INSTITUTE OF TECHNICAL SCIENCES OF SASA
MATERIALS RESEARCH SOCIETY OF SERBIA

Programme and the Book of Abstracts

TWENTIETH YOUNG RESEARCHERS' CONFERENCE MATERIALS SCIENCE AND ENGINEERING

Belgrade, November 30 – December 2, 2022

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Aim of the Conference

Main aim of the conference is to enable young researchers (post-graduate, master or doctoral student, or a PhD holder younger than 35) working in the field of materials science and engineering, to meet their colleagues and exchange experiences about their research.

Topics

Biomaterials
Environmental science
Materials for high-technology applications
Materials for new generation solar cells
Nanostructured materials
New synthesis and processing methods
Theoretical modelling of materials

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Results of the Conference

Beside printed «Programme and the Book of Abstracts», which is disseminated to all conference participants, selected and awarded peer-reviewed papers will be published in journal "Tehnika – Novi Materijali". The best presented papers, suggested by Session Chairpersons and selected by Awards Committee, will be proclaimed at the Closing Ceremony. Part of the award is free-of-charge conference fee at YUCOMAT 2023.

Sponsors

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Synthesis and characterization of composite resveratrol/selenium nanomaterial, and preliminary assessment of its' antioxidative effect and biocompatibility

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Natural chemicals and earth elements are increasingly used in research as basis for novel materials intended for use in medicine. Among phytopharmaceuticals, more specifically polyphenols, resveratrol is known for its' antioxidative, anticancer, antimicrobial, and other beneficial effects. Selenium, an essential trace element, is lately being recognized in nanoparticle form as less toxic and equally or more efficient than commercially available forms. The synergy of these two agents have not been shown until lately, when their synergistic antioxidative and gene expression effects were investigated for the purpose of treating Alcheimer disease. During our previous research, we have successfully synthesized pure resveratrol particles, as well as selenium nanoparticles (SeNPs). Both of them were separately investigated regarding their biological activities. The first step in evaluation of their possible synergistic antioxidative effect was obtaining the stable composite of these two materials. Synthesis parameters and processing methods were varied, and obtained suspensions assessed by their macroscopic and microscopic characteristics. The sample with both components homogeneously distributed in the particle form, was chosen for further experiments. Ultraviolet-visible (UV-Vis) spectrophotometry and Fourier transform infrared spectroscopy (FTIR) were used to characterize sample, and antioxidative activity (by DPPH reduction assay), and cytocompatibility (using MTT cytotoxicity assay) were additionally determined. Results showed improved cytocompatibility as compared to pure resveratrol particles, and preserved, significantly high antioxidative potential.