

5th International Scientific and Professional Conference /
5. međunarodni znanstveno-stručni skup

FOOD INDUSTRY BY-PRODUCTS

BOOK OF ABSTRACTS / KNJIGA SAŽETAKA

10th and 11th June 2026
Osijek, Croatia

Josip Juraj Strossmayer University of Osijek, Faculty of Food Technology Osijek / Sveučilište Josipa Jurja Strossmayera u Osijeku, Prehrambeno-tehnološki fakultet Osijek
Croatian Academy of Engineering / Akademija tehničkih znanosti Hrvatske
European Hygienic Engineering & Design Group – EHEDG
ISEKI-Food Asssociation
Faculty of Tourism and Rural Development in Požega / Fakultet turizma i ruralnog razvoja u Požegi
Faculty of Agriculture and Food Technology, University of Mostar / Agronomski i prehrambeno-tehnološki fakultet Sveučilišta u Mostaru
Association for Nutrition and Dietetics / Udruženje za nutricionizam i dijetetiku
Croatian Veterinary Institute / Hrvatski veterinarski institut
Agricultural Institute Osijek / Poljoprivredni institut Osijek
Association of Chemists and Technologists Osijek / Društvo kemičara i tehnologa Osijek

5th International Scientific and Professional Conference /
5. međunarodni znanstveno-stručni skup

FOOD INDUSTRY BY-PRODUCTS

Book of Abstracts / Knjiga sažetaka

V. FIB CONFERENCE, 2026

10th and 11th June 2026
Osijek, Croatia

BOOK OF ABSTRACTS	*5th International Scientific and Professional Conference FOOD INDUSTRY BY-PRODUCTS*
KNJIGA SAŽETAKA	5. međunarodni znanstveno-stručni skup *FOOD INDUSTRY BY-PRODUCTS*
Published by **/ Izdavač**	*Josip Juraj Strossmayer University of Osijek, Faculty of Food Technology Osijek* / Sveučilište Josipa Jurja Strossmayera u Osijeku, Prehrambeno-tehnološki fakultet Osijek
Editors **/ Urednici**	Antun Jozinović, Drago Šubarić, Stela Jokić
Technical Editor **/ Tehnički urednik**	Antun Jozinović
Organizers **/ Organizatori**	*Josip Juraj Strossmayer University of Osijek, Faculty of Food Technology Osijek* / Sveučilište Josipa Jurja Strossmayera u Osijeku, Prehrambeno-tehnološki fakultet Osijek; *Croatian Academy of Engineering* / Akademija tehničkih znanosti Hrvatske; *European Hygienic Engineering & Design Group – EHEDG*; *ISEKI-Food Asssociation*; *Faculty of Tourism and Rural Development in Požega* / Fakultet turizma i ruralnog razvoja u Požegi; *Faculty of Agriculture and Food Technology, University of Mostar* / Agronomski i prehrambeno-tehnološki fakultet Sveučilišta u Mostaru; *Association for Nutrition and Dietetics* / Udruženje za nutricionizam i dijetetiku; *Croatian Veterinary Institute* / Hrvatski veterinarski institut; *Agricultural Institute Osijek* / Poljoprivredni institut Osijek; *Association of Chemists and Technologists Osijek* / Društvo kemičara i tehnologa Osijek
Scientific and Organising Committee **/ Znanstveno-organizacijski odbor**	Antun Jozinović (*chairman*/predsjednik) (*Croatia*/Hrvatska), Drago Šubarić (*vice-chairman*/zamjenik predsjednika) (*Croatia*/Hrvatska), Stela Jokić (*vice-chairman*/zamjenik predsjednika) (*Croatia*/Hrvatska), Mario Panjičko (*vice-chairman*/zamjenik predsjednika) (*Croatia*/Hrvatska), Đurđica Ačkar (*Croatia*/Hrvatska), Krunoslav Aladić (*Croatia*/Hrvatska), Jurislav Babić (*Croatia*/Hrvatska), Marija Banožić (*Bosnia and Herzegovina*/Bosna i Hercegovina), Veronika Barišić (*Croatia*/Hrvatska), Sandra Budžaki (*Croatia*/Hrvatska), Frane Čačić Kenjerić (*Croatia*/Hrvatska), Eva Falch (*Norway*/Norveška), Charis Galanakis (*Greece*/Grčka), Vlado Guberac (*Croatia*/Hrvatska), Artur Gryszkin (*Poland*/Poljska), Jozo Ištuk (*Bosnia and Herzegovina*/Bosna i Hercegovina), Midhat Jašić (*Bosnia and Herzegovina*/Bosna i Hercegovina), Antonija Jozić (*Croatia*/Hrvatska), Draženka Komes (*Croatia*/Hrvatska), Vlatko Kopić (*Croatia*/Hrvatska), Mario Kovač (*Bosnia and Herzegovina*/Bosna i Hercegovina), Dajana Kučić Grgić (*Croatia*/Hrvatska), Ante Lončarić (*Croatia*/Hrvatska), Marta Lores (*Spain*/Španjolska), Borislav Miličević (*Croatia*/Hrvatska), Tihomir Moslavac (*Croatia*/Hrvatska), Biljana Pajin (*Serbia*/Srbija), Jelka Pleadin (*Croatia*/Hrvatska), Jasmina Ranilović (*Croatia*/Hrvatska), Darja Sokolić (*Croatia*/Hrvatska), Antonija Šarić (*Croatia*/Hrvatska), Domagoj Šubarić (*Croatia*/Hrvatska), Marina Tišma (*Croatia*/Hrvatska), Ivana Tomac (*Croatia*/Hrvatska), Natalija Velić (*Croatia*/Hrvatska)
Honorary Committee **/ Počasni odbor**	Andrea Humski (*Croatia*/Hrvatska), Hrvoje Hefer (*Croatia*/Hrvatska), Vlasta Piližota (*Croatia*/Hrvatska), Jurica Primorac (*Bosnia and Herzegovina*/Bosna i Hercegovina), Zita Šereš (*Serbia*/Srbija), Sanja Vidaček Filipec (*Croatia*/Hrvatska), Zvonimir Zdunić (*Croatia*/Hrvatska)

ISBN: 978-953-8543-14-2
EAN: 9789538543142
Osijek, 2026.

ANTIOXIDATIVE AND ANTIMICROBIAL POTENTIAL OF BITTER ORANGE *Citrus aurantium* L.

Hrvoje Pavlović[1], Iva Mračić Raič[2], Leona Golubov[1], Nela Nedić Tiban[1*]

[1]Josip Juraj Strossmayer University of Osijek, Faculty of Food Technology Osijek, Franje Kuhača 18, 31000 Osijek, Croatia
[2]University of Dubrovnik, Department for Mediterranean Plants, Marka Marojice 4, 20000 Dubrovnik, Croatia
[*]nela.nedic@ptfos.hr

poster presentation

Bitter orange (*Citrus aurantium* L.) essential oil represents a valuable natural resource with significant antimicrobial and antioxidant properties, offering sustainable solutions for food preservation and agricultural waste reduction. The essential oil, extracted from leaves, ripe and unripe peels through hydro-distillation or supercritical CO_2 extraction, contains bioactive compounds predominantly composed of linalool and limonene, along with oxygenated and hydrocarbon monoterpenes. At 4.67 mg/ml essential oils of leef and unripe peel has minimum inhibitory concentrations (MIC) against pathogenic bacteria as well as the inhibiton of spoilage yeast *Saccharomyces cerevisiae* in orange juice. The antimicrobial activity increases with concentration and demonstrates time-dependent activity, making it suitable for food preservation applications. Additionally, the essential oil displays significant antioxidant capacity, particularly in young leaf extracts rich in ferulic acid, naringin, and naringenin, which contribute to oxidative protection and extended shelf life of food products. The utilization of bitter orange essential oil addresses critical waste management challenges in citrus processing industries, which generate thousands of tons of peel by-products annually. Advanced supercritical extraction technologies enable efficient recovery of bioactive components from agricultural residues, transforming waste materials into high-value natural preservatives. This sustainable approach aligns with circular economy principles, reducing environmental impact while providing safe alternatives to synthetic preservatives. The essential oils' activity against various foodborne pathogens, combined with antioxidant properties, positions them as promising natural preservatives for extending food shelf life and ensuring food safety.

Keywords: *Citrus aurantium*, antimicrobial activity, antioxidant properties, food preservation, waste valorization

Acknowledgement: This research was funded by the European union-NextGenerationEU, grant number 581-UNIOS-93.