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with international participation

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**FROM BIOTECHNOLOGY TO HUMAN  
AND PLANETARY HEALTH**



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## IL46

## IMPACT OF UNTREATED WASTEWATERS ON THE MICROBIOLOGICAL WATER QUALITY OF THE DANUBE RIVER AND ITS TRIBUTARIES IN SERBIA

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Pollution of surface waters still represents one of the major environmental challenges in the Republic of Serbia, where wastewaters are discharged directly into the recipients without proper treatment. Within the last decade, we have assessed the microbiological water quality of more than 100 sites situated at different water bodies in Serbia. Quality was determined using faecal indicator bacteria, while microbial source tracking was employed to assess the source of pollution. Almost 50 % of the investigated sites were characterized by critical or even higher level of faecal contamination indicating that untreated wastewaters indeed represent significant pollution pressure on surface waters. Human-associated markers were prevalent in samples from the majority of contaminated sites but the source of pollution was not exclusively human-associated. The impact on the water quality of the Danube River was demonstrated in our previous research conducted at the whole river level within the

Joint Danube Surveys. In the river stretch from Novi Sad to its confluence with the Velika Morava River, all the midstream samples were critically polluted. In this section, the highest level of pollution was recorded downstream of Belgrade. As ultimate recipients of wastewaters, Danube and its largest tributary Sava currently represent the only solution for disposing of wastewaters originating from the Serbian capital's 1,700,000 inhabitants. Such kind of disposal rises additional issues such as antimicrobial resistance and presence of infectious agents in water. For instance during COVID-19 pandemic, we have demonstrated that SARS-CoV-2 RNA can be detected even in surface waters of the Danube River at the sites receiving high wastewater loads from Belgrade which was the unique case for the Basin. Despite its extreme importance in this case, wastewater-based epidemiology is neglected in our country and hereby we would like to emphasize the need for implementation of program of such kind in Serbia.

**KEYWORDS:** Danube river; wastewater-based epidemiology; faecal indicator bacteria

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