels, and spatiotemporal distribution in water resources and to establish effective and efficient long-term surveillance of their presence in water systems. In this context, high-resolution mass spectrometry (HRMS) offers full-spectrum acquisition and represents a promising and powerful technique for screening different classes of pharmaceuticals in water resources, enabling target, suspect, and unknown screening approaches.

Based on the aforementioned, the main goal of this study was to provide insight into the occurrence and distribution of a broad set of pharmaceuticals in water samples of the Danube River from Serbia by applying advanced high-resolution mass spectrometry. The research is focused on the Danube River, as it is the second-largest river basin in Europe and is under the constant pressure of introduction of different classes of pharmaceuticals, particularly in Serbia where the direct discharge of municipal wastewater occurs frequently as less than 10% of the population in Serbia is linked to wastewater treatment plants with the most frequently applied method of the secondary treatment. Thus, samples were collected at selected locations along almost the entire course of the Danube River through Serbia and prepared using homemade multilayer SPE cartridges. The obtained extracts were analyzed by reversed-phase ultra-high performance liquid chromatography coupled to high-resolution mass spectrometry (RP-UHPLC–HRMS), while collected HRMS data are under processing by the dedicated advanced software tool. The results obtained in this research will be compared with previous ones obtained and available for the Danube River Basin at different river stretches, indicating that surface water screening by RP-UHPLC–HRMS is a powerful approach for the rapid collection of comprehensive information on the pharmaceuticals presence in water resources. The information provided by the screening approach may contribute to the preservation of the good ecological status of water resources or may indicate the necessity of triggering mitigation measures.

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