



Federation of European  
Microbiological Societies

# FEMS Online Conference on Microbiology

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28 – 31 October 2020

# ELECTRONIC ABSTRACT BOOK

in association with  
the Serbian Society  
of Microbiology





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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**  
Director of Events & Internationalization, FEMS

Prof. dr Hilary Lappin Scott  
FEMS President

Prof. dr Bauke Oudega, **Chair, CSC**  
FEMS Past President

Prof. dr Lazar Ranin, **Co-chair, COC**  
Vice President, SSM

Prof. dr Dragojlo Obradović, **Co-chair, CSC**  
President, SSM



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# MAIN CONFERENCE PROGRAM





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

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**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.