

13th INTERNATIONAL
CONGRESS
OF THE SERBIAN SOCIETY
OF TOXICOLOGY



1st TOXSEE
REGIONAL
CONFERENCE

Present and Future of toxicology: Challenges and opportunities



10 - 12 May, 2023 Belgrade

electronic

ABSTRACT
BOOK

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13th INTERNATIONAL
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&

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u oblasti obrazovanja odraslih

DEAR COLLEAGUES, DEAR FRIENDS,

We are delighted to greet you on the **13th International Congress of the Serbian Society of Toxicology & 1. TOXSEE Regional Conference - Present and Future of toxicology: challenges and opportunities**, organized in Belgrade from 10-12 May 2023.

Five years after our last international Congress we gathered in Belgrade, to further promote contemporary toxicology, in the broadest sense of meaning, as a response to the new challenges requiring innovative approaches and solutions, as it is understood in the third decade of the XXI century.

Initial concept, to blend the top scientific level in toxicology with the potentials of its' use in broad array of clinical and other domains, proved to be right. Line-up of more than 70 first class international and regional faculties as well as best Serbian scientists and toxicology professionals in all related domains fully justify the approach. Moreover, interest and presence of more than 250 colleagues from Serbia and region witness that our professional community has recognized the approach taken and shown vast interest.

The Serbian Society of Toxicology is committed to innovation and creativity in research and education, in cooperation with collegial associations and institutions in Serbia and abroad. As a regional leader, we developed and inaugurated the regional brand TOXSEE, with the idea to gather as much as possible expertise and know-how from the region and Europe, to capture knowledge, share experience and exchange practical skills with colleagues who deal with toxicology problems daily.

Time imposes on us the need to integrate science, top knowledge and daily practice in a quality and efficient way, to contribute to the better health of the society as a whole in the most purposeful manner. Therefore, a thematic and functional connections with domains of emergency medicine, general medicine, paediatrics, ecology, in addition to already standard toxicological disciplines i.e. clinical, forensic, occupational, and experimental toxicology have been enhanced.

We are glad to host you in a pleasant atmosphere of Belgrade in mid-May, to benefit from the attractive and dynamic program, exchange knowledge, and, equally important, to refresh existing and establish new contacts with colleagues and friends, while enjoying our hospitality and cherish the moment in one of the best partying cities of Europe.

YOU ARE MOST WELCOME!!!



Prof. dr Petar Bulat

- President of the STC
- President of the 13th STC Congress

Petar Bulat



Prof. dr Biljana Antonijević

- President of the CSC
- of the 13th STC Congress

B. Antonijević



Prof. dr Predrag Vukomanović

- President of the COC
- of the 13th STC Congress

P. Vukomanović

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CONGRESS
PROGRAM





THREE LINES OF EVIDENCE OF THE HEPATOTOXICITY OF A MIXTURE CONTAINING PHTHALATES AND BISPHENOL A: *IN SILICO* AND TWO *IN VIVO* MODELS

YOUNG RESEARCHERS

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The extensive usage of bis(2-ethylhexyl) phthalate (DEHP), dibutyl phthalate (DBP), and bisphenol A (BPA) creates a lot of opportunities for combined human exposure to these hazardous compounds in everyday life and a variety of negative outcomes, including hepatotoxicity. *In silico* research and two *in vivo* models were used to investigate the links between a mixture including DEHP, DBP and BPA and liver injury. Bioinformatic analysis was performed by Comparative Toxicogenomics Database, ShinyGO, TopCluster, and Cytoscape. *In vivo* subacute study included five groups of rats (n = 6): (1) Control: corn oil, (2) DEHP: 50 mg/kg b.w./day, (3) DBP: 50 mg/kg b.w./day, (4) BPA: 25 mg/kg b.w./day, (5) MIX: DEHP + DBP + BPA. Zebrafish embryos were exposed to the investigated substances in multiple dosages, both alone and in combination (binary and ternary mixtures). Liver damage was linked to 75 DEHP, DBP, and BPA genes, the majority of which were associated with inflammation/oxidative stress, identified as the most relevant molecular pathways. In rats, significant changes in redox status/bioelements' level and pathohistology were more pronounced or evident only in MIX group, suggesting probable additivity. In a dose-dependent manner, BPA reduced the liver area (LA) index. LA values were decreased by DEHP (2 µg/mL) and DBP (5 µg/mL), whereas LA index was raised by their higher concentrations. In binary mixtures, DBP had a lethal effect at the two highest concentrations, whereas BPA directed hepatotoxicity of the DEHP/DBP/BPA mixture.

KEYWORDS: plasticizers, hepatotoxicity, toxicogenomic data mining, rat, zebrafish



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