13th INTERNATIONAL CONGRESS OF THE SERBIAN SOCIETY OF TOXICOLOGY

&

1st TOXSEE REGIONAL CONFERENCE

Present and Future of toxicology: Challenges and opportunities

Удружење токсиколога Србије
Serbian Society of Toxicology

10 - 12 May, 2023 Belgrade

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ABSTRACT BOOK

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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*

Prof. dr Biljana Antonijević
- *President of the CSC of the 13th STC Congress*

Prof. dr Predrag Vukomanović
- *President of the COC of the 13th STC Congress*

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CONGRESS PROGRAM

TOXICITY TESTING OF D,L-SULFORAPHANE IN A ZEBRAFISH MODEL

ORGAN SPECIFIC TOXICOLOGY

Aleksandar Pavić[1], Nataša Radaković[1], Tatjana Srdić-Rajić[2], Dragica Božić[3], Katarina Baralić[3], Danijela Đukić-Ćosić[3]

1 Institute of molecular genetics and genetic engineering, University of Belgrade, Belgrade, Serbia
2 Institute for oncology and radiology of Serbia, Department of experimental oncology, Belgrade, Serbia
3 University of Belgrade - Faculty of pharmacy, Department of toxicology "Akademik Danilo Soldatović", Belgrade, Serbia

Sulforaphane (SFN) belongs to the group of isothiocyanates and is present in many cruciferous plants, especially broccoli. The positive properties of this bioactive molecule in the form of extracts have been shown in numerous studies and include antibacterial, cardioprotective, and neuroprotective effects, antioxidant and immunomodulatory effects, as well as positive effects in various cancers.
However, the potential for harmful effects of SFN has not been sufficiently investigated, particularly for chemically obtained D,L-sulforaphane. This study aimed to investigate the toxicity of D,L-sulforaphane on zebrafish (Danio rerio) model. Wild (AB) strain embryos and zebrafish transgenic lines with fluorescently labeled liver cells (Tg(fabp:EGFP)) and endothelial cells of blood vessels (Tg(fli1:EGFP)) were used, treated with different concentrations of SFN (1 to 20 μg/mL).

The survival of embryos, developmental toxicity, hepatotoxicity and cardiotoxicity were monitored for five days. A concentration of 20 μg/mL of D,L-sulforaphane caused the death of all embryos, while the median lethal concentration (LC50) was found to be 14.2 μg/mL. D,L-sulforaphane exhibited toxic effects at concentrations higher than 3 μg/mL, primarily on the development of the swim bladder (4 μg/mL), and growth and development of embryos (4.58 μg/mL), while harmful effects on the liver (liver size and yolk resorption) were observed at a concentration of 10 μg/mL. Effects on the cardiovascular system were not observed at concentrations from 1 to 10 μg/mL. The investigation of D,L-sulforaphane on zebrafish embryos showed that harmful effects occur at very low concentrations, indicating the need for further investigation of toxicological potential of this molecule.

KEYWORDS: D,L-sulforaphane, toxicity, zebrafish, mean lethal concentration LC50

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