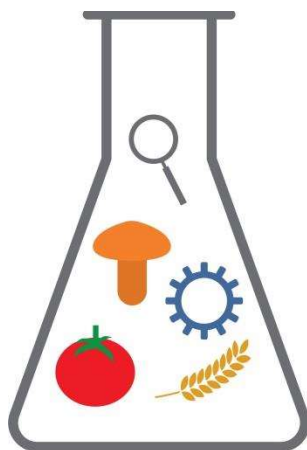




**University of Belgrade
Faculty of Agriculture**

The 3rd International UNIFood Conference
UNIFood2024 Conference

Book of Abstracts



UNIFOOD

Belgrade, June 28-29, 2024.

UNIFood2024 Conference - Book of Abstract

The 3rd International UNIFood Conference – UNIFood2024

Publisher

University of Belgrade - Faculty of Agriculture
6 Nemanjina street
11080 Zemun - Belgrade

For Publisher

Prof. Dr Dušan Živković, Dean
University of Belgrade
Faculty of Agriculture

Editors

Prof. Dr Mirjana Pešić
Prof. Dr Slađana Stanojević

Cover Design Layout, technical preparation, typesetting

Ivana Isaković

Print run

20 copies

Printing house

Faculty of Agriculture, Nemanjina 6, 11080 Belgrade

ISBN: 978-86-7834-438-1

Belgrade, 2024.

SCIENTIFIC COMMITTEE

Prof. Dr Mirjana Pešić - University of Belgrade, Faculty of Agriculture, Serbia – President of Scientific Committee

Members:

Prof. Dr Dušan Živković – University of Belgrade, Faculty of Agriculture, Dean

Prof. Dr Vladan Đokić, University of Belgrade, Faculty of Architecture, Rector

Prof. Dr Branislav Boričić - University of Belgrade, Faculty of Economics and Business, Vice-Rector for Scientific Research

Dr Jelena Begović - University of Belgrade, Institute of Molecular Genetics and Genetic Engineering, Minister of Science, Technological Development and Innovation

Prof. Dr Viktor Nedović - University of Belgrade, Faculty of Agriculture, Director of SAGE Project

Dr Marina Soković - University of Belgrade, Institute for Biological Research "Siniša Stanković", Asistent Minister of Science, Technological Development and Innovation

Prof. Dr Živoslav Tešić - University of Belgrade, Faculty of Chemistry

Prof. Dr Bojana Vidović - University of Belgrade, Faculty of Pharmacy

Prof. Dr Jelena Lozo - University of Belgrade, Faculty of Biology

Prof. Dr Ljiljana Gojković - Bukarica - University of Belgrade, School of Medicine

Prof. Dr Dušanka Milojković-Opsenica - University of Belgrade, Faculty of Chemistry

Prof. Dr Radoslava Savić Radovanović - University of Belgrade, Faculty of Veterinary Medicine

Prof. Dr Zorica Knežević - Jugović, University of Belgrade, Faculty of Technology and Metallurgy

Dr Nataša Golić - University of Belgrade, Institute of Molecular Genetics and Genetic Engineering

Dr Vuk Maksimović - University of Belgrade, Institute for Multidisciplinary Research

Dr Nevena Mihailović - Stanojević - University of Belgrade, Institute for Medical Research

Dr Uroš Gašić - University of Belgrade, Institute for Biological Research "Siniša Stanković"

Prof. Dr Aleksandar Kostić - University of Belgrade, Faculty of Agriculture

Prof. Dr Slađana Stanojević, University of Belgrade, Faculty of Agriculture

Prof. Dr Steva Lević - University of Belgrade, Faculty of Agriculture

Prof. Dr Ana Džamić -University of Belgrade, Faculty of Biology

Prof. Dr Milica Fotirić-Akšić - University of Belgrade, Faculty of Agriculture

Prof. Dr Nikola Tomić - University of Belgrade, Faculty of Agriculture

Prof. Dr Pierre - Louise Teissedre, Institut des Sciences de la Vigne et du Vin, Université de Bordeaux, France

Prof. Dr Charalampos Proestos, National and Kapodistrian University of Athens Zografou, Athens, Greece

Prof. Dr Nikolaos Tzortzakis, Cyprus University of Technology, Department of Agricultural Sciences, Biotechnology and Food Science, Limassol, Cyprus

Dr Didier Dupont, French National Institute for Agriculture Research, France

Prof. Dr Marco Arlorio, Dipartimento di Scienze del Farmaco, Università del Piemonte Orientale, Novara, Italy

Prof. Dr Gertrud Morlock - Justus Liebig University Giessen, Germany

Prof. Dr Mekjell Meland - Norwegian Institute of Bioeconomy Research – NIBIO Ullensvang, Norway

Prof. Dr Verica Dragović - Uzelac – Faculty of Food Technology and Biotechnology, Zagreb, Croatia

Prof. Dr Maria G. Campos, Faculty of Pharmacy and Chemistry Centre, University of Coimbra, Coimbra, Portugal

Prof. Dr Sokol Abazi, Canadian institute of technology, Tirana and Noval Laboratory Durrës, Albania

ORGANIZING COMMITTEE

Prof. Dr Slađana Stanojević - University of Belgrade, Faculty of Agriculture, president of the Organizing Committee

Members:

Danilo Potparić, Rectorate of University of Belgrade, Rector's cabinet

Ivana Isaković, Rectorate of University of Belgrade, Office for Information Affairs

Nevena Arandelović, Rectorate of University of Belgrade, Office for Information Affairs

Dr Ana Salević - University of Belgrade, Faculty of Agriculture

Dr Petar Batinić, Institute for Medicinal Plant Research „Dr Josif Pančić“, Belgrade, Serbia

Prof. Dr Jelena Miočinović, University of Belgrade, Faculty of Agriculture, Director of the Institute of Food Science and Technology

Prof. Dr Nemanja Mirković, University of Belgrade, Faculty of Agriculture

Prof. Dr Tijana Urošević, University of Belgrade, Faculty of Agriculture

Prof. Dr Jelena Mutić, University of Belgrade, Faculty of Chemistry

Dr Dejan Stojković, University of Belgrade, Institute for Biological Research "Siniša Stanković"

Dr Jovana Petrović, University of Belgrade, Institute for Biological Research "Siniša Stanković"

Dr Slavica Ranković, University of Belgrade, Institute for Medical Research

Dr Danka Bukvički, University of Belgrade, Faculty of Biology

Dr Danijel Milinčić – University of Belgrade, Faculty of Agriculture

Dr Violeta Milutinović, University of Belgrade, Faculty of Pharmacy

Dr Nikola Popović, University of Belgrade, Institute of Molecular Genetics and Genetic Engineering

Maja Bensa – University of Ljubljana, Faculty of Health Sciences



WOUND HEALING POTENTIAL OF BLACK RASPBERRY SEED OIL

**Nemanja V. Krgović¹, Dejan S. Stojković², Milena S. Dimitrijević³, Nebojša R. Menković⁴,
Katarina P. Šavikin¹, Jelena Č. Živković¹**

¹*Institute for Medicinal Plants Research “Dr Josif Pančić”, Belgrade, Serbia*

²*Institute for Biological Research “Siniša Stanković”, Belgrade, Serbia*

³*Institute for Multidisciplinary Research, Belgrade, Serbia*

⁴*University Business Academy, Faculty of Pharmacy, Novi Sad, Serbia*

*Corresponding author: nemanja.0925@gmail.com

The skin is subject to various influences from the external environment that lead to minor or serious problems and diseases. Among the most prevalent is trauma, an injury characterized by disrupting the normal anatomical structure and function of the skin caused by a cut, a blow or a burn, which consequently makes the body become more susceptible to infection. On the basis of numerous animal experiments and human studies, plant oils are recognized to play an important role in regenerative processes, whether they are used as an integral part of the diet or an active ingredient in pharmaceutical preparation intended for local application. This study aimed to investigate the wound-healing potential of black raspberry (*Rubus occidentalis* L., Rosaceae) seed oil, as well as its chemical characterization and antimicrobial activity against the most common skin pathogens. GC-MS analysis was performed to identify the chemical composition of fatty acids in the black raspberry seed oil and revealed that polyunsaturated fatty acids (PUFA) dominated – the most abundant were linoleic (C18:2n-6; 39.30%) and α -linolenic (C18:3n-3; 30.49%) acids, followed by monounsaturated oleic acid (C18:1n-9; 18.94%). The amount of saturated fatty acids (SFA) was notably lower, including palmitic (C16:0; 2.91%), arachidic (C20:0; 1.37%) and behenic (C22:0; 1.01%) acids as the main representatives. The black raspberry seed oil demonstrated significant antimicrobial activity against the bacterial strains *Salmonella* Typhimurium, *Escherichia coli* and *Bacillus cereus*, in addition to antifungal activity against micromycetes *Aspergillus fumigatus*, *A. niger*, *A. versicolor* and *Trichoderma viride*. After examination of the relative growth rate (%) of HaCaT cells treated with different concentrations of black raspberry seed oil (20–400 $\mu\text{g/mL}$), by cell viability assay, no cytotoxicity was found ($\text{IC}_{50} > 401 \mu\text{g/mL}$). The wound healing activity, in terms of migratory ability, was evaluated by scratch assay in the same cell line, whereby cell migration into the wounded area was monitored using an Inverted Microscope. The closure of the gap distance (wound closure) was found to be approximately 2-fold higher in cells treated with 200 $\mu\text{g/mL}$ of black raspberry seed oil (41.77%) than in non-treated cells (17.34%). The results showed that black raspberry seed oil is a rich source of PUFA, with promising potential in the treatment of skin wounds associated with infections.

Keywords: *Rubus occidentalis*, seed, oil, fatty acids, skin wounds

Acknowledgements: Ministry of Science and Technological Development of Republic of Serbia, contract number 451-03-66/2024-03/200003.