



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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Vaso Taleski

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**847 / FAECAL POLLUTION AND ANTIBIOTIC RESISTANCE
IN THE DANUBE RIVER: VISIONS, CONCEPTS AND
LESSONS LEARNED FROM JOINT DANUBE SURVEYS****05****Keywords:** *faecal pollution, antimicrobial resistance, Danube River, nan***Alexander Kirschner** / Medical University Of Vienna, *Austria***Iris Schachner** / Medical University of Vienna, Vienna, *Austria***Stefan Jakwerth** / Medical University of Vienna, Vienna, *Austria***Gernot Zarfel** / Medical University Graz, Graz, *Austria***Michael Koller** / Medical University Graz, Graz, *Austria***Clemens Kittinger** / Medical University Graz, Graz, *Austria***Erika Toth** / ELTE University Budapest, Budapest, *Hungary***S Kolarevic, M Kračun-Kolarević** / University of Belgrade, Belgrade *Serbia***AP Blaschke, J Derx, R Linke, K Demeter, G Reischer** / Technische Universität Wien, Vienna, *Austria***D Savio, AH Farnleitner** / Karl Landsteiner University of Health Sciences, Krems, *Austria*

Sustainable and target-oriented microbiological water quality management of rivers needs information on whole river systems, especially if catchments are large and international. The microbiological water quality of rivers is of uttermost relevance for human health as river water is used for several purposes (recreation, drinking water production, irrigation). Besides information on faecal pollution levels, the origin of faecal pollution and the assessment of associated infection- and health risks, e.g. from antimicrobial resistant bacteria (ARB) are of increasing importance. This contribution summarizes the concepts and main results from the Joint-Danube-Surveys (JDS) and discusses future challenges and perspectives (pollution-scenario modelling, infection-risk assessment) for the Danube River concerning its faecal and AMR pollution status.

Between 2001 and 2019, the whole Danube was sampled four times during the JDS. Beside standard faecal indicator analysis, cutting-edge molecular detection concepts were applied, including microbial source tracking (MST) markers by quantitative PCR (qPCR) and high-throughput amplicon-sequencing of bacterial communities. For AMR-profiling, clinically relevant bacterial species were isolated and tested for resistances and resistance genes were determined via qPCR.

With this, we could impressively demonstrate that the JDS create the required multi-national “big picture” of the microbiological pollution status of large rivers. Harmonised trans-border microbiological water quality maps for the whole navigable Danube were established. MST marker analysis elucidated that the main faecal pollution source along the whole river is human wastewater. Combined analysis of faecal indicators, MST and AMR-profiles provided a solid basis for assessing the potential health impacts of AMR associated with faecal pollution.

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