

28 - 31 October 2020

# ELECTRONIC ABSTRACT BOOK



in association with the Serbian Society of Microbiology





28 - 31 October 2020

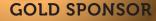


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#### Message from the organizers

#### Dear colleagues and friends,

We would like to cordially greet you at the end of the FEMS 2020 ONLINE Conference on Microbiology, that has been successfully organized at the end of October 2020.

One great idea became reality. It would not have been possible without all of you, for which we are grateful.

A pioneering endeavor in many different aspects and in challenging times. First, as a first Conference of the kind in the FEMS history, planned as a middle sized event, oriented in parallel to regional and global audiences, both in terms of content delivery and participation and an event done in partnership with the national/regional association and the dedicated PCO. Second, as a first major Conference event fully organized as an ONLINE format in European microbiology in 2020. Third, as the first major FEMS Conference event organized in complex times, with numerous challenging, even adverse psychological, societal and economic effects for the whole professional community, and, in addition, microbiologists being the one of the few medical professions directly standing in the front line of the COVID-19 response.

We made a brave decision and it paid off. With the new world of ONLINE possibilities, we strive and succeed to organize the most suitable formats to cover the scientific content of the conference, discuss the most challenging topics of the day and to enable scientific exchange and the interaction with the participants in a safest possible manner.

We are happy to say that, despite all different complexities, overall results of the Conference and the whole concept went beyond our bravest expectation. Almost 700 microbiologists from 40 European countries and another 20 worldwide, making the ONLINE Conference global event, eight scientific sessions, including one session with best selected grantees presentations and four Symposiums, organized in two parallel streams, four plenary lectures and COVID-19 Round Table for the whole audience, total of over 70 invited lectures with prerecorded lectures. In addition, over 50 prerecorded presentation prepared by participants-authors in the main program, in 7 corresponding ORAL ONLINE sessions, all together more than 30 hours of prerecorded material. Finally, another 60 video presentations, over 400 e-posters and some 10 Company materials, in total almost 600 presentational items, uploaded on the Conference ONLINE platform and accessible to participants until the 27. October 2021.

As FEMS, we are delighted that we were able to put together a great scientific program and contribute to the Conference success. Moreover, in light of the challenging times we live in and all different complexities it entails, and also to support your enthusiasm and scientific rigour, we decided to support your effort by waiving conference fees for the ONLINE Conference for almost 300 colleagues, authors of scientific papers, submitted until 15. March 2020.

Despite the circumstances, the pharmaceutical and medical industry has been with the Conference, providing valuable support and building solid basis for broader future collaboration.

We sincerely hope that you also enjoyed all different contents and aspects of the Conference and that you would be able to catch up with those recordings and presentations you may have missed or have a detailed look at posters.

We would like to warmly wish you health, love and happiness, Merry Christmas and a Happy New Year and are looking forward to the new encounters, in the next occasion, FEMS 2022 Conference in Belgrade.

Sincerely /

Prof. dr Vaso Taleski, Chair, COC

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Director of Events & Internationalization, FEMS

Prof. dr Hilary Lappin Scott

FEMS President

Hilay hoppi-Scott

Prof. dr Bauke Oudega, Chair, CSC

FEMS Past President

Prof. dr Lazar Ranin, Co-chair, COC

Vice President. SSM

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Prof. dr Dragojlo Obradović, Co-chair, CSC

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28 - 31 October 2020



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# MAIN CONFERENCE PROGRAM

FEMS Online Conference on Microbiology in association with the Serbian Society Federation of European Microbiological Societies 28 - 31 October 2020 of Microbiology WEDNESDAY, 28th October 2020 Schedule Schedule 14.00-15.30 Symposium 2 -14.00-16.15 Symposium 1 – Helicobacter pylori -The Control of Viral diseases microbiologist prospective by vaccination - new challenges Chairs - Tanja Jovanović, Chairs – Nataša Opavski Maja Stanojević 14.00-14.15 14.00-14.15 Biljana Selimović, Serbia Tanja Jovanović, Serbia Viral vaccines – from Jenner to new Immunopathogenesis and resistance in H. pylori infection technologies Maja Stanojević, Serbia 14.15-14.30 Vladimir Milivojević, Serbia 14.15-14.30 Advances in *Helicobacter pylori* infec-Poliovirus eradication: novel attenuated poliovirus strains tion diagnostics and therapy from the gastroenterology corner Maja Čupić, Serbia 14.30-14.45 Traditional and New Influenza Dušan Kekić, Serbia 14.30-14.45 Vaccines - the impact of repeated Identification of Helicobacter pylori influenca vaccine effectiveness in bioptic material and detection of on global health antibiotic resistance genes 14.45-15.00 Ivana Lazarević, Serbia 14.45-15.00 Mirjana Rajilić-Stojanović, Serbia Advances and Challenges Gastric microbiota beyond in HCV Vaccine Development Helicobacter pylori 15.00-15.15 Ana Banko, Serbia MMR vaccine: updates and challenges 15.15-15.30 Aleksandra Knežević, Serbia Discussion Future prospects of prophylactic HPV vaccine and 15.00-15.30 Q&A 15.30-15.45 Danijela Miljanović, Serbia Is now the time to introduce VZV vaccine in the mandatory immunization programme in Serbia? 15.45-16.15 Discussion and Q&A **Break** 15.30-15.40 16.15-16.25 **Break** Symposium 4 -15.40-18.20 HIVAS - Contemporary approach 16.25-18.30 Symposium 3 to the AIDS infection -Mighty microbes for a healthy role of Microbiologist-Virologist and sustainable future Chairs – Jovan Ranin, Danijela Simić Chairs – Tanja Berić, Milan Kojić 16.25-16.40 Jasmina Nikodinović Runić, Serbia 15.40-15.55 Danijela Simić, Serbia Plastic degrading microorganisms: Epidemiological situation of HIV infection in Serbia and the World Opening an avenue to a sustainable world 15.55-16.10 Ivana Pesić, Serbia Svetlana Soković, Serbia 16.40-16.55 Application of PCR tests in the GABA producing lactobacilli: diagnosis of HIV infection a way to modulate immune response in Serbia: case reports via autophagy induction 16.10-16.25 Jovan Ranin, Serbia Mina Obradović, Serbia 16.55-17.10 Microbiological principles Bacteriophages - alternative agents in contemporary antiretroviral for treatment of MDR pathogens treatment of HIV patients in Serbia 16.25-16.40 Ljiljana Popović, Serbia Sanja Jeremić, Serbia 1710-1725 Dark side Bacterial nanocellulose for biomedical of the antiretroviral treatment applications: Recent advances and future prospects 16.40-16.55 Mila Paunić, Serbia An example of good practice - VCCT HIV Andrea Radalj & Jakov Nišavić, Serbia 17.25-17.40 counseling at the Institute for Students' Some viral infections of animals Health of Belgrade University as potential public health risk Slađana Prišić, USA 16.55-17.15 GlaxoSmithKline 17.40-17.55 "Known unknowns" - secret life Jovan Ranin, Serbia of Mycobacterium tuberculosis. Dolutegravir as core agent in dual therapy GlaxoSmithKline 17.15-17.35 Maja Stanojević, Serbia **Discussion** The Importance of Dolutegravir high and 17.55-18.30 barrier to resistance from virological Q&A perspective Discussion and Q&A 17.35-18.30 **FEMS Networking Session** 18.30-19.00 19.00 OPENING CEREMONY Chairs: Bauke Oudega, Dragojlo Obradović, Vaso Taleski 19.20 Welcome address - Hilary Lappin-Scott, UK Plenary lecture 1 - Anita Kriško, Germany & Miroslav Radman, Croatia/France Survival Strategies in Microbes: it is all about communication 20.30 Plenary lecture 2 - Rino Rappuoli/Mariagrazia, Italy The emerging problem of AntiMicrobial Resistance and the role of vaccines THURSDAY, 29th October 2020 Schedule **FEMS Networking Session** 13.00-14.00 14.00-14.40 PLENARY LECTURE Chairs – Jozef Anné, Dragana Vuković Tom Coenye, Belgium Metabolic adaptations as drivers for antibiotic tolerance in microbial biofilms 14.40-14.50 Discussion 14.50-18.10 Session 1 14.50-18.10 Session 2 Infections and control Food Microbiology and Biotechnology (human medical focus) (non human medical focus) Chairs – Bauke Oudega, Branislava Kocić Chairs – Andriy Sibirny, Miroslav Vrvić Eliora Ron, Israel 14.50-15.15 Lixin Zhang, China 14.50-15.15 Combatting antibiotic resistant septi-Harnessing cellular triacylglycerol pool cemic *E. coli* for titer improvement of polyketides 15.15 -15.40 Daniele Daffonchio, Saudi Arabia Microorganisms of the agro-ecosystem, 15.15-15.40 Lidija Šenerović, Serbia "plant wellness" and the quality Antivirulence agents in the treatment of food products. of mixed species infections. Ken Ichi Yoshida, Japan 15.40-16.05 Application of the Gram-positive conjugative 15.40-16.05 Ivana Gobin, Croatia plasmid pLS20 for rapid and easy Opportunistic premise plumbing transformation of intra- and inter-species pathogens: a new challenge in the hospital 16.05-16.30 Hristo Najdenski, Bulgaria The prevalence of Yersinia in Europe I would recommend the topic Infections 16.00-16.30 Ina Gajić, Serbia and control Molecular insight into the antimicrobial resistance of group *B streptococci*, 16 30-16 55 Aleksa Obradović, Serbia serotype distribution and emerging Novel approaches to biocontrol serotype III sequence type 17 of plant bacterial diseases. 16.55-17.20 Andriy Sibirny, Ukraine 16.30-16.55 Danai Pervanidou, Greece Non-conventional thermotolerant yeast West Nile virus in humans in Greece, Ogataea polymorpha for production of 2010-2020: surveillance and public the 2nd generation fuel ethanol from health response lignocellulosics and crude glycerol 16.55-18.10 Discussion and Q&A 17.20-18.10 Discussion and Q&A **Break** 18.10-18.20 18.10-18.20 **Break** 18.20-18.40 **PFIZER** Metka Paragi, Slovenia National Laboratory Surveillance of invasive Pneumococcal Diseases (IPD) in Slovenia 18.40-18.50 Discussion and Q&A **FEMS SESSION** Patrik Bavoil, France/USA FEMS Director of Publications and Science The FEMS Journals, the new Open Access Journals, and how to publish Patrik Michel Bavoil 18.50-19.30 What makes a great paper? Max Haggblom FEMS Microbes: Open science toward a sustainable world Kimberly Klein **FEMS Session Discussion** Patrik Michel Bavoil 19.30-19.40 **Break** 19.30-19.40 **Break** 19.40-21.10 **ONLINE Oral Session No. 2 ONLINE Oral Session No. 1** 19.40-20.30 Anwar Kandari, UK 19.40-19.45 Diego Emilio Pérez-Stuardo, Chile 19.40-19.45 Investigation into the effects of fibres Lysosomal reactivation and starches on the gut microbiota in response to IgM-beads on Atlantic salmon macrophages 19.45-19.50 Büşra Akdeniz Oktay, Turkey infected by Piscirickettsia salmonis Potential use of hazelnut husk for pullulan production by Aureobasidium pullulans AZ-6 19.45-19.51 Gülcan Kuyucuklu, Turkey Effect of N-Acetylcystein-Ampicillin Dina Ramić, Slovenia 19.50-19.55 combination against Methicillin New approach for quantification of signal resistant Staphylococcus Aureus molecules AI-2 of Campylobacter jejuni and their Mec-A gene expressions 19.55 -20.00 Izlem Haktanir, France 19.51-19.59 Lena Ciric, UK Mechanism of antimicrobial activity Collecting and using evidence of honeybee (Apis mellifera) venom on for improved hospital cleaning Escherichia coli and Pseudomonas spp. 19.59-20.04 Miriam Latorre-Millán, Spain 20.00-20.06 Sarah Marie Stoppel, Norway Presence of chronic diseases in elderly Pre-Treatments and Long-Range PCR to patients, hospitalized with flu or serious Assess Infectivity of Norovirus Surrogates acute respiratory infection 20.06 -20.11 Tolulope Modupeoluwa Adeleye, Nigeria 20.04-20.16 Mümtaz Güran, Cyprus Ethanol Production from Cassava Starch A survey of oropharyngeal HPV infections by Protoplast Fusants of Wickerhamomyces among healthy university students: anomalus and Galactomyces candidum infection prevalence, associated risk factors and awareness levels Viorica Corbu, Romania 20.11-20.16 Screening of newly isolated yeast strains 20.16-20.21 Nataša Stanković Nedeljković, Serbia showing no pathogenic profile ACINETOBACTER BAUMANII COMPLEX for biotechnological applications IN CLINICAL SAMPLES AND ANTIBIOTIC RESISTANCE-DECADES BACK 20.21-20.27 Seda Havuz, Turkey Rare Clinical Presantation caused by *Borrelia burgdorferi* Discussion 20.16-20.30 20.27-20.46 Yvonne Cortese, Ireland and A Novel In Vitro Urethra Model to Q&A Visualise Bacterial Migration During Long-Term Urinary Catheter Insertion Discussion and Q&A 20.46-21.10 FRIDAY, 30th October 2020 Schedule 14.00-14.40 **Plenary** Chair – Vaso Taleski, Dejan Baskić, Lazar Ranin Petra Dersch, Germany Remodelling Yersinia-host interactions - For better or worse? Discussion 14.40-14.50 14.50-17.40 14.50-17.40 Session 4 Session 3 Microbiomes and human health AMR, noval therapeutic agents (mixed focus) Chairs – Vaso Taleski, Dejan Baskić, Chairs – Bauke Oudega, Jelena Begović Lazar Ranin 14.50-5.15 Stefano Donadio, Italy 14.50-15.15 Jeroen Raes Belgium Scientific and financial challanges Quantitative microbiome profiling in for new antibiotics health and disease Branislava Kocić, Serbia 15.15-15.40 Özgür Kurt, Turkey 15.15-15.40 Susceptibility pattern of Gram-negative Neglected residents of the gut microbiota bacilli to antimicrobial agents with an emphasis on colistin and carbapenems 15.40-16.05 Nataša Golić, Serbia Gut microbiota and autoimmune diseases Rossitza Vatcheva-Dobrevska, Bulgaria 15.40-16.05 Approaches to prevent and control 16.05-16.30 Maja Rupnik, Slovenia the spread of mdr pathogens Clostridium difficile and One Health in healthcare setting (position possibility 2) 16.30-16.55 Marina Dinić, Serbia **Discussion** Plasmid-mediated Cephalosporinase in and Enterobacterales - Challenges in Detection 16.05-16.50 **Q&A** 16.50-17.00 **Break** Discussion and Q&A 16.55-17.40 Lucia Rubio Fernandez, Belgium 17.00-17.50 17.40-17.50 **Break** The European Research Council funding opportunities for bright minds 17.50-18.30 PFIZER Matteo Bassetti, Italy Novel antibiotics in the era of AMR **Break** 18.30-18.40 18.40-18.50 **PROMEDIA TBD** CerTest – Specialists identifying causal pathogens of infectious diseases 18.50-19.00 Discussion and Q&A **FEMS Networking Session** 19.00-19.40 19.40-19.50 **Break** 19.50-21.20 **ONLINE Oral Session No. 3** 19.50-21.20 **ONLINE Oral Session No. 4** Manuela Agudelo-Restrepo, Colombia 19.50-19.57 Isabel Abellan-Schneyder, Germany 19.50-19.55 Full-length versus short amplicon 16S rRNA Mosquito-larvicidal activity of bacterial sequencing: benefits, drawbacks and risks extracts produced by Colombian strains 19.57-20.06 Jonathan Josephs-Spaulding, Germany Tahrioui Ali. France PhenoScreen: Development of a Systems Pistacia lentiscus L. Fruit Thwart Biology Tool for Decision Making in Recurrent UTIs 19.55-20.00 Pseudomonas aeruginosa Virulence Through Membrane Fluidity Alteration 20.06-20.11 Maria-Isabel Rojas, USA Phage as drivers of microbiome evolution: 20.00-20.05 Olukemi Aromolaran, Nigeria how they regulate their lysogenic-to-lytic Antimicrobial and synergistic effect of switch to move across systems green synthesized silver nanoparticles against multi-drug resistant bacteria Tomoka Urushidani, Japan 20.11-20.22 Promoting and memory effects of air-solid Onvedikachi Cecil Azuama, Eure, France 20.05-20.10 biofilm culture on persister formation: analysis Inhibition of *Pseudomonas aeruginosa* on mutants of toxin-antitoxin system genes virulence by Azorella atacamensis from Taira Atacama's community 20.22-20.57 **ONLINE Oral Session No. 5** Celia Campillo, Spain 20.10-20.15 Tn-Seg reveals a panel of genes as key 20.22-20.27 IEsra BARAN, Turkey contributors to Haemophilus influenzae Evaluation of Sysmex UF-5000 for cerebrorespiratory infection in a murine model spinal fluid and body fluids of emphysematous lung 20.27-20.32 Nahikari López López, Spain Nitin Chandra Teja Dadi, Slovakia 20.15-20.27 A genome-scale metabolic reconstruction Antimicrobial properties of a new hybrid of Haemophilus influenzae reveals FabH system based on clay mineral saponite as a potential target for antimicrobial theraand photosensitizer phloxine B peutic development Eduardo Lanzagorta Garcia, Ireland 20.27-20.32 Özgür Yanılmaz, Turkey 20.32-20.37 Sustainable Antimicrobial Biopolymeric Evaluation of fluorescence Food & Biomedical Film Engineering flow-cytometry to rule out Using Bioactive AMP-Ag+ Formulations negative urine samples in neonates 20.32-20.43 Allison Lopatkin, USA Sayuri Kasagaki, Japan 20.37-20.43 Predicting and inhibiting the spread of Involvement of DNA methylation in plasmid-mediated antibiotic resistance memory phenomenon of persisters in *Escherichia coli* 20.43-20.54 Valérian Lupo, Belgium Mining the hidden diversity of class-D 20.43-20.50 Ceylan Polat, Turkey (OXA) beta-lactamases Dobrava hantavirus variants in Apodemus 20.54-21.00 Daria Olkiewicz, Poland flavicollis mice in European part of Turkey Antibacterial activity of trans-cinnamaldehyde and geraniol 20.50-20.57 Marko Janković, Serbia Cytomegalovirus glycoprotein B and N genotypes in pediatric recipients of hematopoietic stem cell transplant Discussion and Q&A Discussion and Q&A 21.00-21.20 20.57-21.20 SATURDAY, 31th October 2020 Schedule **FEMS Networking Session** 09.00-10.00 10.00-12.30 10.00-11.30 Session 6 Session 5 **Biofilms** Pathogenicity, virulence, diagnosis Chairs – Eliora Ron, Vera Mijač Chairs - Colin Harwood, Helena Bujdakova 10.00-10.25 Ute Römling, Sweden 10.00-10.25 Maximiliano Gutierrez, UK Characterisation of human commensal Host cell environments and antibiotic Escherichia coli strains, efficacy in tuberculosis Commensal E. coli strains - Unravelling secrets of biofilm formation and beyond Milan Kojić, Serbia 10.25-10.50 10.25-10.50 Irena Aranđelović, Serbia Impact of chromosomal Prediction of susceptibility to first line architecture on the response tuberculosis drugs by DNA sequencing to stress conditions in bacteria 10.50-11.15 Helena Bujdakova, Slovakia 10.50-11.15 Vladimir Peličić, UK Photodynamic inactivation Type 4 pili - a promising approach in Neisseria, Streptococcus combating resistant microorganisms 11.15-11.30 Discussion and Q&A Ivana Čolović-Čalovski 11.15-11.40 & Aleksandar Džamić, Serbia **ONLINE Oral Session No. 6** Diagnosis of fungal infection 11.30-11.38 Gülcan Kuyucuklu, Turkey **EVALUATION OF BIOFILM FORMATION** 11.40-12.05 Duro Josić, Croatia IN STAPHYLOCOCCUS STRAINS WITH Fast omics methods in detection CONVENTIONAL AND MOLECULAR of pathogens and their toxins **METHODS** 11.38-11.43 Iago Grobas, UK Swarming *Bacillus subtilis* transits into a biofilm templated by active jamming in a gradient of antibiotics 11.43-11.48 Nezahat Koşar, Turkey Acinetobacter baumannii's biofilm formation as a survival and adaptation mechanism **Discussion and Q&A** 11.48-12.00 Discussion and Q&A 12.05-12.30 12.30-12.40 **Break** 12.00-12.40 **Break** 12.40-13.20 **BIOMERIEUX** Valeria Zucchelli, Italy The role of diagnostics in navigating through the challenge of COVID-19 pandemic and AMR 13.20-13.30 **Break COVID-19 ROUND TABLE** 13.30-16.30 Moderator – **Linda Kenney**, **USA** 13.30-13.40 Tanja Jovanović, Serbia **NEW CORONAVIRUS – MYTH AND REALITY** Miroslav Radman, Croatia/France Viral Parabiosis Hypothesis for onset of COVID-19 13.50-14.00 Ivan Đikić, Germany Ubiquitin networks in regulation of COVID-19 14.00-14.10 Peter Hotez, USA Recombinant Proteins in COVID19 Vaccine Development Jean-Claude Piffaretti, Switzerland The COVID-19 pandemic seen by the past chair of the Swiss committee for preparing pandemics 14.20-14.30 Stefan Pöhlmann, Germany SARS-CoV-2 entry into cells and its inhibition 14.30-14.40 Alexander Suvorov, Russia Development of mucosal vaccine against COVID-19 14.40-14.50 Marion Koopmans, The Netherlands Insights in Virus Transmission Using Genomic Epidemiology **Round Table discussion** 14.50-16.20 Break 16.20-16.30 Session 7 16.30-17.50 Session 8 16.30-19.30 **Environmental Microbiology** FEMS session and short presentations Chairs - Hilary Lappin-Scott, by grantees Branka Vasiljević Chairs - Vaso Taleski, Jozef Anne 16.30-16.40 FEMS Grants: Influence on the scientific 16.30-16.55 Cagri Ergin, Turkey careers of Early Career Researchers World-wide Cryptococcal pathogens with respect to global climate change 16.40-16.50 Rita Hirmondó, Hungary and ecological niche modelling Investigation of the mutator effects of currently used TB drugs provides insight into the mechanism of drug 16.55-17.20 Vaso Taleski, North Macedonia resistance development in Mycobacteria Metagenomic insight into the microbial diversity of the world unique loran-16.50-17.00 Katarina Novović, Serbia dite mine Allchar Unraveling regulon of novel two-component system in Pseudomonas putida WCS358 through transcriptomics 17.20-17.45 Colin Harwood, UK The Bacillus secretion factory 17.00-17.10 Zandra Fagernäs, Germany Biogeography of the ancient oral cavity 17.45-18.10 Dragan Radnović, Serbia Kusum Dhakar, Israel Bacterial resistance to hexavalent Modelling of microbial communities to 17.10-17.20 chromium and applicability promote atrazine degradation in crop soils in bioremediation 17.20-17.30 Amanda Pacholak Poland Azole fungicides – do they affect the 18.10-18.35 Ines Sviličić Petrić, Croatia properties of environmental bacterial Microorganism - early indicators of strains? anthropogenic perturbations within the environment 17.30-17.40 Marija Lješević, Serbia Bacterial degradation of monocyclic aromatic compounds in kraft lignin Discussion and Q&A 17.40-17.50 17.50-18.00 **Break** 18.00 -19.30 **ONLINE Oral Session No. 7** 18.00-18.08 Andrea Silva Claros, Spain Heavy metal biosorption using Halomonas 18.35-19.30 strains isolated from the Bolivian altiplano 18.08 -18.13 Dragana Tamindžija, Serbia Biodegradation and biosorption of organo-Discussion phosphorus pesticides by the alluvial sediment isolate Bacillus megaterium BD5 and 18.13-18.21 Francesca Bandini, Italy Fate and microbial ecology of biodegradable Q&A polymers under industrial anaerobic and aerobic conditions 18.21-18.28 Guillermo Budiño, Spain Shewanella T2.3D-1.1, an electrifying tale in the deep subsurface 18.28-18.33 Jose Francisco Nava Olivas, France STUDY OF NAPHTALENE AND PHENANHTRENE DEGRADING BACTERIA ISOLATED FROM SLECTIVE MEDIA Kalonji Abondance Tshisekedi, South Africa 18.33-18.38 Comparative genomic analysis hints at psychrophilic nature of the novel yeast species Naganishia randhawae 18.38-18.43 Kusum Dhakar, Israel Modelling of microbial communities to promote atrazine degradation in crop soils 18.43-18.48 Marija Mojicević, Ireland 18.35-19.30 Plastic Saga - The microbes strike back 18.48-18.53 Sara Fareed Mohamed Wahdan, Germany Discussion Link between metabolically active soil microbiome and soil function and their response to environmental factors in grassland ecosystem Q&A 18.53-18.58 Harold Alejandro Jurado Rivadeneira, Hungary Assessing the degradation of short chain chlorinated aliphatic hydrocarbon contaminated sites by monitoring the effect of two different bioremediation approaches using area specific bioaugmentation culture 18.58-19.06 DYNAMICS OF Cryphonectria parasitica POPULATIONS AND ASSOCIATED Cryphonectria hypovirus 1 PREVALENCE IN NORTH-WESTERN CROATIA 19.06-19.11 Munavvara Dzhuraeva, Tajikistan THERMOPHILIC BACILLI ISOLATED FROM KHOJA OBI GARM (TAJIKISTAN) GEOTHERMAL SPRING Discussion 19.11-19.30 19.40-19.50 **Break** CLOSING CEREMONY AND ADDRESS 20.00 Hilary Lappin-Scott, Vaso Taleski, Lazar Ranin



the Serbian Societ of Microbiology

28 - 31 October 2020

### ANTIBACTERIAL ACTIVITY OF CLOVE ESSENTIAL OIL IN MILK AGAINST FOOD-BORNE PATHOGENIC AND SPOILAGE BACTERIA

Maja Vukašinović Sekulić<sup>1</sup>, Aleksandra Mitrić<sup>1</sup>, Maja Bulatović<sup>1</sup>, Marica Rakin<sup>1</sup>, Tanja Krunić<sup>2</sup>

- 1 Faculty of Technology and Metallurgy, Department of biochemical engineering and biotechnology, University of Belgrade, Belgrade, Serbia
- 2 Innovation Centre of the Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia

**Background:** In the recent years, food industry have been intensively working to replace chemical preservatives with natural, effective and nontoxic compounds which could inactivate or inhibit growth of spoilage and pathogenic microorganisms. Among natural antimicrobial agents, extracts and essential oils derived from plant and spices, in addition to contributing to the taste and flavor of food, also can reduce or eliminate a wide variety of bacterial species.

**Objectives:** Purpose of this study was to evaluate the antibacterial effect of clove essential oil in milk against food-borne pathogenic and spoilage bacteria, which is a frequent cause of milk spoilage and food-borne infection and intoxication worldwide.

**Methods:** Antibacterial activity of clove essential oil in milk with different content of milk fat (0.5 and 3.2% w/v) was examined by agar well diffusion method, while the influence of milk components on minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC) were estimated by macrodilution method.

**Results:** The data obtained by an agar well diffusion method confirmed that milk is good medium for clove essential oil dissolution, especially milk with 0,5% milk fat, as inhibition zones were noticed for Bacillus subtilis up to 1,5% (v/v), Escherichia coli, Salmonella Enteritidis, Shigella sonnei, Listeria monocytogenes till 3,1% (v/v), while as a most resistant were Staphylococcus aureus, Bacillus cereus and Listeria innocua (6,2% v/v). Lower values for MIC and MBC were noticed in milk with 0,5% milk fat, which were almost three to five fold higher values from that achieved in nutrient broth, depending of bacterial species tested.