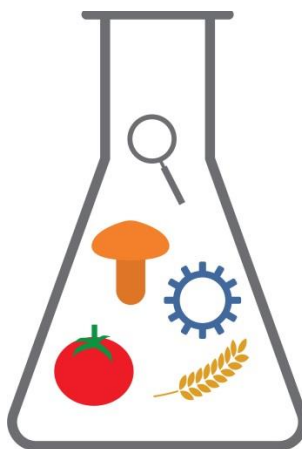




**University of Belgrade
Faculty of Agriculture**

The 3rd International UNIFood Conference
UNIFood2024 Conference

Book of Abstracts



UNIFOOD

Belgrade, June 28-29, 2024.

UNIFood2024 Conference - Book of Abstract

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THE WORD OF WELCOME

Dear colleagues,

We warmly welcome you to the **3rd International UNIFood Conference – UNIFood2024** organized by the Faculty of Agriculture, University of Belgrade and University of Belgrade. This event engages not only academics, but also stakeholders from all relevant industries and business sectors, and will serve as a meeting point and platform for the dissemination of new ideas and the development of new partnerships. Food scientists, technologists, researchers, nutritionists, engineers and entrepreneurs will share their knowledge on the latest advances in all aspects of food production, processing, sustainability, safety and quality, nutrition and health, and knowledge transfer supporting environment.

The first UNIFood conference, organized as a national, was launched in 2018. as one of the events in honor of the **210th anniversary** of the **University of Belgrade** which was ranked 35th on the 2017 Shanghai list in Food Science and Technology. More than 250 proceedings from thirteen countries including 83 oral presentations (including three plenary lectures, eight invited lecturers and three section lecturers) and a round table dedicated to better cooperation between academia and industry highlighted the importance of food research in various fields of science and technology that require multidisciplinary and multistakeholder approaches. The second UNIFood conference was organized as an international in 2021. and gathered 273 participants from 23 countries, with 52 oral presentations (including four plenary lectures, five key note speakers, seven invited lectures and three section lecturers) as well as round table and workshops.

We are delighted that you have choosen to participate in this collaborative conversation, where authors from 19 countries will present their recent work in 99 poster presentations and 60 oral communications (including four plenary lectures, four keynote lectures, nine invited lectures and seven section lecturers). You will have the opportunity to participate in three educational workshops, round table and discuss current EU project results.

Belgrade, one of the oldest cities in Europe, always young, at the confluence of the Sava and Danube rivers, will be your host. At the confluence of new ideas and experiences we welcome you again and wish you a fruitful discussion and the establishment of new collaborations.

Sincerely,



*Prof. Dr Mirjana Pešić
President of the Scientific Committee
of UNIFood2024*

The conference organizers gratefully acknowledge the generous support provided by the following:



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POLYPHENOLS: THE ROLE OF FOOD BIOACTIVE AGENTS IN COMBATING MICROBIAL VIRULENCE

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Polyphenols are well-known group of bioactive molecules distributed in various foods such as citruses and honey. They have been recognized mainly due to their antioxidant properties but recent insight into their antimicrobial spectrum implies potential novel application for this group. Polyphenols are able not only to block growth of pathogenic microorganisms, but they can also interfere with microbial ability to induce disease, microbial virulence. With the abundant studies conducted worldwide we now know about range of virulence factors that are necessary for disease induction and though we have new antimicrobial targets. One of the most studied virulence factors is microbial ability to form biofilms. We have recently studied rutin, flavonoid glycoside found in citruses. This molecule has the ability to block biofilm formation of *Pseudomonas aeruginosa* IBRS P001 and *Staphylococcus aureus* IBRS MRSA 011, strains that are resistant to antimicrobial therapeutics. In addition to reduction of biofilm biomass, rutin antibiofilm mechanisms also included reduction in cell viability, exopolysaccharide, and extracellular DNA levels. Moreover, moderate inhibition of bacterial adhesion to keratinocytes upon rutin treatment was observed. Rutin antivirulence mechanisms involved inhibition of *P. aeruginosa* protease, pyocyanin, rhamnolipid, and elastase production and the downregulation of the *lasI*, *lasR*, *rhlI*, *rhlR*, *pqsA* and *myfR* genes. This research has proven wide antivirulence potential of rutin. Moreover, we have tested range of flavonoids as inhibitors of fungal virulence and resistance. Rutin, but also apigenin and apigetrin, have shown promising antibiofilm and anti-hyphal properties in several clinical *Candida albicans* strains examined, which was also confirmed on molecular level.

Polyphenols have wide antivirulence capacity employing a range of mechanisms and might be used for the development of novel antimicrobial strategies. Intake of food polyphenols might have some health benefits in the terms of limiting microbial pathogenicity, which is the possibility that should be explored in more detail.

Keywords: polyphenols, antimicrobial, antivirulence, bioactivity

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