

**BOOK OF ABSTRACTS**  
**THE 2<sup>ND</sup> BALKANS - CHINA**  
**MINI-SYMPOSIUM ON NATURAL**  
**PRODUCTS AND DRUG DISCOVERY**



МИНИСТАРСТВО ПРОСВЕТЕ,  
НАУКЕ И ТЕХНОЛОШКОГ РАЗВОЈА



**11-13 April, 2019**  
**Belgrade, Serbia**

**Institute for Biological Research "Siniša Stanković",  
University of Belgrade, Belgrade, Serbia**

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## Nutritive and therapeutic properties of selected wild growing mushrooms from Serbia

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Selected species from the genera: *Agrocybe*, *Laetiporus*, *Pleurotus* and *Polyporus* harvested in Serbia have been chemically characterized and their biological potential was evaluated. Results of macronutrient profile suggest that tested macromycetes are a rich source of carbohydrates and proteins, with low fat content which makes them excellent candidates for low-calorie dietary regimens. Selected metabolites analysis revealed presence of: free sugars (rhamnose, fructose, mannitol, glucose and trehalose), four isoforms of tocopherols ( $\alpha$ -,  $\beta$ -,  $\gamma$ - and  $\delta$ - tocopherol) and total of 27 fatty acids with nutritionally desirable linoleic acid as the most abundant. Samples turned out to be rich in organic (oxalic, quinic, malic, citric and fumaric acid) and phenolic acids (protocatechuic, *p*-hydroxybenzoic, *p*-coumaric and cinnamic acid) as well, which was later on associated with multiple biological activities. Results of antioxidant activity (evaluated via reducing power, DPPH· scavenging activity,  $\beta$ -caroten/linoleic acid and TBARS test) indicated that selected macromycetes are potent antioxidant agents with ability to neutralize free radicals, inhibit lipid peroxidation and reducing power ( $EC_{50}/EC_{0.5}$  is in range of 0,25 – 23,78 mg/mL). Potent antimicrobial potential of ethanolic and methanolic extracts prepared from fruiting bodies was demonstrated against several clinically relevant pathogenic microorganisms, and given their ability to eradicate pathogenic microorganisms, tested mushrooms may have role in the formulation of new antimicrobial agents. Methanolic extracts were not that promising in their cytotoxic properties towards HeLa, NCI-H460 and MCF-7 carcinogenic cell lines, but preliminary analysis also showed that tested samples were non-toxic for the porcine primary cells, which may provide opportunity for safe human consumption of preparations derived from these mushrooms.

Thanks to the production of biologically active compounds which have beneficial health effects alongside favorable nutrient profile, the selected macromycetes have potential as functional foods. Future prospects open up new avenues for improving their status to proper medicinal products with significant potential in maintaining and improving health, longevity and quality of life.