INTERNATIONAL SEMINAR:

ArtiSaneFood – Biopreservation and Risk Modelling Approaches

BOOK OF ABSTRACTS

Edited by:

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Title

ArtiSaneFood – Biopreservation and Risk Modelling Approaches: Book of Abstracts

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Programme

24th May 2023

Time	Sessions	Invited speaker
9:00 – 9:10	Welcome session (President of IPB, Coordinator of CIMO, PRIMA Project Coordinator, ISBST-UMA Communication Manager)	
9:10 – 9:40	Session I: Bio-preservatives as agents to ensure quality of artisanal foods Keynote lecture: "Antibacterial and antioxidant activities of Mediterranean plant and industrial coproducts"	Nourhene Boudhrioua
9:40 – 11:00	Session I: Bio-preservatives as agents to ensure quality of artisanal foods **Moderators: Halima Elhatmi and Ursula Gonzales-Barron** 10-min oral presentations ○ **Hanine Hached et al**. Potential of Essential Oils from Eucalyptus, Peppermint and Pine as Food Preservatives ○ **Ines Essid et al**. Using Byproduct Extracts to Improve the Quality of Traditional Meat and Fish Products ○ **Tatiane Oliveira et al**. Evaluation of the Preservative Capacity of Brassica oleracea var. Acephala Extract in a Bakery Product ○ **Zioud Amira et al**. Antioxidant Activity of Garlic Powder During Storage ○ **Yosra Zbiss et al**. Extraction Optimisation of Phenolic Compounds through Response Surface Methodology from *Ficus carica* L. Leaves and Bioactive Evaluation ○ **Cristiano Mateus et al.** Stability Studies of Chestnut Flower-Based Ingredient Prospecting Incorporation into Beverages	
11:00– 11:15	Coffee break	
11:15– 12.45	e-Posters Miscellaneous **Moderator: Ana Sofia Faria** 4-min flash presentations ○ **Sanaa Benassila et al**. Impact of the Incorporation of Thyme and Rosemary Essential Oils on the Physicochemical Characteristics of Fresh Cheese ○ **Ramla Khiari et al**. Phytochemical Content, Antioxidant and Antibacterial Activities of Grape Marc Extracts from Chardonnay and Syrah Varieties Grown in Tunisia ○ Marwa Zeddini et al. Antimicrobial Potential of Eucalyptus Essential Oils ○ **Mariem Ben Abdallah et al**. Effect of Different Extraction Methods on Hesperidin Content, and in vitro Antioxidant and Antibacterial Activities of Ethanolic Orange By-Products Extracts ○ **Mariem Zanzan et al**. Exploring the Effects of Rosemary and Thyme Essential Oils on Merguez Sausage Fermentation: Physicochemical, Microbiological and Sensory Properties ○ **Souhaieb Chrigui et al**. Antibacterial and Antioxidant Activities of Methanolic and Decocted Extracts of *Salicornia arabica*: a Halophyte Plant Growing in Tunis Sebkha	

	○ **Amal Dbeibia et al**. Phytochemical contents, Antioxidant and Antibacterial activities of date seeds extracts from Tunisian Deglet Enour variety ○ **Malek Ben Zid et al**. Phytochemical Content, Antioxidant and Antibacterial Activities of Date Fruit Powder from Deglet Nour Variety ○ **Yara Loforte et al**. A Meta-Analysis of the in vitro Inhibitory Effects of Lactic Acid Bacteria Isolated from Dairy Products against Food-borne Pathogens ○ **Abdelkhaleq Elmoslih et al**. Biocontrol of *Listeria monocytogenes* CECT 4032 in milk, using bacteriocin-producing strain *Enterococcus mundtii* A2: contamination time effect ○ **Salud Serrano et al.** Microbiological and Genetic Study of *Listeria monocytogenes* Biofilms after their Transfer to Cooked Ham and Simulated in vitro Digestion ○ **Gisela Rodrigues et al.** Thermal Inactivation Kinetics of *Salmonella* Typhimurium in *Alheira* Sausage Batter ○ **Nouha Harizi et al**. Effect of Ebeam Irradiation on the Antioxidant and the Antimicrobial Activities of Defatted Freeze Dried Cow and Camel Milk Fractions ○ **Beatriz Silva et al.** Effect of Herbal Extracts on the Survival of *Staphylococcus aureus* in Goats' Raw Milk Cheese ○ **Ibtissem Ben Hmidene et al.** Exploring the Inhibitory Potential of Capsicum Annum Extracts Against Listeria monocytogenes and Spoilage Bacteria in Fresh Beef Sausages During Storage ○ **Jrad Zeineb et al**. Potential Effects of Syrup and Seeds Powder of Tunisian Pomegranate (*Punica granatum* L.) on Characterisation and Sensory Properties of Camel Milk Yogurt ○ **Frédérique Pasquali et al**. Genomic Snapshot of Foodborne Pathogens from Artisanal Food Productions of Animal Origin in the Mediterranean Region: Occurrence, Resistome and Virulome ○ **Valentina Indio et al**. Metagenomic Investigation of Artisanal Fermented Meat from the Mediterranean Area	
12:45 – 14:00	Lunch	
14:00 – 14:30	Session 2: Bioprotective lactic acid bacteria in artisanal foods Keynote lecture: "Bioprotective potential of autochthonous lactic acid bacteria in Moroccan Jben cheese and Merguez sausage"	Fouad Achemchem
14:30 – 16:15	Session 2: Bioprotective lactic acid bacteria in artisanal foods **Moderators: Antonio Valero and Ines Essid** 10-min oral presentations ○ **Sofia Faria et al**. Assessment of the Bioprotective Capabilities of Lactic Acid Bacteria Isolated from Artisanal *Alheira*, a Portuguese Fermented Sausage ○ **Wafa Mkadem et al**. Biocontrol of *Listeria monocytogenes* in fermented milk by selected *Lacticaseibacillus paracasei* and effect of citrus peel extract on its survival ○ **Nathalia Fernandes et al.** Meta-Analysis of the Inhibitory Effects of Indigenous Lactic Acid Bacteria Supernatant from Dairy Origin against Foodborne Pathogens	

	○ **Olga Bonilla et al.** Exploring the Technological and Safety Properties of Lactic Acid Bacteria Isolated from Artisanal *Salchichón*: in Search for a Novel Starter ○ **Kaoutar Boussif et al.** Effect of Commercial Starter Cultures and Selected Bacteriocinogenic Lactic Acid Bacteria on the Microbiological Quality of Goat *jben* Cheese ○ **Javier Sánchez Martin et al**. Study of the Bioprotective Potential of Three Different Lactic Acid Bacteria Cocktails against *L. monocytogenes* in Vacuum-Packaged Cold Smoked Rainbow Trout ○ **Youssef Ezzaky et al**. Impact of Commercial Starter Cultures on the Microbiological and Physicochemical Properties of Traditional *Merguez* Sausages ○ **Jonata Ueda et al.** Effect of the Drying Process and Incorporation of Natural Preservatives in the Viability of Lactic Acid Bacteria in Yogurts	
16:15 – 16:30	Coffee Break	
16:30 – 18:30	Last annual meeting of the ArtiSaneFood consortium (WP leaders)	
19:30 – 23:00	The Artisans Party	

25th May 2023

Time	Sessions	Invited Speaker
9:10 – 9:40	Session 3: The microbiome of fermented foods Keynote lecture: "Exploitation pathways of the microbiome characterisation of fermented foods"	Alessandra de Cesare
9:40 – 10:50	Session 3: The microbiome of fermented foods **Moderators: Yosr Haffani and Fouad Achemchem** 10-min oral presentations ○ **Nathalia Fernandes et al**. Genomic and Phenotypic Analysis of Lactic Acid Bacteria Isolated from *Alheira*, a Portuguese Traditional Fermented Sausage ○ **Olga Bonilla et al**. Integration of Contributing Factors Affecting Microbiological Diversity and Food Safety throughout the Artisanal *Salchichón* Manufacturing ○ **Laís Carvalho et al**. Phylogenetic Analysis of Lactic Acid Bacteria species from Cheese: a Comparison between Taxonomy and Physicochemical Characteristics ○ **Wafa Mkadem et al**. Safety Evaluation of Lactic Acid Bacteria and its Bacteriocin Production Based on Whole Genome Sequencing ○ **Olga Bonilla et al.** Biofilm-forming Ability of *Listeria monocytogenes* and *Staphylococcus aureus* strains isolated from Artisanal Fermented Products Processing	
10:50 – 11:10	Coffee Break	
11:10 – 11:40	Session 4: Predictive modelling in artisanal foods Keynote lecture: "Utility of dynamic modelling for ensuring microbiological safety of artisanal foods"	Ursula Gonzales-Barron
11:40 – 12:10	Session 4: Predictive modelling in artisanal foods Keynote lecture: "Conduction of tailored challenge testing experiments in artisanal foods. Data preparation for modelling purposes"	Antonio Valero

12:10– 13:45	Lunch	
13:45 – 15:45	Session 4: Predictive modelling in artisanal foods **Moderator: Vasco Cadavez and Sihem Bellagha** 10-min oral presentations ○ **Mariana Pimentel et al**. Estimation of Growth Parameters of *Listeria monocytogenes* under Different Conditions of Mexican Oregano Essential Oil (*Poliomintha longiflora* Gray), pH and NaCl ○ **Ibtissem Ben Hmidene et al**. Assessing the Efficacy of Bioactive Mint Extract in Controlling *Listeria monocytogenes* Growth during Fermentation and Drying of Traditional Dried Sausages: a Mathematical Modelling Approach ○ **Ahmed Elidrissi et al**. Quantifying and Modelling the Bioprotective Effect of *Latilactobacillus sakei* AE127, *Lactococcus lactis* AE89, and *Enterococcus mundtii* AE24 Against *Listeria monocytogenes* 7467 on Vacuum-Packed Cold-Smoked Moroccan Trout. ○ **Beatriz Silva et al**. Omnibus Modelling to Describe the Effects of Thermisation on *Staphylococcus aureus* in Goat's Raw Milk ○ **Youssef Ezzaky et al**. Oregano Essential Oil and Processing Conditions: A Predictive Model for Effective *Salmonella* spp. Inactivation in Sausage Medium ○ **Gisela Rodrigues et al.** Microbiological and Physicochemical Quality Categorisation of Artisanally Produced *Alheira* Fermented Sausages in Northern Portugal ○ **Olga Bonilla et al**. Assessing the Impact of Starter Cultures on the Behaviour of *Salmonella* spp. and *Listeria monocytogenes* in Dry-Cured Fermented Sausages ○ **Laires Lima et al.** Comparative Study of Hybrid Optimisation Methods in the Extraction of Antioxidant Phytochemicals from Grape Seed (*Vitis vinifera*) ○ **Mariana Pimentel et al**. Effect of Mexican Oregano Essential Oil (*Poliomintha longiflora* Gray) on the Thermal Inactivation of *Listeria monocytogenes*: An *in vitro* essay	
15:45 – 16:15	Session 5: Miscellaneous topics on quality of traditional foods Keynote lecture: "Risk assessment of artisanal food products: importance of monitoring process parameters and microbiological quality"	Laurent Guillier
16:15 – 16:30	Coffee Break	
16:30 – 17:50	Session 5: Miscellaneous topics on quality of traditional foods **Moderators: Rafika Ben Chaouacha Chekir** 10-min oral presentations ○ **João Gonçalves et al**. Bio4Drinks Project: the Obtention of Natural Multifunctional Ingredients for the Beverage Industry ○ **Sofia Faria et al**. Evaluation of the Influence of Intrinsic Properties on the Microbiological Quality of Traditional Portuguese *Transmontano* Hard Cheese made from Raw Goat's Milk ○ **Regina Soares et al**. Effect of Chestnut Flower Extract on the Flavour Stability of Craft Beers	

	○ **Oussaief Olfa et al.** Physicochemical properties and biological activities of fermented camel milk: A comparative study with fermented cow milk ○ **Izamara Oliveira et al.** Magnesium and Manganese Induced Changes in Chemical, Nutritional, Antioxidant and Antimicrobial Properties of Pansy and Viola Edible Flowers ○ **Yosr Haffani et al.** Anti-Tumoral Properties of *Allium roseum* on Breast Cancer Cells	
17:50 – 18:10	Presentation of the ArtiSaneFood e-platform for regional food producers	Vasco Cadavez
18:10	Closure of the project. Farewell	

Effect of the Drying Process and Incorporation of Natural Preservatives in the Viability of Lactic Acid Bacteria in Yogurts

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Abstract

Dairy products are considered one of the most consumed foods in the world, and yogurts are highly demanded for their flavour and nutritional properties, also including macronutrients, vitamins, minerals, or probiotics offered. To avoid food waste, alternatives to preserve food are highlighted, such as the addition of food preservatives or the production of powdered foods. Therefore, the objective of this work was to evaluate the survival of total lactic acid bacteria when natural extracts (rosemary, basil, and sage) were incorporated into yogurts, as well as to investigate their viability after the freeze-drying process. Yogurts were prepared in the laboratory, and lyophilised plant extracts (30 mg/kg) were added. Total lactic acid bacteria were analysed for 14 days, in addition to evaluating the lactic acid and lactose contents by HPLC-DAD and HPLC-RI, respectively. Subsequently, the viability of *Streptococcus thermophilus* and *Lactobacillus bulgaricus* were evaluated in freeze-dried yogurts without the addition of vegetable extracts. Regarding the results obtained, there was a slight increase in the lactic acid bacteria counts, in addition to an increase in lactic acid and a reduction in the lactose content over 14 days, confirming the yogurt fermentation process. For the viability of *S. thermophilus* and *L. bulgaricus* during the lyophilisation process, a slight reduction of both bacteria was observed, but within the limits established by the Codex Standards (minimum of 10^7 CFU/g). Therefore, the incorporation of plant extracts and the freeze-drying process did not significantly change the yogurts regarding the viability of the lactic acid bacteria, remaining a probiotic food.

Key words: Fermented milk; powdered foods; lyophilisation; natural products.

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