UNIVERSITY OF NIŠ
Faculty of Technology, Leskovac

BOOK OF ABSTRACTS

16th INTERNATIONAL SYMPOSIUM „NOVEL TECHNOLOGIES AND SUSTAINABLE DEVELOPMENT“

Leskovac, October, 17-18, 2025.

UNIVERSITY OF NIŠ
Faculty of Technology, Leskovac

BOOK OF ABSTRACTS 16th INTERNATIONAL SYMPOSIUM „NOVEL TECHNOLOGIES AND SUSTAINABLE DEVELOPMENT“
Leskovac, 2025.

Faculty of Technology, Leskovac

Publisher: Faculty of Technology, Leskovac
For the Publisher: Prof. Dragiša Savić
Editor: Prof. Dragan Đorđević, Full Professor, Faculty of Technology, Leskovac

CIP - Каталогизација у публикацији Народна библиотека Србије, Београд

6(048)(0.034.2)

INTERNATIONAL Symposium "Novel Technologies and Sustainable Development" (16 ; 2025 ; Leskovac)

Book of abstracts [Elektronski izvor] / 16th International Symposium "Novel Technologies and Sustainable Development" Leskovac, October, 17-18, 2025. ; editor Dragan Đorđević. - Leskovac : Faculty of Technology, 2025 (Leskovac : Faculty of Technology). - 1 elektronski optički disk (CD-ROM) ; 12 cm

Sistemski zahtevi: Nisu navedeni. - Nasl. sa naslovne strane dokumenta. - Na vrhu nasl. str.: University of Niš. - Tiraž 30.

ISBN 978-86-89429-60-2

a) Технологија -- Апстракти b) Технолошки прогрес -- Привредни развој -- Апстракти

COBISS.SR-ID 174439177

Printing by: Faculty of Technology, Leskovac
Impression: 30

Proofreader: Jovana Nikolić
Paging and graphical design: Vesna Marinković

ISBN 978-86-89429-60-2
DOI: 10.46793/89429-60.boa

16th International Symposium with international participation "Novel Technologies and Sustainable Development" was also supported by Ministry of Science, Technological Development and Innovation, Republic of Serbia.

16th International Symposium
"Novel Technologies and Sustainable Development"
Organized by: Faculty of Technology, Leskovac

The Programme Committee:
Prof. Olivera Stamenković, Full professor, Faculty of Technology, Leskovac, Serbia
Prof. Goran Nikolić, Full professor, Faculty of Technology, Leskovac, Serbia
Dr Saša Savić, Assistant professor, Faculty of Technology, Leskovac, Serbia
Dr Marija Miladinović, Assistant professor, Faculty of Technology Leskovac, Serbia
Dr Miloš Kostić, Senior Research Associate, Faculty of Sciences and Mathematics, Niš, Serbia
Prof. Mirjana Kijevčanin, Full professor, Faculty of Technology and Metallurgy, Belgrade, Serbia
Prof. Zita Šereš, Full professor, Faculty of Technology, Novi Sad, Serbia
Dr Nataša Đurišić Mladenović, Associate professor, Faculty of Technology, Novi Sad, Serbia
Dr Branko Matović, Principal Research Fellow, Tehe Institute for Nuclear sciences Vinca, National Institute of the Republic of Serbia, Belgrade, Serbia
Dr Jasna Stajić Trošić, Principal Research Fellow, Institute for Chemistry, Technology and Metallurgy, National Institute of the Republic of Serbia, Belgrade, Serbia
Prof. Borislav Malinović, Full professor, Faculty of Technology, Banja Luka, Bosnia and Herzegovina
Prof. Anita Tarbuk, Full professor, Faculty of Textile technology, Zagreb, Croatia
Dr Karmina Miteva, Associate profesor, Faculty of Technology and Metallurgy, Skopje, Republic of Northern Macedonia
Dr Luca Polleto, Senior research scientist, National Council of Research of Italy, Institute of Photonics and Nanotechnologies, Padova, Italy
Dr Farzam Fotovat, Associate profesor, Sharif University of Technology, Teheran, Iran
Dr Marcela Elisabeta Barbinta-Patrascu, Associate profesor, Faculty of Physics, Univetsity of Bucharest, Bucharest, Romania
Dr Ljubica Tasić, Associate profesor, Instituteof Chemistry, University of Campinas. Sao Paolo, Brasil
Dr Dejan Nikolić, Research associate professor, Center for Botanical Dietary Supplements Research, State University of Illinois, Chicago, USA
Prof. Irena Žižović, Full Professor, Faculzy of Chemistry Wroclaw University of Sciece and Technology, Wroclaw, Poland
Dr Zou Xiaobo, Full Professor, School of Food and Biological Engineering, Jiangsu, China
Dr Zhang Di, Associate Professor,School of Food and Biological Engineering, Jiangsu, China
Dr Hristo Najdenski, Corresponding Member of BAS, Insitute of Microbiology „Stefan Angelov“, Sofia, Bulgaria
Dr Igor Jordanov, Full Professor, Faculty of Technology and Metallurgy, Skopje, North Macedonia
Dr Dani Djordjevic, Associate Professor, Faculty of Veterinary Hygiene and Ecology, Universuty of Veterinary Sciemces, Brno, Czech Republic

The Organizing Committee:
Prof. Dragiša Savić, Full Professor, Faculty of Technology, Leskovac, Serbia
Goran Cvetanović, Mayor, Leskovac, Serbia
Goran Jović, Director of the Regional Chamber of Commerce and Industry of Jablanica and Pćinja District, Leskovac, Serbia
Igor Denić, Director, DCP Hemigal, Leskovac, Serbia
Radojica Ristić, Director, NEVENA COLOR, Ltd, Leskovac, Serbia
Aleksandar Stanković, ELIXIR, Ltd, Prahovo, Serbia
Dr Petar Stojanović, Director, DUNAV, Grocka, Serbia
Dr Predrag Stamenković, Director, Academy of South Serbia, Leskovac, Serbia
Prof. Dušan Trajković, Full Professor, Faculty of Technology, Leskovac, Serbia
Dr Ivan Savić, Associate Professor, Faculty of Technology, Leskovac, Serbia
Prof. Zoran Kostić, Full Professor, Faculty of Technology, Leskovac, Serbia
Dr Milan Kostić, Assistant Professor, Faculty of Technology, Leskovac, Serbia
Dr Biljana Đođević, Assistant, Faculty of Technology, Leskovac, Serbia
Čedomir Dimić, Junior Research Assistant, Faculty of Technology, Leskovac, Serbia
Dejan Ranđelović, Faculty of Technology, Leskovac, Serbia
Miloš Stevanović, Faculty of Technology, Leskovac, Serbia
Jovana Nikolić, Faculty of Technology, Leskovac, Serbia

This research was supported by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia (contract numbers 451-03-137/2025-03/200113, 451-03-136/2025-03/200113, and 451-03-136/2025-03/200003).

ANTIMICROBIAL ACTIVITY OF MICROENCAPSULATED AND UNENCAPSULATED EXTRACTS FROM THE UNDERGROUND PARTS OF *GENTIANA ASCLEPIADEA* L.

Miloš S. Jovanović[1] ID, Milica Milutinović[1] ID, Suzana Branković[2] ID, Milica Randjelović[1] ID, Bojana Miladinović[1] ID, Nemanja Kitić[3] ID, Nada Ćujić-Nikolić[4] ID, Katarina Šavikin[4] ID, Tatjana Mihajilov-Krstev[5] ID, Dušanka Kitić[1] ID

[1] Department of Pharmacy, Faculty of Medicine, University of Niš, Niš, Serbia
[2] Department of Physiology, Faculty of Medicine, University of Niš, Niš, Serbia
[3] Faculty of Medicine, University of Niš, Niš, Serbia
[4] Institute for Medicinal Plants Research "Dr. Josif Pančić", Belgrade, Serbia
[5] Department of Biology and Ecology, Faculty of Sciences and Mathematics, University of Niš, Niš, Serbia

Gentiana asclepiadea L. (Gentianaceae), commonly known as willow gentian, is a medicinal plant traditionally used for alleviating gastrointestinal and liver disorders. Owing to its pronounced bitterness, it is also utilized in the food industry, particularly as a flavoring component in liqueurs. This study aimed to evaluate the antimicrobial activity of an extract from the underground parts of *G. asclepiadea* and to assess the effect of microencapsulation on this property. The extract, obtained under previously optimized ultrasound-assisted extraction conditions (50 min, 65°C, 53% v/v ethanol, 40 mL/g liquid-to-solid ratio), was microencapsulated by spray-drying using 20% whey protein as a carrier. Antimicrobial activity was tested against a panel of enteropathogenic microorganisms (three Gram-positive, four Gram-negative bacterial strains, and one fungal strain). Both extract forms exhibited growth-inhibitory effects against all tested strains. Minimum inhibitory concentrations ranged from 3.13 to 25.0 mg/mL for the unencapsulated extract and from 3.13 to 50.0 mg/mL for the microencapsulated extract. *Enterococcus faecalis* was the most sensitive strain. The unencapsulated extract showed slight selectivity toward Gram-positive bacteria, whereas the microencapsulated extract exhibited no such selectivity. Microencapsulation enhanced activity against *Escherichia coli* and *Salmonella enteritidis*, while in most other cases it reduced antimicrobial activity, though inhibition was still present. Mild antifungal activity against *Candida albicans* was observed for both extracts, without a fungicidal effect. The obtained results suggest that *G. asclepiadea* extract possesses antimicrobial potential, and that the microencapsulated form could be a valuable functional ingredient in pharmaceutical and food products.

Keywords: *Gentiana asclepiadea* L., antimicrobial activity, spray drying, microencapsulation