



**UNFOOD
CONFERENCE**
University of Belgrade
210th Anniversary
OCTOBER 5-6 2018

**PROGRAM
I
ZBORNIK RADOVA**

*Programme
&
Book of Abstracts*

Beograd, 5 i 6 oktobar 2018
Belgrade, Octobre 5-6, 2018

CIP-Kategorizacija u publikaciji
Narodna biblioteka Srbije, Beograd

Univerzitet u Beogradu
UNIFOOD CONFERENCE (2018; Beograd)
Program; i zbornik radova= Programme; & Book of Abstracts/
Beograd, 5 i 6 oktobar 2018 = Belgrade, Octobre 5-6 2018
[organizator] Univerzitet u Beogradu; [organized by] University of Belgrade
[urednici, editors Marina Soković, Živoslav Tešić] Beograd, Univerzitet u Beogradu

Radovi na srp i engl. jeziku – Tekst ćir i lat- Tiraž

ISBN 978-86-7522-060-2

UNIFOOD Konferencija, Beograd, 5-6 oktobar 2018
PROGRAM I ZBORNIK RADOVA

UNIFOOD Conference, Belgrade Octobre 5-6 2018
Programme and Book of Abstracts

Izdaje / Published by

Univerzitet u Beogradu / University of Belgrade

Studentski trg 1, 11000 Beograd

Tel/fax ; www.bg.ac.rs, email

Za izdavača / For Publisher

Vladimir Bumbaširević, rektor

Urednici / Editors

Marina Soković

Živoslav Tešić

Dizajn korica i kompjuterska obrada teksta / Cover Design Layout

Tomislav Tosti

Tiraž / Circulation

ISBN 978-86-7522-060-2

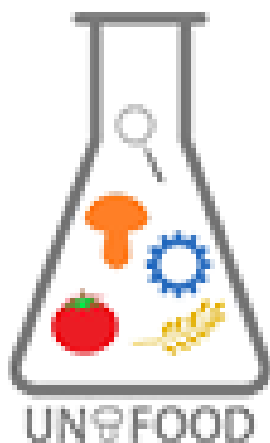
Naučni odbor / Scientific Committee

Dr. Marina Soković, predsednik–
Prof. Dr. Vladimir Bumbaširević
Prof. Dr. Živoslav Tešić
Prof. Dr. Mirjana Pešić
Prof. Dr. Ljiljana Mojović
Prof. Dr. Jelena Lozo
Prof. Dr. Ljiljana Gojković-Bukarica
Dr. Dragana Stanić-Vučinić
Prof. Dr. Bojana Vidović
Prof. Dr. Slavica Todić
Prof. Dr. Dušanka Milojković-Opsenica
Prof. Dr. Andreja Rajković
Prof. Dr. Nikola Tomić
Prof. Dr. Viktor Nedović
Prof. Dr. Miomir Nikšić
Prof. Dr. Branko Bugarski
Dr. Nataša Golić
Prof. Dr. Ivan Stanković
Prof. Dr. Slađana Šobajić
Prof. Dr. Jagoda Jorga
Prof. Dr. Nebojša Lalić
Dr. Miroslav Novaković
Dr. Uroš Anđelković
Dr. Danijela Mišić
Dr. Vuk Maksimović
Dr. Nevena Mihailović-Stanojević
Prof. Dr. Jevrosima Stevanović
Veljko Jovanović
Aleksandar Bogunović

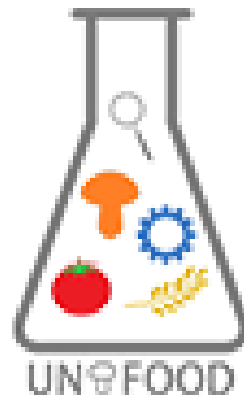


Organizacioni odbor / Organizational Committee

Dr. Vladimir Mikić
Vladimir Marković
Ivana Isaković
Dr. Ana Jakovljević
Branka Janda-Marković
Nikola Savić
Snežana Pejović
Daniel Babić
Aleksandar Topalović
Ljiljana Konstantinović
Ljubica Dimitrijević
Jovana Ilić
Dr. Tomislav Tosti
Dr. Uroš Gašić
Dr. Ivanka Ćirić



Ova knjiga sadrži kratke izvode,
3 plenarna predavanja (PP),
8 predavanja po pozivu (PPP)
3 sekcijaska predavanja (SP)
228 saopštenja prihvaćenih za prezentovanje na konferenciji
od čega 66 usmenih označenih sa U/O



This book contains abstracts of
3 Plenary Lectures (PL)
8 Invited Lectures (IL)
3 Section Lectures (SL)
228 contributions accepted for the presentations at conference
of which 66 oral presentations designated by U/O

UNIFOOD Konferencija se iskreno zahvaljuje na finansijskoj pomoći:
The conference organizers gratefully acknowledge the generous support provided by the following:

Ko-organizator / Co-organizer



Република Србија
МИНИСТАРСТВО ПРОСВЕТЕ,
НАУКЕ И ТЕХНОЛОШКОГ РАЗВОЈА

Ministarstvo prosvete, nauke i tehnološkog razvoja

Sponozori / Sponsors



Donatori /Donators



Konferenciju su podržali / With Support From





UNIFood Conference

Posterska prezentacija u okviru sekcija / Poster presentation within sections
HRANA I ZDRAVLJE / FOOD AND HEALTH



HZP20 / FHP20

In vitro antilisterijalni efekat etarskih ulja *Juniperus communis* i *Satureja montana*

Biljana Nikolić^a, Bojana Vasilijević^a, Jelena Knežević-Vukčević^a, Tatjana Marković^b, Ilija Djekić^c, Branko Velebit^d,
Dragana Mitić-Čulafić^a

^aKatedra za mikrobiologiju, Univerzitet u Beogradu-Biološki fakultet, Studentski trg 16, 11000 Beograd, Srbija; ^bInstitut za proučavanje lekovitog bilja "dr Josif Pančić", Tadeuša Košćuška 1, 11000 Beograd, Srbija; ^cKatedra za upravljanje bezbednošću i kvalitetom hrane, Univerzitet u Beogradu-Poljoprivredni fakultet, Nemanjina 6, 11080 Beograd, Srbija; ^dOdeljenje za mikrobiološka i molekularno-biološka ispitivanja, Institut za higijenu i tehnologiju mesa, Kačanskog 13, 11040 Beograd, Srbija

Listeria monocytogenes je patogen hrane, izrazito tolerantan prema različitim faktorima spoljašnje sredine, uključujući temperaturu, što doprinosi čestoj pojavi u namirnicama. Cilj ovog rada bio je ispitivanje antibakterijskog potencijala etarskih ulja *Juniperus communis* (JC-EO) i *Satureja montana* (SM-EO), kao i njihova hemijska karakterizacija. Antibakterijski efekat je ispitivan prema referentnom ATCC 19111 soju, kao i prema primoizolatima sa junećeg trupa (LMB), lososa (LMS) i odvodnog tunela vode u klanici (LMT). Primenjeni su mikrodilucionni testovi (MIC i metoda šahovske table) i metoda vremenski zavisne inhibicije rasta, koja se izvodi u makro-volumenima.

GC-MS analiza je ukazala da su dominantni sastojci JC-EO α -pinen (47,8%) i sabinen (11,0%), a SM-EO karvakrol (30,7%) i timol (18,0%). Minimalne inhibitorne koncentracije (MIC) oba ulja iznosile su 0,5-1%, dok su minimalne bakterične koncentracije bile 1-4% za JC-EO i 1% za SM-EO. Metoda šahovske table, primenjena za analizu kombinovanog dejstva oba ulja, ukazala je na sve tipove interakcije u slučaju primoizolata i pretežno indiferentni efekat prema ATCC 19111 soju. Metoda vremenski zavisne inhibicije rasta potvrdila je dobijene tipove interakcije. Pored toga, analizom kriva inhibicije rasta i izračunavanjem stopa rasta za svaku od njih, utvrđene su koncentracije ulja koje su dovele do odsustva i rasta i inhibicije (MIC vrednosti kriva, cMIC). One su bile značajno niže od vrednosti MIC dobijenih u mikrodilucionnoj metodi, što se pripisuje različitim uslovima aerobioze ostvarenim u mikro i makro volumenima, odnosno metaboličkim razlikama koje ih prate.

U zaključku možemo konstatovati da etarska ulja *J. communis* i *S. montana* mogu efikasno inhibirati rast *L. monocytogenes*. Dalja evaluacija njihovog antibakterijskog potencijala *in vitro* i *in situ* u hrani može se preporučiti za buduća istraživanja.

Antilisterial activity of *Juniperus communis* and *Satureja montana* essential oils screened *in vitro*

Biljana Nikolić^a, Bojana Vasilijević^a, Jelena Knežević-Vukčević^a, Tatjana Marković^b, Ilija Djekić^c, Branko Velebit^d,
Dragana Mitić-Čulafić^a

^aDepartment of Microbiology, University of Belgrade - Faculty of Biology, Studentski trg 16, 11000 Belgrade, Republic of Serbia; ^bInstitute for Medicinal Plant Research "dr Josif Pančić", Tadeuša Košćuška 1, 11000 Belgrade, Republic of Serbia; ^cDepartment of Food Safety and Quality Management, University of Belgrade - Faculty of Agriculture, Nemanjina 6, 11080 Belgrade, Republic of Serbia; ^dDepartment of Microbiology and Molecular Biology, Institute of Meat Hygiene and Technology, Kačanskog 13, 11040 Belgrade, Republic of Serbia

Listeria monocytogenes is a food pathogen widely tolerant to different environmental factors including temperature. This is the main factor contributing to frequent food contamination. The aim of this study was to examine the antibacterial effect of essential oils of *Juniperus communis* (JC-EO) and *Satureja montana* (SM-EO) against *L. monocytogenes*, as well as to determine their chemical composition. Antibacterial effect was determined against reference ATCC 19111 and three *L. monocytogenes* primoisolates: LMB, LMS and LMT, isolated from beef carcass, salmon and slaughterhouse water drainage tunnel, respectively. It was estimated in microdilution MIC and checkerboard assays, and in time kill assay, performed in macro-volumes.

The chemical analysis, determined by GC-MS, revealed that the most abundant constituents were α -pinene (47.8%) and sabinene (11.0%) in JC-EO, and carvacrol (30.7%) and thymol (18.0%) in SM-EO. Minimal inhibitory concentrations (MICs) of both EOs were in the range 0.5-1%. Minimal bactericidal concentrations were determined to be 1-4% for JC-EO, and 1% for SM-EO. Checkerboard assay, performed in order to analyze the combined effect of the oils, revealed all types of interactions for tested primoisolates, and mostly indifferent effect against ATCC 19111 strain. Time kill assay confirmed the obtained mode of interactions. In addition, calculation of growth rates was used to estimate the concentrations inducing neither growth, nor killing effect (curve MIC values, cMICs). They were multifold lower compared to MICs obtained in microdilution assay. This could be addressed to different aerobiosis realized in micro- and macro-volumes, and consequent metabolic differences.

In conclusion, *J. communis* and *S. montana* essential oils and their combinations could be the efficient vehicles inhibiting the growth of *L. monocytogenes*. Further evaluation of their antibacterial potential, both *in vitro* and *in situ* in foods, could be suggested.