

MATERIALS RESEARCH SOCIETY OF SERBIA
INSTITUTE OF TECHNICAL SCIENCES OF SASA

Programme and the Book of Abstracts

**NINETEENTH YOUNG RESEARCHERS' CONFERENCE
MATERIALS SCIENCE AND ENGINEERING**

Belgrade, December 1-3, 2021



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**Materials Research Society of Serbia
&
Institute of Technical Sciences of SASA**

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Program and the Book of Abstracts

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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 «Program 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 2022.

Sponsors



ANALYSIS
LABORATORY EQUIPMENT

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Additive-free resveratrol micro- and nanoparticles and assessment of their toxicity

Nina Tomić¹, Maja Kuzmanović¹, Dragana Mitić Ćulafić², Magdalena M. Stevanović¹

¹*Institute of Technical Sciences of SAsA, Knez Mihailova 35/IV 11000 Belgrade, Serbia*

²*Department of Microbiology, University of Belgrade - Faculty of Biology, Studentski trg 16, Belgrade, Serbia*

Resveratrol, polyphenol from stilbene family, has demonstrated beneficial effects on human health in numerous studies. Among these effects are cardioprotective, anti-cancer, neuroprotective, antimicrobial and other. *In vivo*, application of this phytochemical often lacks significant results. This is mainly because of its poor bioavailability, caused by low water solubility, sensitivity to light, oxygen and pH change, and high reactivity. Micro- and nanoformulations of resveratrol have been described to highly improve bioavailability. However, there are limitations to this approach, such as demanding synthesis process, necessity of expensive or toxic chemicals, or poor loading capacity. We have used a simple physicochemical solvent-non solvent method to synthesise additive-free, stable and uniform elongated resveratrol micro- and nanoparticles (RES-particles). The drying conditions were varied to examine their influence on the morphological characteristics of resveratrol particles. Differential effects of drying at ambient, low, and elevated temperature as well as effects of centrifugation and stability of RES-particle suspension during the time were documented. RES-particles were characterized by X-ray diffraction (XRD), differential scanning calorimetry (DSC), ultraviolet-visible (UV-Vis) spectrophotometry, Fourier transform infrared spectroscopy (FTIR) and optical microscopy. Biocompatibility of RES-particles was preliminary assessed through MTT toxicity assay.