



2022
Belgrade

FEMS Conference on Microbiology

in association with
Serbian Society of Microbiology

30 June - 2 July

2022 • Serbia

**ELECTRONIC
ABSTRACT BOOK**

We thank the pharmaceutical, lab and biomedical industry partners from Serbia, the South East Europe region and worldwide for their recognition of the importance of the event, their participation and their support.

We hope that you enjoyed the content and all the other aspects of the Conference. If you missed anything, you can catch up by watching the recordings, presentations or have a detailed look at the posters.

We warmly wish you health, love and happiness and are looking forward to the new encounters, coming up next: FEMS 2023 Congress in Hamburg, FEMS 2024 Conference in Tallinn and numerous events of the SSM in Serbia and South East Europe region.

Sincerely



Hilary Lappin-Scott

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Prof. Hilary Lappin-Scott
Scientific Committee Chairperson,
FEMS President



Vaso Taleski

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Prof. Vaso Taleski
Organizing Committee Chairperson,
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Prof. Dragojlo Obradović
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Lazar Ranin

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Prof. Lazar Ranin
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**800 / FAECAL POLLUTION AS POTENTIAL DRIVER OF ANTIBIOTIC
RESISTANCE GENES IN THE DANUBE RIVER****05****Keywords:** *River, Antimicrobial resistance, Faecal pollution, nan***Iris Schachner** / nan, **Austria****Iris Schachner** / Institute of Hygiene and Applied Immunology, Center for Pathophysiology, Infectiology and Immunology, Medical University Vienna, Wien, **Austria****Claudia Kolm** / Division Water Quality and Health, Karl Landsteiner University of Health Sciences, Krems, **Austria****Julia Vierheilig** / Institute for Water Quality and Resource Management, TU Wien, Vienna, **Austria****Domenico Savio** / Division Water Quality and Health, Karl Landsteiner University of Health Sciences, Krems, **Austria****Gernot Zarfel** / Institute of Hygiene, Microbiology and Environmental Medicine, Medical University Graz, Graz, **Austria****Michael Koller** / Institute of Hygiene, Microbiology and Environmental Medicine, Medical University Graz, Graz, **Austria****Clemens Kittinger** / Institute of Hygiene, Microbiology and Environmental Medicine, Medical University Graz, **Austria****Stefan Jakwerth** / Institute of Hygiene and Applied Immunology, Center for Pathophysiology, Infectiology and Immunology, Water Microbiology, Medical University of Vienna, **Austria**;
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Human-induced antimicrobial resistance is an emerging concern in aquatic environments. Faecal pollution sources represent potential propagation pathways, however large-scale quantitative studies in whole river systems are missing. In the course of the Joint Danube Survey, the Danube River was investigated for the fourth time in summer 2019 from its headwaters to the delta. Microbial-faecal pollution patterns and the occurrence of selected antibiotic resistance genes (ARGs) were studied. Subsequently, a one-year time series analysis at selected relevant sites allowed to assess temporal variability.

The intestinal bacterium *Escherichia coli* was quantified according to standard cultivation methods as indicator for total faecal pollution. In general, longitudinal patterns of faecal pollution showed a comparable picture to previous Joint Danube Surveys, with low to moderate pollution in the upper reaches (Germany, Austria) and critical to strong pollution in the middle and lower sections, especially in Serbia. Genetic microbial source tracking methods, determined via quantitative PCR, allowed us to define human faecal pollution as dominant pollution source along the whole Danube. This trend could be generally confirmed during the annual sampling campaign. To estimate the potential of permanent colonialization of faecal microorganisms within the Danube River ecosystem, biofilms as potential reservoirs were studied along the course of the entire river. Here, *E. coli* were ubiquitously present but highly variable. Ongoing analyses on the occurrence and quantity of selected ARGs will identify hotspots of antimicrobial resistance and their relationship to faecal pollution along the Danube River and thereby contribute to guide future monitoring and management strategies.

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