



**ONLINE**

**Scientific Conference and Annual General Meeting 2021**

***“Transforming food systems:  
A new era for VPH!”***

# ***Proceedings***

***23rd to 24<sup>th</sup> September 2021***

## **Organising Committee**

- *Apostolos Rantsios*
- *Nikos Solomakos*
- *Spyros Ramantanis*
- *Lisa Boden*
- *Len J.A. Lipman*
- *Ed G.M. van Klink*
- *Bojan Blagojevic*
- *Marcus G. Doherr*
- *Elias Papapanagiotou*
- *Ana Mateus*
- *Alessandro Seguino*
- *Sophia Johler*
- *Andreas Wunsch*

# CONTENTS

## Lecture abstracts

<b>Animal and Veterinary Public Health challenges in the Circular Economy</b>	6
<i>Arjan Stegeman</i>	
<b>Wildlife Diseases and their Threat to Food Safety</b>	8
<i>Charalambos Billinis, George Valiakos</i>	
<b>Beyond social responsibility and sustainability: creation of integrated value and its implementation through management systems approach</b>	9
<i>S. B. Ramantanis</i>	
<b>Innovative Non-Thermal Food-Processing Technologies and Food Safety</b>	12
<i>Alexander Govaris</i>	

## Poster abstracts

<b>Washing of hunted wild boar carcasses as a consumer health risk practice: How often is it used by hunters?</b>	14
<i>Ana Carolina Abrantes and Madalena Vieira-Pinto</i>	
<b>Bovine Tuberculosis - analysis of 10-year cases and impact of visual inspection in slaughterhouse surveillance in Portugal</b>	15
<i>Susana Gonçalves, Margarida Fonseca Cardoso, Madalena Vieira-Pinto, Eduarda Gomes-Neves</i>	
<b>COVID-19 impact on animal shelter management in Portugal</b>	16
<i>Eduarda Gomes-Neves, Sara Marques, Adélia Alves-Pereira, Pedro Osório, Alexandra Müller, Cláudia Baptista</i>	
<b>Competence of main Rift Valley Fever vectors in the Mediterranean basin: a meta-analysis</b>	17
<i>Alex DROUIN, Thomas BALENGHIEN, Véronique CHEVALIER, Benoit DURAND</i>	
<b>A European survey on post-mortem inspection of finishing pigs: judgement criteria to declare fresh meat unfit for human consumption</b>	18
<i>Madalena Vieira-Pinto, Susana Santos, Sergio Ghidini, Lis Alban, Diana Meemken<sup>5</sup>, Patric Maurer, Nina Langkabel, Jaime Gómez Laguna, Boris Antunovic, Bojan Blagojevic, Silvia Bonardi, Ole Alvseike, Riikka Laukkanen-Ninios</i>	
<b>Comparative study of traumatic injuries observed during the post mortem inspection of free-ranged chickens and broiler</b>	19
<i>Maria Beatriz Remoaldo, Alice Cardoso, Elisete Correia, Madalena Vieira-Pinto</i>	
<b>Evaluation of animal welfare indicators in turkeys (<i>Meleagris gallopavo</i>) at the slaughterhouse</b>	20
<i>Carolina Figueiredo Joanna Marchewka Inma Estevez and Madalena Vieira-Pinto</i>	
<b>Antimicrobial effect of cold atmospheric plasma jet treatment on stainless steel cutting tool surfaces</b>	21
<i>Thiemo Albert, Anna Joana Dittrich, Antje Lehmann, Thomas Arnold, Peggy G. Braun</i>	
<b>Modernizing official controls at the slaughterhouse: development of a scoring tool for the risk of non-compliance with animal welfare regulations</b>	22
<i>Morgane Salines, Thomas Sundermann, Nicolas Holleville</i>	
<b>Drivers of poultry products consumption in India</b>	23
<i>Lavinia Scudiero, Mehroosh Tak</i>	

<b>Microbiological evaluation of ready-to-eat meals prepared in canteens: a preliminary study</b>	24
<i>Ana Cristina Aires, Daniel Moreira, Carla Gonçalves, Maria da Conceição Fontes, Cristina Saraiva</i>	
<b>Microbiological evaluation of food contact surfaces in food establishments: a study in one university Campus</b>	25
<i>Daniel Moreira, Ana Cristina Aires, Carla Gonçalves, Cristina Saraiva, Maria da Conceição Fontes</i>	
<b>Prevalence, phenotypic and genetic characterization of <i>Yersinia enterocolitica</i> isolated from slaughtered pigs raised in different housing systems in Croatia</b>	26
<i>Nevijo Zdolec, Marta Kiš, Snježana Kazazić, Dean Jankuloski, Bojan Blagojević, Marina Pavlak, Valerij Pažin</i>	
<b>Prerequisites programs and HACCP-based procedures implementation approach in a local food redistribution center</b>	27
<i>Maria Margarida Marques, Ana Rita Henriques</i>	
<b>Quantitative assessment of food waste in nursery homes and mitigation measures implementation</b>	28
<i>Katy Remini, Luís Lisboa, Ana Rita Henriques</i>	
<b>Determination of the minimal selective concentration (MSC) of oxytetracycline in sterilised intestinal contents from pigs</b>	29
<i>Pedro Henrique Imazaki, Bertille Voisin, Alain Bousquet-Mélou, Aude Ferran, Delphine Bibbal</i>	
<b>Assessing the use of chitosan and alginate based membranes with oregano essential oil and olive oil on quality of beef following packaging</b>	30
<i>Anestis Tsitsos, Eirini Chouliara, Alexandros Theodoridis, Georgios Arsenos, Ioannis Amvrosiadis, Vangelis Economou</i>	
<b>A global media analysis of the impact of the COVID-19 pandemic on chicken meat food systems: Key vulnerabilities and opportunities for building resilience</b>	32
<i>Lorraine Chapot, Louise Whatford, Polly Compston, Mehroosh Tak, Soledad Cuevas, Maria Garza, Houda Bennani, Hassaan Bin Aslam, Mathew Hennessey, Georgina Limon, Kevin Queenan, Guillaume Fournié, Nikolaos Dadios and Barbara Häsler</i>	
<b>Molecular characterisation of <i>Giardia duodenalis</i> from human and companion animal sources in the United Kingdom</b>	33
<i>Sarah Krumrie, Paul Capewell, Willie Weir</i>	

## Assessing the use of chitosan and alginate based membranes with oregano essential oil and olive oil on quality of beef following packaging

Anestis Tsitsos<sup>1</sup>, Eirini Chouliara<sup>2</sup>, Alexandros Theodoridis<sup>3</sup>, Georgios Arsenos<sup>4</sup>, Ioannis Amvrosiadis<sup>2</sup>, Vangelis Economou<sup>1</sup>

<sup>1</sup>Laboratory of Hygiene of Food of Animal Origin – Veterinary Public Health, School of Veterinary Medicine, Aristotle University of Thessaloniki

<sup>2</sup>Laboratory of Technology of Food of Animal Origin, School of Veterinary Medicine, Aristotle University of Thessaloniki

<sup>3</sup>Laboratory of Animal Production Economics, School of Veterinary Medicine, Aristotle University of Thessaloniki

<sup>4</sup>Laboratory of Animal Husbandry, School of Veterinary Medicine, Aristotle University of Thessaloniki

**Background.** Edible coatings are used in food packaging to enhance quality and shelf life. Sodium alginate, chitosan and their emulsions with essential oils have the ability to form strong coatings in beef products, positively affecting their quality traits.

**Objective.** To evaluate the microbiological, chemical, and organoleptic properties of beef products, coated with chitosan and alginate-based emulsions with oregano or olive oil and stored with vacuum packaging.

**Materials and Methods.** Beef rump and thigh pieces were coated with 1.5% alginate or 1% chitosan films combined with oregano essential oil or olive oil and stored aerobically or under vacuum at 4°C. Microbiological (total mesophilic counts, total psychrophilic counts, lactic acid bacteria, *Brochothrix thermosphacta*), chemical (moisture, total fats, total proteins), texture and surface color evaluation were performed weekly for 21 days; evaluation of organoleptic properties was performed on the 21<sup>st</sup> day of storage. A two-way repeated measures ANOVA was performed to analyze the data.

**Results.** Chitosan and vacuum packaging significantly affected the total mesophilic and psychrophilic counts. Alginate-based emulsions positively affected the growth of bacterial populations. Chemical composition of the meat pieces varied from 69%-79.4% in moisture, 0.5%-8.4% in total fats and 19.1%-22.5% in total proteins. The surface colour of meat pieces coated with oregano oil film was darker compared to other treatments.

**Discussion and Conclusion.** Chitosan edible coatings in combination with oregano essential oil and vacuum packaging are effective in enhancing beef quality and shelf life. Sodium alginate edible coatings had non-significant effect on beef quality, possibly because of low antimicrobial activity of the coating.

**Perspectives.** Chitosan coatings can be used on other types of meat. Incorporation of probiotic cultures, especially in the alginate films, could further enhance the storage potential.

**Acknowledgements.** Financed by the ERDF of EU and Greek funds through the Operational Program Competitiveness, Entrepreneurship, and Innovation (RESEARCH-CREATE-INNOVATE; project code: T1EDK-05479).