

BOOK OF ABSTRACTS



CONGRESS
OF THE SERBIAN GENETIC SOCIETY

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VRNJAČKA BANJA • SERBIA





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WELCOME TO VI CONGRESS OF THE SERBIAN GENETIC SOCIETY!

Dear colleagues,

Welcome to the 6th Congress of the Serbian Genetic Society. The Serbian Genetic Society (SGS) has been founded in 1968 and the first Congress organized by the SGS was held in 1994 in Vrnjacka Banja. Since then, the Congress of Serbian Genetic Society is held every five years. Over the past years, the Congress has grown from a national to an international meeting.

The experience of the past meetings motivated our efforts to continue with this series with a clear tendency to strengthen the scientific connections among researchers from different European countries.

The Congress will focus on the most recent advances in genetics and on wide range of topics organized in 9 sessions and two workshops. Many of the presentations will be in lecture-like settings, but we hope that there will also be ample opportunities for informal interaction outside the scheduled sessions.

The successful organization of the Congress has required the talents, dedication and time of many members of the Scientific and Organizing committees and strong support from our sponsors. I hope that you will find the Congress both pleasant and valuable, and also enjoy the cultural and natural beauty of Vrnjacka Banja.

Yours sincerely,



Branka Vasiljevic
 President of the Serbian Genetic Society

03 – 13 Poster

K2(B3O3F4OH) REDUCED CELL VIABILITY AND DOWNREGULATED TUMOR NECROSIS FACTOR SUPERFAMILY MEMBERS *IN VITRO*

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The number of new natural or synthetic compounds tested as a potential therapeutics increases every day. Halogenated boroxine, K2(B3O3F4OH) (HB) is a synthetic compound developed for the treatment of skin changes with various proven biological activity in many test models *in vitro* and *in vivo*. The effects of HB on cellular and genes' expression level in different tumor cell lines were previously evaluated but there is still no clear explanation of its mechanism of action. We aimed to analyze the impact of HB on the cell viability and expression level of selected tumor necrosis factor (TNF) superfamily genes in cultured human peripheral blood mononuclear cells (PBMCs). These genes regulate cell death and proliferation thus their expression level may be associated with the induction of apoptosis. PBMCs cultures were treated with HB in series of concentrations (0.1, 0.2, 0.4 mg/mL) followed by incubation period of 72 h. Trypan Blue exclusion assay was used for the evaluation of cell viability. For the analysis of transcriptional activity of five genes from TNF superfamily (TNFRSF10A, TNFRSF10B, TNFRSF1B, TNFRSF25, TNFSF10) in PBMCs after treatments, isolation of total RNA, RT-PCR and Real-Time PCR were done. The average Ct values and 2- $\Delta\Delta$ Ct were used as an input for the correlation assessment.

As HB concentration increased, viability of PBMCs decreased from 73.6% to 54.4% in comparison to negative control. Comparative analysis of gene expression level between positive control (5-Fluorouracil) and HB treatments showed downregulation of TNF genes after treatment at two higher HB concentrations. Our results suggest that antiproliferative effects of HB on cellular level probably are not mediated via TNF receptors and ligands.

HALOGENATED BOROXINE, CELL VIABILITY, TNF SUPERFAMILY GENES, PBMCs

03 – 14 Poster

ECOGENOTOXICOLOGICAL ASSESSMENT OF THE WATER QUALITY OF THE DANUBE RIVER (SITE VIŠNJICA) BASED ON DNA DAMAGE IN VARIOUS FISH SPECIES

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This work represents the study of quality of the Danube River, in Belgrade, at the Višnjica site, by analyzing the genotoxicity of water by using fish as bioindicators. With a population of about 2 million inhabitants (Belgrade) and poor legislation regarding the discharge of wastewaters, monitoring is the first step in approaching this serious problem. To obtain information on the genotoxicity of water as a measure of DNA damage, the comet assay, which detects the effects of exposure, and micronucleus test, which detects permanent effect, were used. For the comet assay we have used three types of cells: blood, liver, and gills, while the micronucleus test was done on blood cells. The fish used as bioindicators are the common perch (*Perca fluviatilis*), vimba bream (*Vimba vimba*), common barbell (*Barbus barbus*), and white bream (*Blicca bjoerkna*).

Regarding the comet assay, significant difference in DNA damage was observed between species in all tested tissues. Vimba bream and common barbell had the highest level of DNA damage in gills, white bream in liver and common perch in blood. In the case of the micronucleus test, the highest number of micronuclei was detected in white bream blood cells. The obtained results showed that there is no correlation between comet assay and the micronucleus test suggesting the importance of performing different bioassays on multiple types of fish tissues in order to find the best biomarker for assessing the genotoxic potential of water.

ECOGENOTOXICOLOGY, DNA DAMAGE, COMET ASSAY, MICRONUCLEUS TEST