



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

.....

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



Vaso Taleski

.....

Prof. Vaso Taleski
Organizing Committee Chairperson,
FEMS Director of Events and Internationalization



Dragojlo Obradović

.....

Prof. Dragojlo Obradović
Scientific Committee Co-Chairperson,
President of Serbian Society of Microbiology



Lazar Ranin

.....

Prof. Lazar Ranin
Organizing Committee Co-Chairperson,
Vice-President of Serbian Society of Microbiology

Scientific Committee

Hilary Lappin-Scott / *United Kingdom*
Scientific Committee Chairperson, FEMS President

Dragojlo Obradovic / *Serbia*
Scientific Committee Co-Chairperson, President of Serbian Society of Microbiology

Roberto Antolovic / *Croatia*

Dejan Baskić / *Serbia*

Jelena Begović / *Serbia*

Helena Bujdáková / *Slovakia*

Carianne Buurmeijer / *The Netherlands*

Ivana Dakic / *Serbia*

Ivica Dimkić / *Serbia*

Ana Kaftandjieva / *North Macedonia*

Aleksandra Knezevic / *Serbia*

Branislava Kocić / *Serbia*

Konstantinos Kormas / *Greece*

Özgür Kurt / *Turkey*

Daniela Marchetti / *Italy*

Sinisa Markov / *Serbia*

Gordana Mijovic / *Montenegro*

Alexandra-Maria Nășcuțiu / *Romania*

Jakov Nišavić / *Serbia*

Dragoslava Radin / *Serbia*

Galina Satchanska / *Bulgaria*

Marjanca Starčić Erjavec / *Slovenia*

Carsten Suhr Jacobsen / *Denmark*

Nijaz Tihić / *Bosnia & Herzegovina*

Stefan Tyski / *Poland*

Antonio Ventosa / *Spain*

James Williamson / *United Kingdom*

Ken-ichi Yoshida / *Japan*

Lixin Zhang / *China*



²⁰²²
Belgrade

FEMS Conference on Microbiology

in association with
Serbian Society of Microbiology

30 June - 2 July

2022 • Serbia

**ELECTRONIC
ABSTRACT BOOK**

**421 / COMPARATIVE IN VITRO EVALUATION OF GENOTOXIC POTENTIAL
OF THE DANUBE RIVER WATER EXTRACTS IN PROKARYOTIC
AND EUKARYOTIC ASSAYS****06****Keywords:** *genotoxicity, Danube River, SOS/umUC, zebrafish*

Stoimir Kolarevic / Institute For Biological Research "Siniša Stanković", National Institute of Republic of Serbia, *Serbia*

Margareta Kračun-Kolarević / Institute for Biological Research "Siniša Stanković", National Institute of Republic of Serbia, Belgrade, *Serbia*

Peter Oswald / Environmental Institute, Koš, *Slovakia*

Jaroslav Slobodnik / Environmental Institute, Koš, *Slovakia*

Momir Paunović / Institute for Biological Research "Siniša Stanković", National Institute of Republic of Serbia, Belgrade, *Serbia*

Branka Vuković-Gačić / Faculty of Biology, Chair of Microbiology, Center for Genotoxicology and Ecogenotoxicology, Belgrade, *Serbia*

Bojana Žegura / National Institute of Biology, Department of Genetic Toxicology and Cancer Biology, Ljubljana, *Slovenia*

BACKGROUND

Prokaryotic assays are of great interest in eco/geno-toxicology as they are short-term, simple and cost effective. Application of strains of *Salmonella typhimurium* with modifications such as increased cell wall permeability and lack of excision repair system is common for the detection of genotoxicity. Various eukaryotic models have been developed lately, such as fish derived cell lines, which can mimic the response of the aquatic organisms. Considering different level of cell organization among these models, difference in sensitivity is expected, yet only few studies address this topic.

OBJECTIVES

The major objective was to investigate genotoxic potential of extracts of surface water of the Danube and to compare the results obtained in applied prokaryotic and eukaryotic models.

METHODS

Surface water samples from 24 sites along the Danube River were extracted by LVSPE Horizon sampler providing relative enrichment factor (REF) of the extracts of 25,000x. For representative prokaryotic model the SOS/umuC assay with *S. typhimurium* TA1535/pSK1002 was used. Eukaryotic model comprised assessment of cytotoxicity by MTS test and assessment of genotoxicity by comet assay in ZFL (ZebraFish Liver) cells.

RESULTS

While none of the tested samples has induced SOS response, the result of MTS assay indicated that 11 of 24 samples were cytotoxic. In comet assay, genotoxic potential was found in 9 of 24 samples. Results indicated higher sensitivity of used eukaryotic model in comparison with prokaryotic. Applied prokaryotic assay is often suggested to be used as prescreening tool in diagnostics of genotoxic potential which by our opinion could be misleading.

ACKNOWLEDGEMENTS/REFERENCES

This research was supported by FEMS Research Training Grant program. Analyzed river water extracts were prepared within the Joint Danube Survey 4 and assessment of genotoxicity was supported by International Commission for the Protection of the Danube River.