



**Project Number: 1448**

**Project Acronym: ArtiSaneFood**

**Project title: Innovative Bio interventions and Risk Modelling Approaches for Ensuring Microbial Safety and Quality of Mediterranean Artisanal Fermented Foods**



**Compilation of the Actions Taken for Dissemination, Communication and Education (May 2023)**

The ArtiSaneFood Consortium

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## 1. Introduction

Work Package 9 of the ArtiSaneFood project outlined a series of activities for results dissemination and communication as well as knowledge exchange actions and training. The present report, although not a project deliverable, brings together all the joint actions taken by the consortium to fulfil the objective of WP9.

Notice that publication items labelled as [Uploaded on MEL] had their electronic copies uploaded on PRIMA MEL platform either in the Section of **Deliverables** or in **Publications and Outreach**.

## 2. Consortium meetings

The following consortium meetings took place:

1. Face-to-face kick-off meeting of the project, held in Agadir, Morocco, on 10-11 July 2019;
2. Virtual first year's project meeting with all partners, held on the 22 June 2020;
3. Virtual second year's project meeting with all partners, held on the 1<sup>st</sup> July 2021;
4. Face-to-face third year's project meeting with all partners, held on the 7-8 July 2022 at the premises of the University of Bologna, Italy
5. Face-to-face final meeting with all partners, held on the 24<sup>th</sup> May 2023 during the International Seminar ArtiSaneFood, a two-day event that took place at the Polytechnic Institute of Bragança, Portugal.

## 3. Communication channels

The main communication channels were the project's website, the ArtiSaneFood Zenodo Community and the social media. Whereas the first two will go on beyond the duration of the project, the social media account will not be any longer fed.

1. Project website: <http://www.ipb.pt/artisanefood/>

2. Zenodo Community: <https://zenodo.org/communities/artisanefood/>
3. Page Facebook: <https://www.facebook.com/artisanefood.artisanefood.1>

## 4. Partner IPB

### 4.1 Scientific publications

Nunes Silva, B., Teixeira, J. A., Cadavez, V., Gonzales-Barron, U. (2023). Mild heat treatment and biopreservatives for artisanal raw milk cheeses: reducing microbial spoilage and extending shelf life through thermisation, plant extracts and lactic acid bacteria. Submitted to MDPI Foods.

Nunes Silva, B., Coelho-Fernandes, S., Teixeira, J. A., Cadavez, V., Gonzales-Barron, U. (2023). Modelling the kinetics of *Staphylococcus aureus* in goat's raw milk under different sub-pasteurisation temperatures. Submitted to Microbial Risk Analysis.

Nunes Silva, B., Coelho-Fernandes, S., Teixeira, J. A., Cadavez, V., Gonzales-Barron, U. (2023). Dynamic modelling to describe the effect of plant extracts and customised starter culture on the survival of *S. aureus* in goat's raw milk cheeses 12, 2683. <https://doi.org/10.3390/foods12142683>. [Uploaded on MEL].

Nunes Silva, B., Cadavez, V., Caleja, C., Pereira, E., Calhelha, R. C., Añibarro-Ortega, M., Finimundy, T., Kostic, M., Sokovic, M., Teixeira, J. A., Barros, L., Gonzales-Barron, U. (2023). Phytochemical composition and bioactive potential of *Melissa officinalis* L., *Salvia officinalis* L. and *Mentha spicata* L. extracts. *Foods*, 12, 947. <https://doi.org/10.3390/foods12050947> [Uploaded on MEL]

Nunes Silva, B., Bonilla-Luque, O. M., Possas, A., Ezzaky, Y., Elmoslih, A., Teixeira, J. A., Achemchem, F., Valero, A., Cadavez, V., Gonzales-Barron, U. (2023) Meta-Analysis of In Vitro Antimicrobial capacity of extracts and essential oils of *Syzygium aromaticum*, *Citrus* L.

and *Origanum* L.: Contrasting the results of different antimicrobial susceptibility methods. *Foods* 2023, 12, 1265. <https://doi.org/10.3390/foods12061265>. [Uploaded on MEL]

Faria, A. S., Coelho-Fernandes, S., Santos-Rodrigues, G., Fernandes, A., Barros, L., Cadavez, V., Gonzales-Barron, U. (2022) Microbiological quality profile of goat's raw milk cheese during ripening as affected by its intrinsic properties" (Full paper). FOODSIM2022 (3-6 Apr 2022). EUROSIS-ETI Publication. ISBN: 978-9492859-01-3. [Uploaded on MEL]

**Nunes Silva, B., Cadavez, V., Ferreira-Santos, P.,** Alves, M. J., Ferreira, I. C. F. R., Barros, L., Teixeira, J. A., Gonzales-Barron, U. (2021). Chemical profile and bioactivities of extracts from edible plants readily available in Portugal. *Foods*, 10, 673. <https://doi.org/10.3390/foods10030673>. [Uploaded on MEL]

**Nunes Silva, B., Cadavez, V., Teixeira, J.A.,** Gonzales-Barron, U. (2021). Meta-Regression models describing the effects of essential oils and added lactic acid bacteria on pathogen inactivation in cheese. *Microbial Risk Analysis*, 18, Article 100131. <https://doi.org/10.1016/j.mran.2020.100131> [Uploaded on MEL]

**Silva, B.N., Teixeira, J.A., Gonzales-Barron, U., and Cadavez V. (2020). Meta-regression models describing the effects of added lactic acid bacteria** on pathogen inactivation in milk and cheese. FOODSIM 2020, EUROSIS-ETI, 151-158. ISBN: 978-9492859-13-6. [Uploaded on MEL]

**Nunes Silva, B., Cadavez, V., Teixeira, J.A., Gonzales-Barron, U. (2020). Effects of essential oils on *Escherichia coli* inactivation in cheese as described by meta-regression modelling.** *Foods*, 9(6), 716; <https://doi.org/10.3390/foods9060716> [Uploaded on MEL].

## 4.2 Abstracts and proceedings from conference presentations

IPB researchers involved in the implementation of the ArtiSaneFood carried out 51 presentations, which were recorded as Book of Abstracts or Proceedings of the events. The list follows:

- Y. Loforte, N. Fernandes, A. Almeida, V. Cadavez, U. Gonzales-Barron. “The antagonistic effect of lactic acid bacteria isolated from dairy products against food-borne pathogens: A systematic review and meta-analysis”. In Book of Abstracts of the 12<sup>th</sup> International Conference on Predictive Modelling in Food (ICPMF12). Sapporo, Japan (13-16 June 2023) (O6-5).
- B. Nunes Silva, S. Coelho-Fernandes, J. A. Teixeira, V. Cadavez, U. Gonzales-Barron. “Effect of herbal extracts on the survival of *S. aureus* in goat’s raw milk cheese”. In Book of Abstracts of the 12<sup>th</sup> International Conference on Predictive Modelling in Food (ICPMF12). Sapporo, Japan (13-16 June 2023) (O7-3).
- U. Gonzales-Barron, V. Cadavez. “Dynamic modelling for ensuring microbiological safety of artisanal fermented foods”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 13) (<https://doi.org/10.5281/zenodo.8067526>).
- Y. Loforte, N. Fernandes, A. M. Almeida, V. Cadavez, U. Gonzales-Barron. “A meta-analysis of the in-vitro inhibitory effects of lactic acid bacteria isolated from dairy products against foodborne pathogens”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 34) (<https://doi.org/10.5281/zenodo.8067526>).
- G. Rodrigues, S. Coelho-Fernandes, V. Cadavez, U. Gonzales-Barron. “Thermal inactivation kinetics of *Salmonella Typhimurium* in alheira sausage batter”. In Book of Abstracts of the

- ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 38) (<https://doi.org/10.5281/zenodo.8067526>).
- B. Nunes Silva, S. Coelho-Fernandes, J. A. Teixeira, V. Cadavez, U. Gonzales-Barron. “Effect of herbal extracts on the survival of *Staphylococcus aureus* in goat’s raw milk cheese”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 40) (<https://doi.org/10.5281/zenodo.8067526>).
- B. Nunes Silva, S. Coelho-Fernandes, J. A. Teixeira, V. Cadavez, U. Gonzales-Barron. “Effect of herbal extracts on the survival of *Staphylococcus aureus* in goat’s raw milk cheese”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 40) (<https://doi.org/10.5281/zenodo.8067526>).
- A.S. Faria, N. Fernandes, V. Cadavez, U. Gonzales-Barron. “Assessment of the bioprotective capabilities of lactic acid bacteria isolated from artisanal alheira, a Portuguese fermented sausage”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 49) (<https://doi.org/10.5281/zenodo.8067526>).
- N. Fernandes, Y. Loforte, V. Cadavez, U. Gonzales-Barron. “Meta-analysis on the inhibitory effects of indigenous lactic acid bacteria supernatant from dairy origin against foodborne pathogens”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 51) (<https://doi.org/10.5281/zenodo.8067526>).
- N. Fernandes, A. S. Faria, L. Carvalho, A. Choupina, C. Rodrigues, U. Gonzales-Barron, V. Cadavez. “Genomic and phenotypic analysis of lactic acid bacteria isolated from alheira, a Portuguese traditional fermented sausage”. In Book of Abstracts of the ArtiSaneFood



International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 59) (<https://doi.org/10.5281/zenodo.8067526>).

B. Nunes Silva, S. Coelho-Fernandes, J. A. Teixeira, V. Cadavez, U. Gonzales-Barron. “Omnibus modelling to describe the effects of thermisation on *Staphylococcus aureus* in goat’s raw milk”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 70) (<https://doi.org/10.5281/zenodo.8067526>).

G. Rodrigues, O. Zefanias, S. Coelho-Fernandes, A. Fernandes, A. S. Faria, L. Barros, V. Cadavez, U. Gonzales-Barron. “Microbiological and physicochemical quality categorisation of artisanally produced alheira fermented sausages in Northern Portugal”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 72) (<https://doi.org/10.5281/zenodo.8067526>).

A.S. Faria, S. Coelho-Fernandes, G. Santos-Rodrigues, A. Fernandes, L. Barros, V. Cadavez, U. Gonzales-Barron. “Evaluation of the influence of intrinsic properties on the microbiological quality of traditional Portuguese Transmontano hard cheese made from raw goat’s milk”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 81) (<https://doi.org/10.5281/zenodo.8067526>).

B.N. Silva, S. Coelho-Fernandes, J.A. Teixeira, V. Cadavez, U. Gonzales-Barron. "Effect of herbal extracts on the survival of *S. aureus* in goat’s raw milk cheese" (Abstract). In Book of Abstracts of the International Association of Food Protection's European Symposium on Food Safety. Aberdeen, Scotland (3-5 May 2023) (Pages 80-81).

B.N. Silva, S. Coelho-Fernandes, J.A. Teixeira, V. Cadavez, U. Gonzales-Barron. "Effect of lemon balm and spearmint extracts on the survival of *S. aureus* in goat’s raw milk cheese"

- (Abstract). In Book of Abstracts of the 27th International ICFMH Conference – FoodMicro 2022. Athens, Greece (28-31 August 2022) (Page 300).
- N. Fernandes, A.S. Faria, L. Carvalho, A. Choupina, C. Rodrigues, V. Cadavez, U. Gonzales-Barron. “16S rRNA Sanger Sequencing of microbial population diversity from Portuguese fermented sausage” (Abstract). In Book of Abstracts of Congresso Nacional de Escolas Superiores Agrárias – CNESA22. Santarém, Portugal (3-4 Nov 2022). Abstract nº 7978.
- S. Coelho-Fernandes, V. Cadavez, U. Gonzales-Barron. “Thermal inactivation kinetics of Salmonella Typhimurium in alheira batter” (Abstract). In Book of Abstracts of Congresso Nacional de Escolas Superiores Agrárias – CNESA22. Santarém, Portugal (3-4 Nov 2022). Abstract nº 1695.
- I. Ben Hmidene, K. Belguith, A. Ben Hsouna, F. Brini, V. Cadavez, U. Gonzales-Barron, N. Boudhrioua. “Growth inhibition of common foodborne pathogens in the presence of Tunisian culinary spices’ extracts” (Abstract). In Book of Abstracts of the International Seminar Advances in Food Biopreservation – ISAFP 2022. Tunis, Tunisia (3-4 Oct 2022) (Page 50) (<https://doi.org/10.5281/zenodo.7159076>).
- S. Coelho-Fernandes, V. Cadavez, U. Gonzales-Barron. “Thermal resistant parameters of Salmonella Typhimurium in alheira sausage batter” (Abstract). In Book of Abstracts of the International Seminar Advances in Food Biopreservation – ISAFP 2022. Tunis, Tunisia (3-4 Oct 2022) (Page 17). (<https://doi.org/10.5281/zenodo.7159076>).
- N. Fernandes, A. S. Faria, L. Carvalho, A. Choupina, C. Rodrigues, V. Cadavez, U. Gonzales-Barron. “Molecular and phenotypic features of lactic acid producing bacteria isolated from alheira – Portuguese traditional meat product” (Abstract). In Book of Abstracts of the International Seminar Advances in Food Biopreservation – ISAFP 2022. Tunis, Tunisia (3-4 Oct 2022) (Page 16). (<https://doi.org/10.5281/zenodo.7159076>).

- B. Nunes Silva, S. Coelho-Fernandes, J. A. Teixeira, V. Cadavez, U. Gonzales-Barron. “S. aureus inactivation in goat’s milk at sub-pasteurisation temperatures” (Abstract). In Book of Abstracts of the International Seminar Advances in Food Biopreservation – ISAFP 2022. Tunis, Tunisia (3-4 Oct 2022) (Page 15). (<https://doi.org/10.5281/zenodo.7159076>).
- U. Gonzales-Barron, V. Cadavez. “Omnibus and microbial competition models” (Abstract). In Book of Abstracts of the International Seminar Advances in Food Biopreservation – ISAFP 2022. Tunis, Tunisia (3-4 Oct 2022) (Page 10). (<https://doi.org/10.5281/zenodo.7159076>).
- U. Gonzales-Barron, V. Cadavez. “Classical versus dynamic modelling in Predictive Microbiology” (Abstract). In Book of Abstracts of the International Seminar Advances in Food Biopreservation – ISAFP 2022. Tunis, Tunisia (3-4 Oct 2022) (Page 9). (<https://doi.org/10.5281/zenodo.7159076>).
- B. Nunes Silva, S. Coelho-Fernandes, J. Teixeira, V. Cadavez, U. Gonzales-Barron. “Effect of lemon balm and spearmint extracts on the survival of S. aureus in goat’s raw milk cheese” (Abstract). In Book of Abstracts of the 27th International ICFMH Conference – FoodMicro 2022. Athens, Greece (28 – 31 Aug 2022) (Page 300).
- S. Coelho-Fernandes, G. Rodrigues, A.S. Faria, V. Cadavez, Gonzales-Barron. “Staphylococcus aureus inactivation in a non-ready-to-eat sausage formulated with Bixa orellana” (Full paper). In Proceedings of the 3rd International Electronic Conference on Foods – “Food, Microbiome, and Health - A Celebration of the 10th Anniversary of Foods' Impact on Our Wellbeing” (1-15 Oct 2022). MDPI: Basel, Switzerland (sciforum-063558), doi: xx (<https://sciforum.net/paper/view/13033>) [**Uploaded on MEL**]
- B. Nunes Silva, O. Bonilla, A. Possas, A. Valero, J. A. Teixeira, V. Cadavez, U. Gonzales-Barron. “Meta-regression modelling of the inhibition diameter produced by extracts of Origanum, Syzygium and Citrus as a function of the minimum inhibitory concentration” (Full paper). In Proceedings of the 3rd International Electronic Conference on Foods – “Food, Microbiome, and Health - A Celebration of the 10th Anniversary of Foods' Impact on Our

- Wellbeing” (1-15 Oct 2022). MDPI: Basel, Switzerland (sciforum-063701), doi: xx (<https://sciforum.net/paper/view/12968>) [[Uploaded on MEL](#)]
- B. Nunes Silva, S. Coelho-Fernandes, J.A. Teixeira, V. Cadavez, U. Gonzales-Barron. “Effect of lemon balm and spearmint extracts on the survival of *S. aureus* in goat’s raw milk cheese” (Full paper). In Proceedings of the 3rd International Electronic Conference on Foods – “Food, Microbiome, and Health - A Celebration of the 10th Anniversary of Foods' Impact on Our Wellbeing” (1-15 Oct 2022). MDPI: Basel, Switzerland (sciforum-063711), doi: xx (<https://sciforum.net/paper/view/12996>) [[Uploaded on MEL](#)]
- S. Coelho-Fernandes, V. Cadavez, U. Gonzales-Barron. “Thermal inactivation kinetics of *Salmonella Typhimurium* in alheira sausage batter” (Full paper). In Proceedings of the 3rd International Electronic Conference on Foods – “Food, Microbiome, and Health - A Celebration of the 10th Anniversary of Foods' Impact on Our Wellbeing” (1-15 Oct 2022). MDPI: Basel, Switzerland (sciforum-063738), doi: xx (<https://sciforum.net/paper/view/13001>) [[Uploaded on MEL](#)]
- N. Fernandes, A.S. Faria, L. Carvalho, A. Choupina, C. Rodrigues, V. Cadavez, U. Gonzales-Barron. “Molecular identification of lactic acid producing bacteria isolated from alheira, a traditional Portuguese fermented sausage” (Full paper). In Proceedings of the 3rd International Electronic Conference on Foods – “Food, Microbiome, and Health - A Celebration of the 10th Anniversary of Foods' Impact on Our Wellbeing” (1-15 Oct 2022). MDPI: Basel, Switzerland (sciforum-063739), doi: xx (<https://sciforum.net/paper/view/13035>) [[Uploaded on MEL](#)]
- O. M. Bonilla-Luque, A. Possas, B. Nunes Silva, V. Cadavez, A. Valero, U. Gonzales-Barron. “Estudio de la aplicación en seguridad alimentaria de extractos de plantas comunes en la región Mediterránea con caacidad antimicrobiana: una evaluación meta-analítica” (Abstract). In Book of Abstracts of XXII Congreso Nacional de Microbiología de Alimentos, Sociedad Española de Microbiología, Universidad de Jaén, Jaén, Spain (12-15 Sep 2022) (O473).

- S. Coelho-Fernandes, A.S. Faria, G. Santos-Rodrigues, A. Fernandes, L. Barros, V. Cadavez, U. Gonzales-Barron. “A longitudinal study of the microbiological quality of goat’s raw milk cheese during ripening” (Abstract). In Book of Abstracts of the 73rd Annual Meeting of the European Federation of Animal Science, EAAP, Porto, Portugal (5 – 9 Sep 2022) (page 355). ISBN: 978-90-8686-385-3.
- S. Coelho-Fernandes, G. Rodrigues, A.S. Faria, V. Cadavez, U. Gonzales-Barron. “A dynamic model of the survival of *Staphylococcus aureus* in a non-ready-to-eat sausage during maturation” (Abstract). In Book of Abstracts of the 16th AGROSTAT, Journées du Groupe Agro-Industrie de la Société Française. Lyon, France (17 Jun 2022) (Page 9) ([https://agrostat2022.sciencesconf.org/data/pages/book\\_agrostat2022\\_en\\_posters\\_.pdf](https://agrostat2022.sciencesconf.org/data/pages/book_agrostat2022_en_posters_.pdf)).
- B.N. Silva, A.S. Faria, V. Cadavez, J. A. Teixeira, U. Gonzales-Barron. “Technological and antimicrobial properties of indigenous LAB from Portuguese artisanal goat cheeses” (Abstract). In Booklet of the Artisanal Foods & Bioactive Biomolecules Seminar. Arid Land Institute, Medenine, Tunisia (19-21 Dec 2021) (page 32) (<https://doi.org/10.5281/zenodo.5860542>).
- S. Coelho-Fernandes, G. Rodrigues, M. Caroch, L. Barros, V. Cadavez, U. Gonzales-Barron. “Natural bio-preservatives in Portuguese alheira sausage: The effect of sage extract on the survival of *Staphylococcus aureus*” (Abstract). In Booklet of the Artisanal Foods & Bioactive Biomolecules Seminar. Arid Land Institute, Medenine, Tunisia (19-21 Dec 2021) (page 31) (<https://doi.org/10.5281/zenodo.5860542>).
- A.S. Faria, N. Fernandes, V. Cadavez, U. Gonzales-Barron. “Evaluation of the technological potential of lactic acid bacteria isolated from non-ready-to-eat alheira sausages produced in Northern Portugal” (Abstract). In Booklet of the Artisanal Foods & Bioactive Biomolecules Seminar. Arid Land Institute, Medenine, Tunisia (19-21 Dec 2021) (page 30) (<https://doi.org/10.5281/zenodo.5860542>).

- B. Silva, A.S. Faria, V. Cadavez, J.A. Teixeira, U. Gonzales-Barron. “Technological potential of lactic acid bacteria isolated from Portuguese goat’s raw milk cheeses” (Full paper). In Proceedings of the 2nd International Electronic Conference on Foods - "Future Foods and Food Technologies for a Sustainable World" (15-30 October 2021). MDPI: Basel, Switzerland, doi: 10.3390/Foods2021-11101 (<https://sciforum.net/paper/view/11101>) [Uploaded on MEL]
- S. Coelho-Fernandes, G. Rodrigues, A.S. Faria, C. Caleja, E. Pereira, J. Pinela, M. Caroch, L. Barros, V. Cadavez, U. Gonzales-Barron. “Effect of sage extract on the survival of Staphylococcus aureus in Portuguese alheira sausage” (Full paper). In Proceedings of the 2nd International Electronic Conference on Foods - "Future Foods and Food Technologies for a Sustainable World" (15-30 October 2021). MDPI: Basel, Switzerland, doi: 10.3390/Foods2021-11047 (<https://sciforum.net/paper/view/11047>) [Uploaded on MEL]
- B. Silva, V. Cadavez, C. Caleja, E. Pereira, R.C. Calhelha, J. Pinela, M. Kostic, M. Sokovic, J.A. Teixeira, L. Barros, U. Gonzales-Barron. “Plant extracts as potential bioactive food additives” (Full paper). In Proceedings of the 2nd International Electronic Conference on Foods - "Future Foods and Food Technologies for a Sustainable World" (15-30 October 2021). MDPI: Basel, Switzerland, doi: 10.3390/Foods2021-11010 (<https://sciforum.net/paper/view/11010>) [Uploaded on MEL].
- A.Faria, N. Fernandes, V. Cadavez, U. Gonzales-Barron. “Screening of lactic acid bacteria isolated from artisanally produced alheira fermented sausages as potential starter cultures” (Full paper). In Proceedings of the 2nd International Electronic Conference on Foods - "Future Foods and Food Technologies for a Sustainable World" (15-30 October 2021). MDPI: Basel, Switzerland, doi: 10.3390/Foods2021-11007 (<https://sciforum.net/paper/view/11007>) [Uploaded on MEL].
- B. Nunes Silva, V. Cadavez, P. Ferreira-Santos, M.J. Alves, I.C.F.R. Ferreira, L. Barros, J.A. Teixeira, U. Gonzales-Barron. “Differentiation of six herbal extracts using principal component analysis” (Abstract). In Book of Abstracts of the 8th Nordic-Baltic Biometrics

Virtual Conference NBBC21. International Biometric Society, University of Helsinki, Finland (7-10 Jun 2021) ([https://nbbc21.helsinki.fi/wordpress/wp-content/uploads/2021/06/NBBC21\\_Abstracts\\_book-1.pdf](https://nbbc21.helsinki.fi/wordpress/wp-content/uploads/2021/06/NBBC21_Abstracts_book-1.pdf))

- B. Nunes Silva, V. Cadavez, P. Ferreira-Santos, J. A. Teixeira, U. Gonzales-Barron. “Extraction, chemical characterization and antioxidant activity of bioactive plant extracts” (Full paper). In Proceedings of the 1st International Electronic Conference on Food Science and Functional Foods (10-25 Nov 2020). MDPI: Basel, Switzerland, doi:10.3390/foods\_2020-07739 (<https://www.mdpi.com/2504-3900/70/1/62>). Oral presentation video available at: <https://doi.org/10.5281/zenodo.5920576> [Uploaded on MEL].
- S. Coelho-Fernandes, O. Zefanias, G. Rodrigues, A.S. Faria, A. Fernandes, L. Barros, V. Cadavez, U. Gonzales-Barron. “Microbiological and physicochemical assessment of artisanally produced alheira fermented sausages in Northern Portugal” (Full paper). In Proceedings of the 1st International Electronic Conference on Food Science and Functional Foods (10-25 Nov 2020). MDPI: Basel, Switzerland, doi:10.3390/foods\_2020-07627 (<https://www.mdpi.com/2504-3900/70/1/16>) (recorded oral presentation) [Uploaded on MEL].
- B. Nunes Silva, V.A.P. Cadavez, J.A. Teixeira, U. Gonzales-Barron. “Meta-regression models describing the effects of essential oils and added lactic acid bacteria on *Staphylococcus aureus* inactivation in cheese” (Abstract). Journal of Food Protection (2020) 83 (supplement A) (page 44). ISSN: 0362-028X (<https://meridian.allenpress.com/jfp/article/83/sp1/1/447667/Supplement-A-October-2020>). Oral presentation video available at: <https://doi.org/10.5281/zenodo.5920606>. [150\_2020\_IAFP\_NunesB] [Uploaded on MEL]
- B. Silva, V. Cadavez, J. A. Teixeira, U. Gonzales-Barron. “A meta-regression model describing the effects of essential oils on *Escherichia coli* inactivation in cheese” (Abstract). In Book of

- Abstracts of the IAFP Annual Virtual Meeting 2020, October 2020. URL: <https://www.foodprotection.org/annualmeeting/> (oral presentation) [Uploaded on MEL]
- B. Nunes Silva, V. Cadavez, J. A. Teixeira, U. Gonzales-Barron. "Meta-analysis on the effect of biopreservatives on *Staphylococcus aureus* inactivation in cheese". In Book of Abstracts of the 71st Virtual Annual Meeting of European Federation of Animal Science (EAAP), December 2020. URL: <http://www.eaap.org/wp-content/uploads/2020/11/EAAP-programme-2020-dates-and-speakers.pdf> (recorded oral presentation) [Uploaded on MEL].
- B. Nunes Silva, V. Cadavez, P. Ferreira-Santos, J. A. Teixeira, U. Gonzales-Barron. "Extraction, chemical characterization and antioxidant activity of bioactive plant extracts". 1st International Electronic Conference on Food Science and Functional Foods (virtual), November 2020. Proceedings 2021, 70(1), 62. URL: <https://www.mdpi.com/2504-3900/70/1/62> (recorded oral presentation) [Uploaded on MEL].
- S. Coelho-Fernandes, O. Zefanias, R. Rodrigues, A. S. Faria, A. Fernandes, L. Barros, V. Cadavez, U. Gonzales-Barron. "Microbiological and physicochemical assessment of artisanally produced Alheira fermented sausages in Northern Portugal". 1st International Electronic Conference on Food Science and Functional Foods (virtual), November 2020. Proceedings 2021, 70(1), 16. URL: <https://www.mdpi.com/2504-3900/70/1/16> (recorded oral presentation) [Uploaded on MEL].
- B. Nunes Silva, V. Cadavez, J. A. Teixeira, U. Gonzales-. "Meta-regression models describing the effects of added lactic acid bacteria on pathogen inactivation in milk and cheese". In Proceedings of the FoodSim'2020 Conference (Virtual), September 2020. URL: <https://www.eurosis.org/conf/foodsim/2020/> (oral presentation) [Uploaded on MEL].
- B. Nunes Silva, V. Cadavez, J. A. Teixeira, U. Gonzales-Barron. "Meta-regression models describing the effects of essential oils and added lactic acid bacteria on *Listeria monocytogenes* inactivation in cheese". In Proceedings of the 11th International Conference



on Predictive Modelling in Food, Braganza, Portugal, September 2019, pp. 41-42. URL: <http://esa.ipb.pt/icpmf11/welcome/>

U. Gonzales-Barron. “The ArtiSaneFood project: novel strategies to ensure the quality of traditional foods produced in the Mediterranean”. In Proceedings of the 11th International Conference on Predictive Modelling in Food, Braganza, Portugal, September 2019, pp. 31-32. URL: <http://esa.ipb.pt/icpmf11/welcome/> (oral presentation) [Uploaded on MEL].

V. Cadavez. “Mathematical modelling as a tool for ensuring microbiological safety of traditional fermented foods”. In Proceedings of the of the 11th International Conference on Predictive Modelling in Food, Braganza, Portugal, September 2019, pp. 32. URL: <http://esa.ipb.pt/icpmf11/welcome/> (oral presentation) [Uploaded on MEL].

### 4.3 Theses

1. Nunes Silva, B., “Biopreservation technologies and novel modelling approaches to control the development of *Staphylococcus aureus* in goat's raw milk soft cheeses”. PhD Thesis. University of Minho, Portugal. 280 pp. (Supervised by Gonzales-Barron., U).
2. Armando Zefanias, O. L., “Caracterização físico-química e microbiológica de alheiras produzidas artesanalmente na Terra Fria Transmontana”. Master Thesis. Polytechnic Institute of Bragança, IPB. Portugal. 80 pp. (Supervised by Cadavez, V., Gonzales-Barron., U). <https://bibliotecadigital.ipb.pt/handle/10198/22671> [Uploaded on MEL].

Ongoing theses to be finalised in 2023/2024:

3. Miranda, R., “Susceptibility of foodborne pathogens to lactic acid bacteria isolated from Portuguese ready-to-eat fermented meat products”. Masters under development. Polytechnic Institute of Bragança, IPB. Portugal (Supervised by Cadavez, V., Gonzales-Barron., U).

4. Fernandes, N., “Isolation, characterization and assessment of lactic acid bacteria from artisanal alheira sausages”. Masters under development. Polytechnic Institute of Bragança, IPB. Portugal (Supervised by Cadavez, V., Gonzales-Barron., U).
5. Loforte, Y., “Development and modelling of functional cultures as biopreservatives for traditional cheeses against *Listeria monocytogenes*”. Polytechnic Institute of Bragança, IPB. Portugal (Supervised by Gonzales-Barron., U).

#### 4.4 Bachelor Degree Report

1. Carvalho, L. C. (2023). “Identificação Molecular e Análise Filogenética de Bactérias Ácido-Láticas Isoladas de Queijo de Cabra” (In Portuguese). Zenodo. <https://doi.org/10.5281/zenodo.8139707> (Supervised by Cadavez, C., and Gonzales-Barron., U) [**Uploaded on MEL**]. (<https://zenodo.org/record/8139707>).

#### 4.5 Edition of Special Issue

Gonzales-Barron, U., Cadavez, V. (Editors), Special Issue "Innovative Biopreservation and Risk Modelling Approaches for Ensuring Microbial Safety and Quality of Fermented Foods", MDPI Foods (ISSN 2304-8158). [https://www.mdpi.com/journal/foods/special\\_issues/Innovative\\_Biopreservation](https://www.mdpi.com/journal/foods/special_issues/Innovative_Biopreservation) (5 papers published)

#### 4.6 Seminars with producers

1. Seminar: “Biointervenção Inovadoras para garantir a Segurança Microbiológica e a Qualidade em Enchidos Tradicionais”, as part of the programme of the 16<sup>a</sup> Edition of Rural Castanea-Festa da Castanha de Vinhais (delivered in Portuguese)  
Role: Organiser and Speaker  
Number of hours: 1

Venue: Parque Municipal de Exposições de Vinhais, Portugal

Date: 6 Nov 2021

Audience: Traditional sausage makers and general public

Link: <https://www.cm-vinhais.pt/pages/452> [1\_RuralCastanea2021]

2. Seminar with artisanal producers of alheira fermented Portuguese sausages

Role: Organiser and Speaker

Number of hours: 2

Venue: CIMO Mountain Research Centre, Polytechnic Institute of Braganza, Portugal

Date: 10 Dec 2020

Link: <http://www.ipb.pt/artisanefood/meetings/alheirasfb2020/> [2\_ArtisanAlheiras\_2020]

## 4.7 Knowledge-exchange activities

### 4.7.1 Demos or workshops

1. International Workshop: “Modern Predictive Microbiology Analysis in R” [[Manual uploaded on MEL](#)]

Role: Organiser and Lecturer

Number of hours: 10

Venue: Polytechnic Institute of Bragança, Portugal

Date: 27-28 June 2022

Framework: Fulfilment of knowledge exchange activities of the PRIMA-funded project ArtiSaneFood

Audience: Postgraduate students and young researchers involved in the ArtiSaneFood consortium.

Teaching materials: <https://zenodo.org/record/7111993>

2. Round Table: “Assuring the Safety of Traditional Foods – A Scientific Contribution to Protecting our Cultural Heritage”

Organised at the ICPMF11: 11th International Conference on Predictive Modelling in Food

Role: Organiser and Speaker

Number of hours: 1

Venue: Instituto Politécnico de Bragança, Bragança, Portugal

Date: 18 September 2019

Framework: First action to disseminate the objectives of ArtiSaneFood project

Audience: Academic/research/industry participants

#### **4.7.2 Hosting of young researchers**

IPB hosted and supported the following three research stages within the framework of the cooperation and training activities of the ArtiSaneFood project:

1. Olga Bonilla (Spanish national) [1\_OlgaBonilla\_Spain]

Supervisors: Ursula Gonzales-Barron, Vasco Cadavez

Grants: Obtained from University of Cordoba, Spain

Status: Ongoing; From 20 May 2023 to 26 July 2023

Research topic: Assessment of models using R for predictive microbiology (PhD student registered at the University of Cordoba Spain).

2. Ibtissem Bem Hmidane (Tunisian national) [2\_IbtissemBem\_Tunisia]

Supervisors: Ursula Gonzales-Barron, Vasco Cadavez & Nourhene Boudhrioua (ISBST)

Grants: Obtained from Carthage University, Tunisia, and IPB

Status: From 20 Jun 2022 to 15 Dec 2022

Research topic: Biocontrol inoculation essays for assuring the safety of a traditional Tunisian dry sausage.

3. Ibtissem Bem Hmidane (Tunisian national) [6\_IbtissemBem\_Tunisia]

Supervisors: Ursula Gonzales-Barron, Vasco Cadavez & Nourhene Boudhrioua (ISBST)

Grants: Obtained from Carthage University, Tunisia, and IPB

Status: From 25 Oct 2021 to 28 Feb 2022

Research topic: Biocontrol inoculation essays for assuring the safety of a traditional Tunisian dry sausage.

#### 4.8 Communications to the general public

1. Podcast T4E4: “Ursula Gonzales Barron - Alerta pela Segurança Alimentar”.

Invitation by “Ciência com Impacto”. (In Portuguese)

Video available since Aug 2021: [https://cienciacomimpacto.pt/pt/media/podcasts/podcast-t4e4-ursula-gonzales-barron-alerta-pela-seguranca-alimentar?fbclid=IwAR1AFufl9\\_TFPqntWmZVwByZQMK28a8h6GInj0ULH5Pi-pm-cYK0cxIYZ4w](https://cienciacomimpacto.pt/pt/media/podcasts/podcast-t4e4-ursula-gonzales-barron-alerta-pela-seguranca-alimentar?fbclid=IwAR1AFufl9_TFPqntWmZVwByZQMK28a8h6GInj0ULH5Pi-pm-cYK0cxIYZ4w)

2. Demonstration at Ciência 19: Encontro com a Ciência e Tecnologia em Portugal. Lisbon.

Theme: “Innovative bio-interventions to guarantee the quality of artisanal fermented food”

Location: Bancada D, Pavilhão 5, Centro de Congressos de Lisboa, Portugal

Date: 10 Jul 2019

### 5. Partner ISBST/UMA

#### 5.1 Scientific publications

Mkadem W, Indio V, Belguith K, Oussaief O, Savini F, Giacometti F, El Hatmi H, Serraino A, De Cesare A, & Boudhrioua N. (2023). Influence of fermentation container type on chemical and microbiological parameters of spontaneously fermented cow and goat milk. *Foods*, 12(9):1836. <https://doi.org/10.3390/foods12091836>. [Uploaded on MEL].

Mkadem, W., Belguith, K., Oussaief, O., ElHatmi, H., Indio, V., Savini, F., De Cesare, A., & Boudhrioua, N. (2023). Systematic approach to select lactic acid bacteria from spontaneously fermented milk able to fight *Listeria monocytogenes* and *Staphylococcus aureus*. *Food Bioscience*, 51, <https://doi.org/10.1016/j.fbio.2022>. [Uploaded on MEL].

Ben Abdallah, M., Chadni, M., M'hiri, N., Brunissen, F., Rokbeni, N., Allaf, K., Besombes, C., Ioannou, I., Boudhrioua, N. (2023). Intensifying effect of instant controlled pressure drop (DIC) pre-treatment on hesperidin recovery from orange byproducts: In vitro antioxidant and antidiabetic activities of the extracts. *Molecules*, 28, 1858. doi: 10.3390/molecules28041858. [Uploaded on MEL].

Ben Abdallah, M., Chadni, M., M'hiri, N., Brunissen, F., Rokbeni, N., Ioannou, I., Allaf, K., Besombes, C., Boudhrioua, N. (2023). Optimization of DIC-Tripolium ecofriendly extraction process: recovery of hesperidin from orange byproducts, antioxidant and  $\alpha$ -amylase inhibition of extracts. *Antioxidants* 2023, 12(7), 1346; <https://doi.org/10.3390/antiox12071346>. [Uploaded on MEL].

Mkadem, W., Belguith, K., Ben Zid M., Boudhrioua, N. (2022). Fortification of Traditional Fermented milk Lben with date powder. Physicochemical and Sensory Attributes. *Engineering Proceedings*, 19(1): 43. <https://doi.org/10.3390/ECP2022-12618> [Uploaded on MEL].

Mkadem, W., Belguith, K., Semmar, N., Ben Zid, M., ElHatmi, H., & Boudhrioua N. (2021). Effect of process parameters on quality attributes of Lben: correlation between physicochemical and sensory properties. 2021. *LWT*, 112987. <https://doi.org/10.1016/j.lwt.2021.112987>. [Uploaded on MEL].

## 5.2 Abstracts and proceedings from conference presentations

ISBST/UMA presented research results in 34 communications.

Boudhrioua, N. "Traditional food biopreservation using industrial agrifood coproducts extracts and autochthonous lactic acid bacteria/ main results of Artisanefood project 2019-2023". Les journées scientifiques de PATIO 2023. Les défis alimentaires face aux changements environnementaux. l'auditorium (INAT) (15-16 June 2023). [http://www.inat.tn/sites/default/files/images/affiche\\_j-s\\_patio2023\\_0.pdf](http://www.inat.tn/sites/default/files/images/affiche_j-s_patio2023_0.pdf)

Mkadem, W., Indio, V., Belguith, K., De Cesare, A., Boudhrioua, N. “Safety evaluation of lactic bacteria and its bacteriocin production based on Whole Genome Sequencing”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page xx) (<https://doi.org/10.5281/zenodo.8067526>).

Mkadem, W., Belguith, K., Savini, F Indio, V., Oussaief, O., Giacometti, F., Elhatmi, H., Serraino, A., De Cesare, A., Boudhrioua, N. “Biocontrol of *Listeria monocytogenes* in fermented milk by selected *Lacticaseibacillus paracasei* and effect of citrus peel extract on its survival”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page xx) (<https://doi.org/10.5281/zenodo.8067526>).

Ben Zid, M., Mkadem, W., Debeiba, A., Zeghonda, N., Boudhrioua, N. “Phytochemical content, Antioxidant and Antibacterial activities of date fruit powder from Deglet Nour Variety”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page xx) (<https://doi.org/10.5281/zenodo.8067526>).

Dbeibia, A., Khiari, R., Ben Abdallah, M., Cheikh Rouhou, M., Zeghonda, N., Boudhrioua Mihoubi, N. “Phytochemical contents, antioxidant and antibacterial Activities of date seeds extracts from Tunisian Deglet Enour variety”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page xx) (<https://doi.org/10.5281/zenodo.8067526>).

Ben Abdallah, M., Dbeibia, A., Ben Zid, M., Chadni, M., Allaf, K., Besombes, C., Ioannou, I., Boudhrioua Mihoubi, N. “Effect of different extraction methods on hesperidin content, and in vitro antioxidant and antibacterial activities of ethanolic orange by-products extracts”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and

Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page xx) (<https://doi.org/10.5281/zenodo.8067526>).

Khiari, R., Dbeibia, A., Zemni, H., Chenenaoui, S., Mbarek, S., Ben Chaouacha Chekir, R., Ben Salem, A., Boudhrioua, N. “Phytochemical content, antioxidant and antibacterial activities of grape marc extracts from Chardonnay and Syrah varieties grown in Tunisia”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page xx) (<https://doi.org/10.5281/zenodo.8067526>).

Boudhrioua, N. “Antibacterial and antioxidant activities of Mediterranean plant and industrial coproducts”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page xx) (<https://doi.org/10.5281/zenodo.8067526>).

Chrigui, S., BenZid, M., Bonilla Luque, O., Valero, A., Boudhrioua, N. “Antibacterial and antioxidant activities of methanolic and decocted extracts of *Salicornia arabica*: a halophyte plant growing in Tunis Sebkhah”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page xx) (<https://doi.org/10.5281/zenodo.8067526>).

Harizi, N., Madureira, J., Zouari, A., Cabo Verde, S., Boudhrioua, N. “Effect of Ebeam irradiation on the antioxidant and the antimicrobial activities of defatted freeze-dried cow and camel milk fractions”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page xx) (<https://doi.org/10.5281/zenodo.8067526>).

Ben Hmidene, I., Belguith, K., Cadavez, V., Gonzales Barron, U., Boudhrioua, N. “Assessing the efficacy of bioactive mint extract in controlling *Listeria monocytogenes* growth during fermentation drying of traditional dried sausages: a mathematical modelling approach”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and



Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page xx) (<https://doi.org/10.5281/zenodo.8067526>).

Ben Hmidene, I., Belguith, K., Ben Hsouna, A., Brini, F., Cadavez, V., Gonzales Barron, U., Boudhrioua, N. “Exploring the inhibitory potential of Capsicum Annum extracts against *Listeria monocytogenes* and spoilage bacteria in fresh beef sausages during storage”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page xx) (<https://doi.org/10.5281/zenodo.8067526>).

Mkadem, W., Belguith, K., Ben Zid, M., Boudhrioua, N. “Fortification of traditional fermented milk Lben with date powder physicochemical and sensory attributes”. 1st International Electronic Conference on Process: Processes System Innovation: Food Processes (17-31 May 2022). Best poster award. <https://sciforum.net/paper/view/12618>

Mkadem, W., Belguith, K., Oussaif, O., Ben Zid, M., Mhiri, N., Elhatmi, H., Boudhrioua, N. “Characterization of date powder as multi-functional component for food supplementation”. 4rd Edition of PATIO’S Scientific Days: "Avancées Scientifiques et Valorisation du Patrimoine pour une Sécurité Nutritionnelle". Oral communication. (19-20 May 2022). <https://j-sdepatio2022.wixsite.com/website>

Mkadem, W., Belguith, K., Oussaief, O., ElHatmi, H., Zaidi, S., Bouhemda, T., Boudhrioua, N. ”Citrus peel extract as promising natural bio-preservative and food additive”. In Booklet of Abstracts of the International Seminar "Advances In Food Bio-Preservation" (ISAFP 2022). Oral communication. (2-4 October 2022). <https://zenodo.org/record/7181383>.

Mkadem, W., Indio, V., Belguith, K., Oussaif, O., Elhatmi, H., De Cesare, A., Boudhrioua, N. “*Limosilactobacillus fermentum* from fermented milk: phylogenetic analyses and whole genome analysis”. In Booklet of Abstracts of the International Seminar "Advances In Food Bio-Preservation" (ISAFP 2022). Oral communication. (2-4 October 2022). <https://zenodo.org/record/7181383>.

Zioud, A., Essid, Iness., Bellagha, S. “Antioxidant activity of of Garlic and coriander powder and their use as bio-preservatives in Kaddid”. In Booklet of Abstracts of the International Seminar "Advances In Food Bio-Preservation" (ISAFP 2022). Oral communication. (2-4 October 2022). <https://zenodo.org/record/7181383>.

Ben Hmidene I., Belguith K., Ben Hsouna A., Brini, F., Cadavez, V., Gonzales Barron, U., Boudhrioua, N. (2022). Growth inhibition of common food spoilage and pathogenic microorganisms in the presence of Tunisian aromatic spices extracts. In Booklet of Abstracts of the International Seminar "Advances In Food Bio-Preservation" (ISAFP 2022). Oral communication. (2-4 October 2022). <https://zenodo.org/record/7181383>.

Ben Hmidene I., Belguith K., Ben Hsouna A., Brini F., Boudhrioua, N. “Optimization of antioxidant and antimicrobial activities of spice mixture extracts using simplex mixture design”. 4th Edition of PATIO’S Scientific-May 19th – 20th, 2022.. Best poster award. <https://j-sdepatio2022.wixsite.com/website>

Mkadem, W., Belguith K., Boudhrioua, N. “Microbiological and physicochemical quality assessment of Tunisian traditional fermented milk Lben”. In Les Journées Scientifiques de PATIO L’Unité de Recherche Valorisation du Patrimoine Naturel et Agroalimentaire Tunisien par l’Innovation Thème: Réflexions sur les Procédés, les Techniques et les Produits, inspirées du Patrimoine, pour une Alimentation Durable. Oral Communication (10-11 June 2021) <https://j-sdepatio2021.wixsite.com/website>.

Ben Hmidène, I. Belguith K., Boudhrioua, N. “Assessment of physicochemical properties and safety of Tunisian traditional dry sausage during processing”. In Les Journées Scientifiques de PATIO L’Unité de Recherche Valorisation du Patrimoine Naturel et Agroalimentaire Tunisien par l’Innovation Thème: Réflexions sur les Procédés, les Techniques et les Produits, inspirées du Patrimoine, pour une Alimentation Durable. Oral Communication (10-11 June 2021) <https://j-sdepatio2021.wixsite.com/website>.

Ben Hmidène, I. Belguith K., Boudhrioua, N. “Consumer survey on traditional sausage, quality, and consumers' preference”. In Les Journées Scientifiques de PATIO L’Unité de Recherche Valorisation du Patrimoine Naturel et Agroalimentaire Tunisien par l’Innovation Thème: Réflexions sur les Procédés, les Techniques et les Produits, inspirées du Patrimoine, pour une Alimentation Durable. Oral Communication (10-11 June 2021) <https://j-sdepatio2021.wixsite.com/website>.

Ben Hmidène, I. Belguith K., Boudhrioua, N. “Antioxidant and antibacterial activities of four traditional Tunisian spices”. In Les Journées Scientifiques de PATIO L’Unité de Recherche Valorisation du Patrimoine Naturel et Agroalimentaire Tunisien par l’Innovation Thème: Réflexions sur les Procédés, les Techniques et les Produits, inspirées du Patrimoine, pour une Alimentation Durable. Oral Communication (10-11 June 2021) <https://j-sdepatio2021.wixsite.com/website>.

Benabdallah, M., Belguith K., Ghali, R., M’hiri N., Ayachi, Z., Ben Chaouacha-Chekir, R., Boudhrioua, N. « Détermination des activités antioxydante et antibactérienne des extraits des feuilles d’olivier et des écorces d’agrumes ». In Les Journées Scientifiques de PATIO L’Unité de Recherche Valorisation du Patrimoine Naturel et Agroalimentaire Tunisien par l’Innovation Thème: Réflexions sur les Procédés, les Techniques et les Produits, inspirées du Patrimoine, pour une Alimentation Durable. Oral Communication (10-11 June 2021) <https://j-sdepatio2021.wixsite.com/website>.

Zioud, A., Chabbouh, M., Hajji W., Essid, I., Bellagha, S. « Etudes expérimentale et théorique des cinétiques de salage à sec de la viande ovine ». In Les Journées Scientifiques de PATIO L’Unité de Recherche Valorisation du Patrimoine Naturel et Agroalimentaire Tunisien par l’Innovation Thème: Réflexions sur les Procédés, les Techniques et les Produits, inspirées du Patrimoine, pour une Alimentation Durable. Oral Communication (10-11 June 2021) <https://j-sdepatio2021.wixsite.com/website>.

Mkadem, W., Belguith, K., Oussaif, O., Elhatmi, H., De Cesare, A., Boudhrioua, N. “Isolation and characterization of lactic acid bacteria from spontaneous fermented cow and goat milks”.

In Booklet of Abstracts of the Foods and Bioactive Molecules, Arid Land Institute, Médenine, Tunisia. Oral Communication (19-21 December 2021).

<https://zenodo.org/record/5860542#.YfKA-urMLIW>

De Cesare, A., Mkadem, W. “Metagenomic application to artisanal food product characterization and risk assessment of foodborne”. In Booklet of Abstracts of the Foods and Bioactive Molecules, Arid Land Institute, Médenine, Tunisia. Oral Communication (19-21 December 2021). <https://zenodo.org/record/5860542#.YfKA-urMLIW>

Zioud, A., Essid I., Bellagha, S. “Optimization of the Tunisian traditional kaddid recipe”. In Booklet of Abstracts of the Foods and Bioactive Molecules, Arid Land Institute, Médenine, Tunisia. Oral Communication (19-21 December 2021).

<https://zenodo.org/record/5860542#.YfKA-urMLIW>

Ben Hmidene I., Belguith K., Ben Hsouna A., Brini F., Boudhrioua, N. “Antioxidant, antibacterial and antifungal activities of extracts of traditional Tunisian spices”. In Booklet of Abstracts of the Foods and Bioactive Molecules, Arid Land Institute, Médenine, Tunisia. Oral Communication (19-21 December 2021). <https://zenodo.org/record/5860542#.YfKA-urMLIW>

[urMLIW](https://zenodo.org/record/5860542#.YfKA-urMLIW)

Mkadem, W., Belguith K., Boudhrioua, N. “Innovative approach for valorization and bio-preservation of traditional fermented dairy products”. In ANNUAL TUNISIAN WORKSHOP ARTISANEFood PROJECT: Innovative Bio-interventions and Risk Modelling Approaches for Ensuring Microbial Safety and Quality of Mediterranean Artisanal Fermented Food. Oral Communication (17-18 January 2020). <http://www.isbst.rnu.tn/fra/articles/2242/annual-tunisian-workshop>

[tunisian-workshop](http://www.isbst.rnu.tn/fra/articles/2242/annual-tunisian-workshop)

Oussaif, O., ElHatmi. H. “Isolation and identification of LAB from dairy products”. In ANNUAL TUNISIAN WORKSHOP ARTISANEFood PROJECT: Innovative Bio-interventions and Risk Modelling Approaches for Ensuring Microbial Safety and Quality of Mediterranean Artisanal Fermented Food. Oral Communication (17-18 January 2020).

<http://www.isbst.rnu.tn/fra/articles/2242/annual-tunisian-workshop>

Ben Hmidène, I. Belguith K., Boudhrioua, N. “Set-up of validated process for traditional fermented meat product: Innovative bio preservation approach”. In ANNUAL TUNISIAN WORKSHOP ARTISANEFOOD PROJECT: Innovative Bio-interventions and Risk Modelling Approaches for Ensuring Microbial Safety and Quality of Mediterranean Artisanal Fermented Food. Oral Communication (17-18 January 2020). <http://www.isbst.rnu.tn/fra/articles/2242/annual-tunisian-workshop>

Zioud A., Essid I., Bellagha, S. “Set-up of validated process for traditional fermented meat product: Kaddid, Innovative bio preservation approach”. In ANNUAL TUNISIAN WORKSHOP ARTISANEFOOD PROJECT: Innovative Bio-interventions and Risk Modelling Approaches for Ensuring Microbial Safety and Quality of Mediterranean Artisanal Fermented Food. Oral Communication (17-18 January 2020). <http://www.isbst.rnu.tn/fra/articles/2242/annual-tunisian-workshop>

Benabdallah, M., Belguith K., Ghali, R., M’hiri N., Ayachi, Z., Ben Chaouacha-Chekir, R., Boudhrioua, N. “Screening of bioactive extracts for food products preservation and development of functional traditional fermented products”. In ANNUAL TUNISIAN WORKSHOP ARTISANEFOOD PROJECT: Innovative Bio-interventions and Risk Modelling Approaches for Ensuring Microbial Safety and Quality of Mediterranean Artisanal Fermented Food. Oral Communication (17-18 January 2020). <http://www.isbst.rnu.tn/fra/articles/2242/annual-tunisian-workshop>

### 5.3 Theses

Full involvement in the ArtiSaneFood project to be defended in 2024:

1. Wafa MkaDEM, Approche biotechnologique innovante pour la préservation d’un produit laitier traditionnel.// Biotechnological approaches for biopreservation of traditional fermented cow milk.

2. Ibtissem BenHmidène, Validation du procédé de fabrication du merguez séchées et étude de l'effet de la bio-pré-servation sur la qualité du produit.// Validation of a process of dried sausage: Biopreservation and the product quality attributes.

Partial involvement in the ArtiSaneFood project to be defended in 2024:

3. Nouha Hrizi, Extraction et exploration des activités antioxydantes et biologiques des fractions de laits en poudre pour le développement de nutraceutiques de lait de vache et de chamelle.// Extraction and exploration of antioxydant, antibacterial, antidiabetic and antitumoral effect of camel and cow milk fraction: effect of drying and irradiation.
4. Meriem BenAbdallah, Optimisation des procédés d'extraction de l'héspéridine et de l'oléuropéine des coproduits d'origine végétale et exploration in de leurs activités biologiques in vivo. //Optimization of the extraction of oleuro-pein and hesperidin from vegetable co-products and exploration on in vitro biological activity.
5. Souhaib Chrigui, Effet des régimes alimentaires sur l'induction de l'obésité, de la dyslipidémie et du diabète type 2: Exploration de l'effet des antioxydants.// Effect of food diet on the induction of obesity and dyslipidemia and type 2 diabetes: effect of antioxidants.

#### 5.4 International seminars

1. International Seminar "Advances In Food Bio-Preservation" (ISAFP 2022), Tunis, Tunisia, 2-4 October 2022. Booklet of Abstracts: <https://doi.org/10.5281/zenodo.7159076>. [Uploaded on MEL]
2. International Seminar "Artisanal Foods & Bioactive Molecules", Medenine, Tunisia, 19-21 December 2021. Booklet of Abstracts: <https://doi.org/10.5281/zenodo.5860542>. [Uploaded on MEL]

## 5.5 National seminars

1. Pre-Annual Tunisian Workshop of the ArtiSaneFood Project, 16/06/2020.  
<https://isbst.rnu.tn/fra/articles/2242/annual-tunisian-workshop>
2. Pre-Annual Tunisian Workshop of the ArtiSaneFood Project, 30/06/2021 (20 participants), virtual mode, link: [meet.google.com/ncf-doyp-ref](https://meet.google.com/ncf-doyp-ref)

## 5.6 Knowledge-exchange activities

Young researchers from the Tunisian team carried out research stages at IPB, UNIBO and UCO.

1. Ibtissem BenHmidene [1\_IbtissemBem\_Tunisia]

Hosting institution: Polytechnic Institute of Bragança, Portugal

Supervisors: Ursula Barron (IPB), Vasco Cadavez (IPB) & Nourhene Boudhrioua (ISBST)

Grants: Obtained from the University of Carthage & the support of IPB

Status: From 20 Jun 2022 to 15 Dec 2022

Research topic: Biocontrol inoculation essays for assuring the safety of a traditional Tunisian dry sausage.

2. Ibtissem BenHmidene [2\_IbtissemBem\_Tunisia]

Hosting institution: Polytechnic Institute of Bragança, Portugal

Supervisors: Ursula Barron, Vasco Cadavez & Nourhene Boudhrioua (ISBST)

Grants: Obtained from the University of Carthage & the support of IPB

Status: From 25 Oct 2021 to 28 Feb 2022

Research topic: Biocontrol inoculation essays for assuring the safety of a traditional Tunisian dry sausage.

3. Wafa Mkadem

Hosting institution: University of Bologna, Italy

Supervisors: Alessandra De Cesare (UNIBO) & Nourhene Boudhrioua (ISBST)

Grants: Obtained from University of Manouba & the support of the University of Bologna

Status: From 1st Sep 2021 until 30 Nov 2021

Research topic: WGS of LAB isolates and fermented products and 16S metataxonomic sequencing analysis of Tunisian traditional raw and fermented milks

#### 4. Wafa Mkadem

Hosting institution: University of Bologna, Italy

Supervisors: Alessandra De Cesare (UNIBO) & Nourhene Boudhrioua (ISBST)

Grants: Obtained from STICODE, University of Manouba & the support of the University of Bologna

Status: From 20 Sep 2022 until 20 Oct 2022

Research topic: Biocontrol inoculation essays for assuring the safety of a traditional fermented cow milk.

#### 5. Souhaeib Chrigui

Hosting institution: University of Cordoba, Spain

Supervisors: Antonio Valero (UCO) & Nourhene Boudhrioua (ISBST)

Grants: Obtained from University of Manouba & the support of the University of Cordoba, Spain

Status: From 1 Oct to 30 Dec 2022

Research topic: Antimicrobial activity and phytochemical of halophyte plant extract

### 5.7 General divulgation

1. UMA Newsletter May 2023. Page 7 communicates about closing the ArtiSaneFood project.
2. Communication in ISBST open day 14th November 2019, International projects: <https://isbst.rnu.tn/fra/articles/2157/journee-portes-ouvertes-2019>
3. Communication in ISBST website, annual Tunisian PRIMA ArtiSaneFood project internal seminar: <https://isbst.rnu.tn/fra/articles/2242/annual-tunisian-workshop>







Editorial

Opening up to their environment: The Tunisian universities' persisting problem

In pursuing the professionalization of university education and the imperative need to enhance the value of scientific research, Tunisian universities have increasingly been compelled to embrace a higher level of environmental engagement. This impetus is reflected in the adoption of competency-based curricula in line with professional standards, as well as the increasing requirement of translating research findings into innovative projects with tangible commercial benefits.

While Tunisian public universities maintain a respectable position in international rankings, a closer examination reveals a significant weakness specifically in terms of engaging with their environments. Analyzing the various statistics behind the used scores clearly demonstrates that this element remains the neglected aspect in our national institutions, both in terms of allocated resources and outcomes. In this respect, the University of Manouba is no exception. However, it is true that this persisting trend is partly due to the inadequate legal framework governing this integration. Likewise, the dominant mindset in the universities and the professional world requires a cultural transformation as their contribution to enable this choice remains limited.

Recognizing these weaknesses, UMA has dedicated an entire axis of its Strategic Orientation Plan to the objective of strengthening its image as a university open to its environment and as an indispensable interlocutor in the public sphere. To achieve this objective, it seeks to gradually improve its relationships with stakeholders to support the professional integration of its graduates and enhance the visibility and societal impact of its research.

With this objective in mind, the fourth Manouba Networking Days (MNDs) were held on May 11th and 12th, 2023. The event is conscious of the paradox highlighted during the regional event on March 6th, which emphasized Tunisia's innovation weaknesses despite the important national industrial fabric and internationally acclaimed research. The MNDs specifically aim to implement the recommendations proposed by experts and the academic community by multiplying events and projects dedicated to strengthening the university's ties with its partners.

These initiatives revolve around specific themes of interest to both the university and the socio-economic environment.

UMA has chosen to dedicate these networking days to the theme of "Progress towards Achieving SDGs". As the midway point of the timeline set by the United Nations' Agenda 2030, UMA has invited its strategic partners to engage in a collective reflection on Tunisia's current progress towards the 17 Sustainable Development Goals (SDGs). Arnaud Peral, the United Nations Resident Coordinator in Tunisia, and Mourad Bellasoued, the Director-General of Scientific Research at the Ministry of Higher Education, have been invited to join the

President of the University of Manouba in opening the MNDs. The aim is to collaboratively chart the remaining path and clarify the role that each stakeholder must play in this action plan for humanity, the planet, and prosperity, thus forging a roadmap towards a more sustainable future for all.

The university's strategic partners were invited to visit the Research Labs and Units' exhibitions at UMA and attend presentations on the academic programs offered by the institutions, as well as the scientific research conducted by university researchers, with a breakdown by Sustainable Development Goals (SDGs). This first session was followed by two roundtable discussions, which assessed Tunisia's experience in the field and explored the mechanisms and networking opportunities available. The second day of the event focused on parallel workshops dedicated to enhancing researchers' capacity and presenting existing paths for structuring university-socio-economic world partnerships around the SDGs.

The MNDs succeeded in leveraging the framework of the 2030 Agenda by bringing academics together and establishing connections with the socio-economic world. In this regard, the fourth MNDs were a resounding success. The interest shown by the participants clearly demonstrates the power of this framework and its potential for mobilization. However, lingering questions remain: what's next? How can we proceed to strengthen the relationship between universities and the socio-economic world at UMA? How can we transform such relationships into a lasting bond? Would it be beneficial to further engage the 2030 Agenda for this purpose?

On May 12th, the UMA Sustainable Development Unit held a meeting in the conference room, where the focal points and representatives from the participating institutions extensively discussed this issue. The outcome was a strong conviction about the virtues of partnerships and a collective determination to utilize them to accelerate the process of achieving the Sustainable Development Goals outlined in the United Nations' 2030 Agenda.

Thanks to the commitment of its community, UMA is now more than ever in motion. It can further open up and engage with its environment. Through this approach, UMA will continue to follow the path of being a socially-responsible university and a prominent institution for fostering citizenship education.

Jouhaina Gherib  
President  
Manouba University

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Closing the PRIMA ARTISANEFOOD project



**May 25<sup>th</sup>:** The PRIMA project (Innovative Bio-interventions and Risk Modelling Approaches for Ensuring Microbial Safety and Quality of Mediterranean Artisanal Fermented Foods) ARTISANEFOOD, coordinated by Prof. Nourhene Boudhrioua from the RL Physiopathology, Food and Biomolecules, was concluded at the Polytechnic Institute of Bragança (IPB). The overall budget of the project amounts to 1,583,708 euros, with 100,000 euros allocated to the Tunisian part.

On this occasion, the RL Physiopathology, Food and Biomolecules co-organized an international seminar titled "ArtiSaneFood: Bio Preservation and Risk Modelling Approaches" with a Portuguese team from IPB.

This was the 3rd seminar organized within the framework of this project and brought together multidisciplinary research teams from several countries, including Tunisia (LR17ES03-ISBST, IRA of Mednine, LR PATIO-INAT), France (National Agency for Food Safety, Environment and Work, ANSES, and the National Interprofessional Center for Dairy Economics, CNIEL), Morocco (University of Ibn Zohr in Agadir), Greece (University of Agricultural Sciences in Athens), Italy (University of Bologna), the United States (USDA, United States Department of Agriculture), Spain (University of Cordoba), and Portugal (Polytechnic Institute of Bragança).

The research outcomes of this project have contributed to the training of doctoral and post-doctoral students, strengthening the scientific reputation of UMA, and supporting the Sustainable Development Goals (SDGs 1, 2, 3, 4, 8, 9, 13, 15) as well as national research priorities in food safety and circular economy.

UMA Newsletter, April-May 2023 (EN)

## Clôture du projet PRIMA ARTISANEFOOD



**25 Mai** : Le projet PRIMA (Innovative Bio-interventions and Risk Modelling Approaches for Ensuring Microbial Safety and Quality of Mediterranean Artisanal Fermented Foods) ARTISANEFOOD, coordonné par la Pr. Nourhène Boudhrioua, du LR Physiopathologie, Alimentation et Biomolécules, a été clôturé à l'Institut Polytechnique de Bragança (IPB).

Son budget global s'élève à 1.583.708 euros, dont 100 000 euros ont été alloués à la partie tunisienne.

A cette occasion le LR Physiopathologie, Alimentation et Biomolécules a co-organisé avec l'équipe portugaise de l'IPB un séminaire international intitulé "ArtiSaneFood: Bio preservation and risk modelling approaches". Il s'agit du 3<sup>ème</sup> séminaire organisé dans le cadre de ce projet. Ce dernier a réuni des équipes de recherche multidisciplinaires provenant de plusieurs pays, notamment la Tunisie (LR17ES03-ISBST, IRA de Mednine, LR PATIO-INAT), la France (Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail, ANSES, et le Centre national interprofessionnel de l'économie laitière, CNIEL), le Maroc (Université d'Ibn Zohr à Agadir), la Grèce (Université de l'agriculture d'Athènes), l'Italie (Université de Bologne), les États-Unis (USDA, Département de l'Agriculture des États-Unis), l'Espagne (Université de Cordoue) et le Portugal (Institut Polytechnique de Bragança).

UMA Newsletter, April-May 2023 (Fr)

## اختتام اعمال مشروع برما اريستافود



**25 ماي**: تمّ اختتام مشروع PRIMA (التدخلات الحيوية المتكبرة ونهج نمذجة المخاطر لضمان السلامة الميكروبية وجودة الأغذية الخميرة التقليدية المتوسطة) ARTISANEFOOD. بتنسيق الأستاذة نورهان بوزويوة وكان الاختتام، في معهد البوليتكنيك في براغانسا .

وتبلغ ميزانية المشروع الإجمالية 1.583.708 يورو. منها 100.000 يورو أسندت الى الطرف التونسي.

و بهذه المناسبة . شارك مخبر الفيزيولوجيا المرضية والغذاء والجزيئات الحيوية . مع الفريق البرتغالي من المعهد المذكور ندوة دولية بعنوان "ArtiSaneFood " نهج الحفظ الحيوي ونمذجة المخاطر". وهذه هي الندوة 3 التي نظمت في اطار هذا المشروع. والمشروع جمع فرق بحث متعددة الاختصاصات من عدة بلدان . بما في ذلك تونس ( . الوكالة الوطنية للأغذية والبيئة والصحة والسلامة المهنية . ANSES . والمركز الوطني المهني لاقتصاديات الألبان . CNIEL ) والمغرب (جامعة ابن زهر في أكادير) اليونان (جامعة الزراعة في أثينا) وإيطاليا (جامعة بولونيا) والولايات المتحدة (وزارة الزراعة الأمريكية . وزارة الزراعة الأمريكية) وإسبانيا (جامعة قرطبة) والبرتغال (معهد البوليتكنيك في براغانسا).

ساهمت نتائج هذا المشروع البحثي في تدريب طلاب الدكتوراه وما بعد الدكتوراه . وعززت السمعة العلمية لجامعة مثنوبة ودعمت أهداف التنمية المستدامة (أهداف التنمية المستدامة 1 و 2 و 3 و 4 و 8 و 9 و 13 و 15) بالإضافة إلى أولويات البحث العلمي الوطنية في الأمن الغذائي والاقتصاد الدائري.

UMA Newsletter, April-May 2023 (Ar)

## 6. Partner UCO

### 6.1 Scientific publications

Possas, A., Pérez-Rodríguez, F., Valero, A. Do not "pack and pray": use predictive models to access the microbial safety and shelf-life of modified atmosphere packaged foods. Food Materials. Springer Protocols. Submitted.

Tomasello, F., Valero, A., Serraino, A., Possas, A. (2023). Methods of Inoculation and Quantification for Collecting Data on Microbial Responses in Foods In: Basic Protocols in Predictive Food Microbiology. Springer (US). ISBN: 978-1-0716-3412-7, 496522\_1\_En, (Chapter 2), Methods & Protocols in Food Science. Edited by Veronica Ortiz Alvarenga. In Press. [Uploaded on MEL]



- Bonilla-Luque, O., Possas, A., López Cabo, M., Rodríguez-López, P., Valero, A. (2023). Tracking microbial quality, safety and environmental contamination sources in artisanal goat cheesemaking factories. *Food Microbiology*, *114*, 104301. <https://doi.org/10.1016/j.fm.2023.104301> [Uploaded on MEL]
- Possas, A., Hernández, M., Esteban-Carbonero, O., Valero, A. (2022). Rodríguez-Lázaro, D. *Listeria monocytogenes* survives better at lower storage temperatures in regular and low-salt soft and cured cheeses. *Food Microbiology*, *104*, 103979. <https://doi.org/10.1016/j.fm.2022.103979> [Uploaded on MEL]
- Possas, A., Valero, A., Pérez-Rodríguez, F. (2022). New software solutions for microbiological food safety assessment and management. *Current Opinion in Food Science*, *44*, 100814. <https://doi.org/10.1016/j.cofs.2022.100814> [Uploaded on MEL]
- Possas, A., Bonilla-Luque, O., Valero, A. (2021). From cheese-making to consumption: Exploring the microbial safety of cheeses through predictive microbiology models. *Foods*, *10*(2), 355. <https://doi.org/10.3390/foods10020355> [Uploaded on MEL]
- Posada-Izquierdo, G.D., Mazón-Villegas, B., Redondo-Solano, M., Huete-Soto, A., Viquez-Barrantes, D., Valero, A., Fallas-Jiménez, P., García-Gimeno, R.M. (2021). Modelling the Effect of Salt Concentration on the Fate of *Listeria monocytogenes* Isolated from Costa Rican Fresh Cheeses. *Foods*, *10*, 1722. <https://doi.org/10.3390/foods10081722> [Uploaded on MEL]

## 6.2 Abstracts and proceedings from conference presentations

- Valero, A., Bonilla-Luque, O., Sánchez-Martín, J., Serrano-Heredia, S., Pimentel-González, M., Possas, A. “Conduction of tailored challenge testing experiments in artisanal foods: data preparation for modelling purposes”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 12) (<https://doi.org/10.5281/zenodo.8067526>).

- Chrigui, S., BenZid, M., Bonilla-Luque, O., Valero, A., Boudhrioua, N. “Antibacterial and Antioxidant Activities of Methanolic and Decocted Extracts of *Salicornia arabica*: a Halophyte Plant Growing in Tunis Sebkhah”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 31) (<https://doi.org/10.5281/zenodo.8067526>).
- Bonilla-Luque, O., Possas, A., Tomasello, F., Gómez-Bravo, B., Valero, A. “Exploring the Technological and Safety Properties of Lactic Acid Bacteria Isolated from Artisanal Salchichón: in Search for a Novel Starter”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 52) (<https://doi.org/10.5281/zenodo.8067526>).
- Bonilla-Luque, O., Valero, A., Tomasello, F., López Cabo, M., Rodríguez-López, P., Possas, A. “Integration of Contributing Factors Affecting Microbiological Diversity and Food Safety throughout the Artisanal Salchichón Manufacturing”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 60) (<https://doi.org/10.5281/zenodo.8067526>).
- Bonilla-Luque, O., Possas, A. Tomasello, F., Sánchez-Martín, J., Valero, A. “Biofilm-forming Ability of *Listeria monocytogenes* and *Staphylococcus aureus* strains isolated from Artisanal Fermented Products Processing”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 63) (<https://doi.org/10.5281/zenodo.8067526>).
- Bonilla-Luque, O., Possas, A. Tomasello, F., Valero, A. “Assessing the Impact of Starter Cultures on the Behavior of *Salmonella* spp. and *Listeria monocytogenes* in Dry-Cured Fermented Sausages”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 73) (<https://doi.org/10.5281/zenodo.8067526>).

Bonilla-Luque, O., Possas, A., Ezzaky, Y., Tomasello, F., Hussein, A., Valero, A. Assessing *Listeria monocytogenes* growth in artisanal fresh goat milk cheeses over the distribution chain through the development and application of predictive models. 27th International ICMFH Conference. Food Micro2022. 28-31 August 2022, Athens (Greece).

Bonilla-Luque, O. Evaluación de la seguridad alimentaria y calidad higiénico-sanitaria en la elaboración quesera artesanal de Andalucía. Reunión de trabajo “Sector lácteo”. Plataforma Food For Life Spain. 23/11/2022.

Possas, A., Bonilla-Luque, O., Tomasello, F., Valero, A. Molecular identification and antimicrobial susceptibility of *Listeria monocytogenes* strains. FEMS Conference on Microbiology, 30 June – 2 July 2022 (Belgrade, Serbia).

Sánchez-Martín, J., Sepúlveda Gómez, M., Serrano-Heredia, S., Bonilla-Luque, O., Possas, A., Valero, A., Carrasco, E. Estudio in vitro del potencial inhibitorio de bacterias ácido-lácticas frente a *Listeria monocytogenes* en caldo de cultivo y agar a distintas temperaturas. XI Congreso Nacional CyTA-CESIA, 20-22th June, 2022 (Zaragoza, Spain). ISBN 978-84-18321-39-9.

Sánchez-Martín, J., Serrano-Heredia, S., Bonilla-Luque, O., Possas, A., Valero, A., Carrasco, E., Tomasello, F. Evaluación del efecto antimicrobiano de cultivos bioprotectores de bacterias lácticas frente a *Listeria monocytogenes* en filetes de trucha ahumados envasados a vacío. XI Congreso Nacional CyTA-CESIA, 20-22th June, 2022 (Zaragoza, Spain). ISBN 978-84-18321-39-9.

Bonilla-Luque, O., Possas, A., Valero, A. (2022). Aseguramiento de la calidad en la producción quesera andaluza artesanal: detección de fuentes de contaminación microbiológica durante la producción de queso de leche cruda de cabra. El arte de investigar: Córdoba, del 3 al 6 de mayo de 2022. UCOPress, 417-421. ISBN: 978-84-9927-712-7

Hussein, A., Possas, A., Shaker, E., Bonilla-Luque, O., Hassanien, A., Valero A. A predictive model to assess the growth of *Listeria monocytogenes* in rice pudding dessert. IAFP European Symposium on Food Safety, 4-6<sup>th</sup> May, 2022 (Munich, Germany).

Bonilla-Luque, O., Possas, A., Nunes Silva, B., Cadavez, V., Valero, A., Gonzáles-Barrón, U. (2022). Estudio de la aplicación en seguridad alimentaria de extractos de plantas comunes en la región mediterránea con capacidad antimicrobiana: una evaluación meta-analítica. XXII Congreso Nacional de Microbiología de los Alimentos. Jaén, 12-15 septiembre de 2022.

Bonilla-Luque, O., Possas, A., Tomasello, F., Valero, A. Biopreservation in Spanish Salchichón Artisanal Production: The Effect of Lactic Acid Bacteria on Microbial Hazards. IAFP European Symposium on Food Safety, 3-5<sup>th</sup> May 2023 (Aberdeen, Scotland).

Bonilla-Luque, O., Possas, A., Ezzaky, Y., Valero, A. Growth behaviour of *Listeria monocytogenes* in lab-scale artisanal goat cheeses at different storage temperatures. III International Multidisciplinary Congress of Researches in Training (CIMIF-21). 10<sup>th</sup> December 2021.

Possas, A., Bonilla-Luque, O., Sánchez Martín, J., Valero, A. Survey of bacterial pathogens at Spanish small-scale factories of traditional fermented sausages. Oral presentation. IAFP European Symposium on food safety, 2021.

<https://www.foodprotection.org/upl/downloads/meeting/archive/610b02c508abb94602272.pdf>

Bonilla-Luque, O. M., Possas, A., Valero, A. Evaluación de la seguridad alimentaria del queso artesanal elaborado con leche cruda de cabra en España. XXVIII Congreso Nacional de Microbiología de la Sociedad Española de Microbiología (SEM), 28 de junio a 2 de julio de 2021.

Possas, A. Participation as a speaker and conference organizer in: I Congreso Euroamericano de Procesos y Productos Alimentarios, Universidade Federal dos Vales do Jequitinhonha e

Mucuri, December 2021. Talk: Bioconservação: estratégias inovadoras e sustentáveis para aumentar a segurança de alimentos.

Bonilla-Luque, O., Valero, A., Ezzaky, Y., Possas, A. Descripción del comportamiento de *Listeria monocytogenes* en quesos elaborados con leche de cabra a escala laboratorial. I Congreso Euroamericano de procesos y productos alimentarios (CEAPA). 13th December 2021. ISBN 978-65-88884-12-6

Bonilla-Luque, O. M., Possas, A., Valero, A., “Calidad microbiológica del queso curado artesanal elaborado con leche cruda de cabra producido en España”. XXII Congreso Internacional de Inocuidad de Alimentos, La Universidad de Guadalajara, Online, 5-7 de noviembre del 2020.

<http://www.e-gnosis.udg.mx/index.php/inocuidad/article/download/197/149>

Possas, A., Valero, A., De Souza, P. M., “UV-C technology as a strategy to increase the microbiological safety of raw meat used to produce fermented sausages”. FEMS Online Conference on Microbiology 2020, October 28-31, 2020. URL: <https://fems-microbiology.org/opportunities/fems-conference-on-microbiology-2020/>

Possas, A. Participation in round table in: V Workshop do Programa de Pós- Graduação em Tecnologia de Alimentos e I Ciclo Internacional de Palestras, Instituto Federal Goiano, December 2020.

Possas, A. Participation as a speaker in: V Workshop do Programa de Pós- Graduação em Tecnologia de Alimentos e I Ciclo Internacional de Palestras, Instituto Federal Goiano, December 2020. Talk: Bioconservação como estratégia para aumentar a segurança de alimentos: aplicações em produtos fermentados. Link: <https://www.youtube.com/watch?v=8x84fdKdGcc&t=2187s>



Possas, A., Valero, A., Mendes De Souza, P. UV-C technology as a strategy to increase the microbiological safety of raw meat used to produce fermented sausages. FEMS online Conference on Microbiology. 28-31 October 2020.

Possas, A. Participation as a speaker in: I Congresso Brasileiro Interdisciplinar em Ciência e Tecnologia, August 2020. URL: <https://www.even3.com.br/icobicet2020/>.  
Talk: Microbiologia Preditiva: conceitos básicos e aplicações.

### 6.3 Theses

Bonilla-Luque, O. “Evaluación de las condiciones higiénico-sanitarias y seguridad microbiológica durante la elaboración de quesos artesanales de leche cruda”. Master Thesis. University of Cordoba, UCO. Spain. 39 pp. (Supervised by Valero, A., Possas, A.). [Uploaded on MEL]. (<https://zenodo.org/record/8144260>).

### 6.4. Seminars with producers

1. Seminar: “Artisane Food: Nueva estrategia de biointervención”. In collaboration with CINNGRA (Cluster de Innovación Agroalimentaria Granadino) (delivered in Spanish)  
Role: Organiser and Speaker  
Number of hours: 1  
Venue: Pol. Ind. “La Catalana” 18360 Huétor Tájar, Spain  
Date: 10 Nov 2020  
Audience: Traditional sausage makers and general public  
Link: <https://cinngra.org/artisane-food-nueva-estrategia-de-biointervencion/>

[1\_CINNGRA2020]

## 6.5 Knowledge-exchange activities

### 6.5.1 Demos or workshops

1. International Workshop: “Use of Quantitative Microbial Risk Assessment Tools. Case studies on foodborne pathogens in ready-to-eat foods”

Role: Organiser and Lecturer

Number of hours: 10

Venue: University of Cordoba, Spain

Date: 27-28 October 2022

Framework: Fulfilment of knowledge exchange activities of the PRIMA-funded project ArtiSaneFood

Audience: Postgraduate students and young researchers involved in the ArtiSaneFood consortium.

Training materials: <https://zenodo.org/record/8191067>

### 6.5.2 Mobility of young researchers

Youssef Ezzaky (Moroccan national) [1\_Youssef Ezzaky\_Morocco]

Supervisors: Antonio Valero Díaz, Aricia M. Melo Possas

Grants: Obtained from Ibn Zohr University, Morocco

Status: Ongoing; From 1<sup>st</sup> April – 31<sup>st</sup> July 2021

Research topic: Challenge testing of foodborne pathogens in artisanal cheeses (PhD student registered at the Ibn Zohr University, Morocco).

Abdelraeem Hussein (Egyptian national) [2\_Abelraeem Hussein\_Egypt]

Supervisors: Antonio Valero Díaz, Aricia M. Melo Possas

Grants: Obtained from University of Sohag, Egypt

Status: Ongoing; From 1<sup>st</sup> March – 31<sup>st</sup> July 2021

Research topic: Challenge testing of foodborne pathogens in artisanal foods (PhD student registered at the University of Sohag, Egypt).

Federico Tomasello (Italian national) [3\_ Federico Tomasello\_Italy]

Supervisors: Antonio Valero Díaz, Aricia M. Melo Possas

Grants: Obtained from University of Bologna, Italy

Status: Ongoing; From 1<sup>st</sup> November 2021 – 1<sup>st</sup> November 2022

Research topic: Training on predictive microbiology and risk assessment tools (PhD student registered at the University of Bologna, Italy).

Caterina Gamberini (Italian national) [4\_ Caterina Gamberini\_Italy]

Supervisors: Antonio Valero Díaz, Aricia M. Melo Possas

Grants: Obtained from University of Bologna, Italy

Status: Ongoing; From 1<sup>st</sup> February – 31<sup>st</sup> July 2022

Research topic: Challenge testing of foodborne pathogens in artisanal meat products (PhD student registered at the University of Bologna, Italy).

Souhaieb Chrigui (Tunisian national) [5\_ Souhaieb Chrigui \_Tunisia]

Supervisors: Antonio Valero Díaz, Aricia M. Melo Possas

Grants: Obtained from University of Manouba, Tunisia

Status: Ongoing; From 1<sup>st</sup> September – 31<sup>st</sup> December 2022

Research topic: Assessment of plant essential oils on the antimicrobial activity against foodborne pathogens (PhD student registered at the University of Manouba, Tunisia).

## 6.6 Communications to the general public

1. Leaflet produced by the UCO International Relations Office (OPI):  
<https://www.uco.es/internacional/proyectosinternacionales/2020/12/21/artisanefood/>
2. Leaflet produced by the UCO International Relations Office (OPI):  
[https://www.uco.es/investiga/grupos/hibro/images/contenidos/documentos/2020/20200723-artisanefood-eng\\_compressed.pdf](https://www.uco.es/investiga/grupos/hibro/images/contenidos/documentos/2020/20200723-artisanefood-eng_compressed.pdf)

3. Contribution to the Artisanal Food Methods Pack (Protocol disk diffusion assay).
4. Elaboration of protocols about the realization of the spot-on-the lawn test.
5. Publication in the research's group website:  
<https://www.uco.es/investiga/grupos/hibro/es/blog/163-artisanefood-la-investigacion-aumenta-la-seguridad-alimentaria-de-quesos-y-embutidos-de-elaboracion-artesanal>
6. Press release: <https://www.cordobabn.com/articulo/educacion/investigacion-aumenta-seguridad-alimentaria-proyecto-artisanefood/20200718122747053404.html>
7. Press release: <https://www.europapress.es/epagro/noticia-universidad-cordoba-participa-proyecto-aumentar-seguridad-alimentaria-quesos-embutidos-artesanales-20200716100219.html>
8. Press release: <http://biotech-spain.com/en/articles/utilizan-la-microbiologia-predictiva-para-optimizar-la-calidad-y-seguridad-alimentaria-de-los-alimentos-artesanales-producidos-en-el-mediterraneo/>

## 7. Partner AUA

### 7.1 Scientific publications

#### Submitted

Irene-Dimitra Mesimeri, Antonia S. Gounadaki, Dimitra Bozinaki, Ioanna Mandala, Georgia Moschopoulou, Spyridon Kintzios, and Panagiotis N. Skandamis. (2023). Comparison of encapsulation of oregano essential oil in  $\beta$ -Cyclodextrins at kefir and Katiki Domokou against *Listeria monocytogenes* and *Salmonella* spp. Submitted to the Journal of Food Microbiology.

Antonia S. Gounadaki, Dimitra Bozinaki, Fenia Maniaki, Georgia Moschopoulou, Spyridon Kintzios, and Panagiotis N. Skandamis. (2023). Effect of edible films incorporated with

oregano (*Origanum vulgare* L.) essential oil on the survival of *Listeria monocytogenes* inoculated postprocessing on sliced noumboulo. Submitted to the Journal of Food Control.

Dimitra Bozinaki, Antonia S. Gounadaki, Irene-Dimitra Mesimeri, Eustathia Skiathiti, Anna Mouka, Irene Papadopoulou, Ioanna Mandala, Georgia Moschopoulou, Spyridon Kintzios, and Panagiotis N. Skandamis (2023). Characterization of liposomes as encapsulating system of oregano (*Origanum vulgare* L.) essential oil and evaluation of their antimicrobial activity against *Listeria monocytogenes* and *Salmonella* spp. Submitted to the Journal of Food Protection

## 7.2 Abstracts and proceedings from conference presentations

Gounadaki A.S., Bozinaki D., Mesimeri I-D., Skiathiti E., Marabelia I., Moschopoulou G., Kintzios S. and Skandamis P.N. "Encapsulation of Oregano (*Origanum vulgare* L.) essential oil into  $\beta$ -cyclodextrin and lipidic dispersions: Characterization and Evaluation of their antimicrobial activity against *Listeria monocytogenes* in broth and model food". Poster presentation, 9<sup>th</sup> International Conference of Mikrobiokosmos, 16-18 December 2021, Athens, Greece (Book of Abstracts page 210, PP\_151) ([http://147.102.83.185:59800/Scientific\\_Program.html](http://147.102.83.185:59800/Scientific_Program.html))

Gounadaki A.S., Bozinaki D., Mesimeri I-D., Moschopoulou G., Kintzios S. and Skandamis P.N. "B-Cyclodextrins and Lipidic Dispersions as Encapsulating Vectors of Oregano (*Origanum vulgare* L.) Essential Oil: Characterization and Evaluation of Their Antimicrobial Activity Against *Listeria Monocytogenes* in Broth and Model Food". Poster presentation, IAFP, July 31 -August 3 2022, Pittsburgh, Pennsylvania (Book of Abstracts page 144, P2-37) (<https://www.foodprotection.org/annualmeeting/archive/2022/>)

Gounadaki A.S., Bozinaki D., Mannaki C. and Skandamis P.N. Εφαρμογή εδώδιμων μεμβρανών με αιθέριο έλαιο ρίγανης στον έλεγχο του παθογόνου μικροοργανισμού *Listeria monocytogenes* σε φέτες νούμπουλου κατά την υπό κενό συντήρηση στους 10°C (Application of edible films with essential oil of oregano in the control of the pathogenic microorganism

*Listeria monocytogenes* in slices of noumboulo during vacuum storage at 10°C). Oral presentation, 7<sup>o</sup> Πανελλήνιο Συνέδριο για το κρέας και τα προϊόντα του (7th Panhellenic congress on meat and products thereof), 3 – 5 February 2023 Thessaloniki, Greece (Conference program VI.06) (<https://meatnews.gr/program/>)

Gounadaki A.S., Bozinaki D., Mesimeri I-D., Moschopoulou G., Kintzios S. and Skandamis P.N. “β-Cyclodextrins and Liposomes as encapsulating vectors of Oregano (*Origanum vulgare* L.) essential oil: Evaluation of their antimicrobial activity against *Listeria monocytogenes* and *Salmonella* spp. in “Kefir Milk” and “Katiki Domokou” cheese”. Poster presentation, IAFP, 3-6 May 2023, Scotland (Abstract P2-13) (<https://iafp.confex.com/iafp/euro23/onlineprogram.cgi/Paper/32284>).

### 7.3 Communications to the general public

1. Press note published in Greek newspaper "Ypaithros Chora" on 26 March 2021, page 35.   
 *Title:* "Innovative Bio-interventions for Ensuring Microbial Safety and Quality of Mediterranean Food Products by Agricultural University of Athens".

**Καινοτόμες βιο-παρεμβάσεις του Γεωπονικού Πανεπιστημίου Αθηνών για πιο ασφαλή μεσογειακά τρόφιμα**

**Εξαιρετικά συντήσιμα και λαμβάνοντας τα μέγιστα οφέλη από την προστασία των τροφίμων, οι βιο-παρεμβάσεις του Γεωπονικού Πανεπιστημίου Αθηνών για πιο ασφαλή μεσογειακά τρόφιμα, αποτελούν την καλύτερη λύση για την αντιμετώπιση των κινδύνων που προκύπτουν από την παρουσία μικροβίων σε τροφίμα. Η χρήση βιο-παρεμβάσεων, όπως είναι οι κυκλοδεξτρίνες και οι λιπώματα, επιτρέπει την προστασία των τροφίμων από την παρουσία μικροβίων, ενώ ταυτόχρονα διατηρούν την ποιότητα και την γεύση των τροφίμων. Οι βιο-παρεμβάσεις του Γεωπονικού Πανεπιστημίου Αθηνών, αποτελούν την καλύτερη λύση για την αντιμετώπιση των κινδύνων που προκύπτουν από την παρουσία μικροβίων σε τροφίμα. Η χρήση βιο-παρεμβάσεων, όπως είναι οι κυκλοδεξτρίνες και οι λιπώματα, επιτρέπει την προστασία των τροφίμων από την παρουσία μικροβίων, ενώ ταυτόχρονα διατηρούν την ποιότητα και την γεύση των τροφίμων.**

**Καθε βιο-παρεμβάση είναι μια μικροβιοκτόνη ουσία που περιλαμβάνει κυκλοδεξτρίνες και λιπώματα. Η χρήση βιο-παρεμβάσεων επιτρέπει την προστασία των τροφίμων από την παρουσία μικροβίων, ενώ ταυτόχρονα διατηρούν την ποιότητα και την γεύση των τροφίμων. Οι βιο-παρεμβάσεις του Γεωπονικού Πανεπιστημίου Αθηνών, αποτελούν την καλύτερη λύση για την αντιμετώπιση των κινδύνων που προκύπτουν από την παρουσία μικροβίων σε τροφίμα. Η χρήση βιο-παρεμβάσεων, όπως είναι οι κυκλοδεξτρίνες και οι λιπώματα, επιτρέπει την προστασία των τροφίμων από την παρουσία μικροβίων, ενώ ταυτόχρονα διατηρούν την ποιότητα και την γεύση των τροφίμων.**

**Οι βιο-παρεμβάσεις του Γεωπονικού Πανεπιστημίου Αθηνών, αποτελούν την καλύτερη λύση για την αντιμετώπιση των κινδύνων που προκύπτουν από την παρουσία μικροβίων σε τροφίμα. Η χρήση βιο-παρεμβάσεων, όπως είναι οι κυκλοδεξτρίνες και οι λιπώματα, επιτρέπει την προστασία των τροφίμων από την παρουσία μικροβίων, ενώ ταυτόχρονα διατηρούν την ποιότητα και την γεύση των τροφίμων.**

**Η χρήση βιο-παρεμβάσεων επιτρέπει την προστασία των τροφίμων από την παρουσία μικροβίων, ενώ ταυτόχρονα διατηρούν την ποιότητα και την γεύση των τροφίμων. Οι βιο-παρεμβάσεις του Γεωπονικού Πανεπιστημίου Αθηνών, αποτελούν την καλύτερη λύση για την αντιμετώπιση των κινδύνων που προκύπτουν από την παρουσία μικροβίων σε τροφίμα. Η χρήση βιο-παρεμβάσεων, όπως είναι οι κυκλοδεξτρίνες και οι λιπώματα, επιτρέπει την προστασία των τροφίμων από την παρουσία μικροβίων, ενώ ταυτόχρονα διατηρούν την ποιότητα και την γεύση των τροφίμων.**

**Οι βιο-παρεμβάσεις του Γεωπονικού Πανεπιστημίου Αθηνών, αποτελούν την καλύτερη λύση για την αντιμετώπιση των κινδύνων που προκύπτουν από την παρουσία μικροβίων σε τροφίμα. Η χρήση βιο-παρεμβάσεων, όπως είναι οι κυκλοδεξτρίνες και οι λιπώματα, επιτρέπει την προστασία των τροφίμων από την παρουσία μικροβίων, ενώ ταυτόχρονα διατηρούν την ποιότητα και την γεύση των τροφίμων.**

**Η χρήση βιο-παρεμβάσεων επιτρέπει την προστασία των τροφίμων από την παρουσία μικροβίων, ενώ ταυτόχρονα διατηρούν την ποιότητα και την γεύση των τροφίμων. Οι βιο-παρεμβάσεις του Γεωπονικού Πανεπιστημίου Αθηνών, αποτελούν την καλύτερη λύση για την αντιμετώπιση των κινδύνων που προκύπτουν από την παρουσία μικροβίων σε τροφίμα. Η χρήση βιο-παρεμβάσεων, όπως είναι οι κυκλοδεξτρίνες και οι λιπώματα, επιτρέπει την προστασία των τροφίμων από την παρουσία μικροβίων, ενώ ταυτόχρονα διατηρούν την ποιότητα και την γεύση των τροφίμων.**

2. Press note published in Greek magazine "Tyrokomos" on June 2021, page 18. Title: "The Agricultural University of Athens improves the food quality and safety of Katiki Domokou"



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# Τυροκόμος

Τα κρυφά χαρίσματα της Μαγιάτικης Φέτας και οι πρωτοπόροι στην ανάδειξή της

Η ΝΕΑ ΓΕΝΙΑ ΚΤΗΝΟΤΡΟΦΩΝ ΚΑΝΕΙ FOCUS ΣΤΗΝ ΤΥΡΟΚΟΜΙΑ

ΓΙΔΙΝΟ Τ

Η αυθεντικότητα της γεύσης και η μεγάλη θρεπτική σ σε ένα προϊόν που είχε μείνει για χρόνια στη σκιά της Φέτας



## ΤΟ ΚΑΤΙΚΙ ΔΟΜΟΚΟΥ ΒΕΛΤΙΩΝΕΤΑΙ ΑΠΟ ΤΟ ΓΕΩΠΟΝΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ

■ **ΤΗ ΒΕΛΤΙΩΣΗ** της ποιότητας και της ασφάλειας επιλεγμένων μεσογειακών χειροποίητων αλλαντικών και τυριών που είναι γνωστό ότι επηρεάζονται από δύο προβλήματα: την εμφάνιση παθογόνων μικροοργανισμών και τη μεταβλητή / απρόβλεπτη ποιότητα των τελικών προϊόντων, αναλαμβάνει το έργο ArtisanFood που χρηματοδοτείται από τη Γ.Γ.Ε.Κ. του υπουργείου Ανάπτυξης και Επενδύσεων, στο πλαίσιο του προγράμματος PRIMA του Ορίζοντα 2020. Ο μόνος Έλληνας εταιρός είναι το Γεωπονικό Πανεπιστήμιο Αθηνών, το οποίο στοχεύει στη βελτίωση της ασφάλειας και της ποιότητας δύο παραδοσιακών ελληνικών, χειροποίητων προϊόντων και συγκεκριμένα ενός τύπου καπνιστού αλλαντικού, του Νούμπουλου και ενός τύπου μαλακού τυριού από αιγοπρόβριο γάλα, που δεν είναι άλλο από το Κατίκι Δομοκού.





3. Press note published in AUA magazine "Panorama" on October 2021, page 9-10 ([https://online.flipbuilder.com/Agricultural\\_University/aout/](https://online.flipbuilder.com/Agricultural_University/aout/) ) Title: "Innovative Bio-interventions for Ensuring Microbial Safety and Quality of Mediterranean Food"
4. Participation of ArtiSaneFOOD project during the 1st Exhibition of Research, Innovation & Technology Transfer of the Agricultural University of Athens on 28-30 September 2021, Athens, Greece



## 8. Partner UNIBO

### 8.1 Scientific publications

Crippa, C., Pasquali, F., Rodrigues, C., De Cesare, A., Gambi, L., Lucchi, A., Manfreda, G., Brisse, S., Palma, F (2023). Genomic features of *Klebsiella* isolates from artisanal ready-to-eat food production facilities. Scientific Reports, 13: 10957. [Uploaded on MEL]

Pasquali, F., Gambi, L., de Cesare, A., Crippa, C., Cadavez, V., Gonzales-Barron, U., Valero, A., Achemchem, F., Lucchi, A., Parisi, A., Manfreda, G. (2023). Resistome and virulome



diversity of foodborne pathogens isolated from artisanal food production chain of animal origin in the Mediterranean region. *Italian Journal of Food Safety*, 11(4); <https://doi.org/10.4081/ijfs.2022.10899>. [Uploaded on MEL]

Gambi, L., Crippa, C., Lucchi, A., Manfreda, G., de Cesare, A., Pasquali, F. (2023). Investigation on the microbiological hazards in an artisanal salami produced in Northern Italy and its production environment in different seasonal periods. *Italian Journal of Food Safety*, 12, 1. <https://doi.org/10.4081/ijfs.2023.10831>. [Uploaded on MEL]

Pasquali, F., Valero, A., Possas, A., Lucchi, A., Crippa, C., Gambi, L., Manfreda, G., De Cesare, A. (2022). Occurrence of foodborne pathogens in Italian soft artisanal cheeses displaying different intra- and inter-batch variability of physicochemical and microbiological parameters. *Frontiers in Microbiology*, 13. <https://doi.org/10.3389/fmicb.2022.959648>. [Uploaded on MEL]

Crippa, C., Pasquali, F., Lucchi, A., Gambi, L., De Cesare, A. (2022). Investigation on the microbiological hazards in an artisanal soft cheese produced in Northern Italy and its production environment in different seasonal periods. *Italian Journal of Food Safety*, 11, 2. <https://doi.org/10.4081/ijfs.2022.9983>. [Uploaded on MEL]

## 8.2 Abstracts and proceedings from conference presentations

Indio V., Oliveri C., Lucchi A., Barron Gonzales U., Achemchem F., Valero A., Pasquali F., Savini F., Manfreda G., De Cesare A. "Bacteria population dynamics in artisanal fermented soft cheeses as predictors of the presence of foodborne pathogens". Oral presentation at the 76th Conference of the Societa' Italiana di Scienze Veterinarie (SISVET). Bari, Italy (21-23 June 2023).

Indio V., Lucchi A., Oliveri C., Manfreda G., Pasquali F., De Cesare A. "Exploitation Pathways of the Microbiome Characterisation of Fermented Foods". In Book of Abstracts of the

ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 11) (<https://doi.org/10.5281/zenodo.8067526>).

Indio V., Oliveri C., Lucchi A., Savini F., Manfreda G., De Cesare A. “Metagenomic Investigation of Artisanal Fermented Meat from the Mediterranean Area”. n Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 44) (<https://doi.org/10.5281/zenodo.8067526>).

Indio V., Oliveri C., Lucchi A., Gonzales Barron U., Achemchem F., Valero A., Pasquali F., Savini F., Manfreda G, De Cesare A. “Metagenomic investigation of artisanal cheeses from the Mediterranean area”. Poster presentation at the European Symposium of the , Scotland (3-5 May 2023).

F. Pasquali, L. Gambi, A. De Cesare. C. Crippa, V. Cadavez, U. Gonzales-Barron, A. Valero, F. Achemchem, A. Lucchi, A. Parisi, G. Manfreda. Resistoma e Viruloma di batteri di interesse zoonotico isolati da produzioni alimentari artigianali di origine animale nell’area del Mediterraneo. XXXI Convegno Nazionale Associazione Italiana Veterinari Igienisti, Teramo (Italy), (22th -24th September 2022)

C. Crippa, F. Pasquali, C. Rodrigues, A. De Cesare, L. Gambi, A. Lucchi, G. Manfreda, S. Brisse, F. Palma. “Klebsiella pneumoniae strains isolated from artisanal food plants harbour the iuc3 locus-encoding virulence plasmid”. XIII International Meeting on Microbial Epidemiological Markers (IMMEM XIII). Bath, United Kingdom (14-17 September 2022).

C. Crippa, F. Pasquali, A. Lucchi, L. Gambi, A. De Cesare. “Valutazione del profilo di rischio microbiologico di formaggio artigianale a pasta molle Squacquerone D.O.P. e dell’impianto di produzione in differenti periodi stagionali”. XXX Convegno Nazionale Associazione Italiana Veterinari Igienisti. Virtual Seminar, (16th-17th and 23th -24th September 2021).

C. Crippa, G. Manfreda, L. Gambi, A. Lucchi, F. Pasquali, A. De Cesare. “Enumeration of natural flora and survey of foodborne pathogens in artisanal salami and its production environment”. 74° Convegno SISVET. Virtual Edition (23th-26th June 2021).

### 8.3 Theses

#### PhD Thesis

Crippa, C. “Artisanal food productions of animal origin: exploring food safety in the Age of Whole Genome Sequencing”. Doctoral Thesis. University of Bologna, UNIBO. Italy. 153 pp. (Supervised by Manfreda, G. Co-supervised by Pasquali, F.) [Uploaded on MEL] (<https://zenodo.org/record/8144381>).

#### Thesis of Master Degree

Franzese, A., “Caratterizzazione genomica di isolati di *Escherichia coli* in alimenti artigianali di origine animale”. Master Thesis. University of Bologna, UNIBO. Italy. 69 pp. (Supervised by Pasquali, F. Co-supervised by Crippa, C.) [Uploaded on MEL] (<https://zenodo.org/record/8144318>).

Filippini, M., “Genomic characterization of *Enterobacter* spp. isolates in artisanal foods of animal origin”. Master Thesis. University of Bologna, UNIBO. Italy. 80 pp. (Supervised by Pasquali, F. Co-supervised by Crippa, C.) [Uploaded on MEL]

Hurtado Paredes, S. L., “Enumerazione delle microflora autoctona e monitoraggio dei batteri patogeni di interesse alimentare in un formaggio a pasta molle”. Master Thesis. University of Bologna, UNIBO. Italy. 86 pp. (Supervised by Pasquali, F. Co-supervised by Crippa, C., Gambi, L.) [Uploaded on MEL] (<https://zenodo.org/record/8144348>).

Marcelli, E., “Caratterizzazione genomica di isolati di *Klebsiella* spp. in formaggio artigianale fresco a pasta molle”. Master Thesis. University of Bologna, UNIBO. Italy. 79 pp.

(Supervised by Pasquali, F. Co-supervised by Crippa, C., Gambi, L.) [Uploaded on MEL] (<https://zenodo.org/record/8144365>).

Dambra, L., “Enumerazione della microflora autoctona e monitoraggio dei batteri patogeni di interesse alimentare nel salame artigianale”. Master Thesis. University of Bologna, UNIBO. Italy. 63 pp. (Supervised by Pasquali, F. Co-supervised by Crippa, C., Gambi, L.) [Uploaded on MEL] (<https://zenodo.org/record/8144281>).

## 9. Partner UIZ

### 9.1 Scientific publications

#### Published

Nunes Silva, B., Bonilla-Luque, O. M., Possas, A., Ezzaky, Y., Elmoslih, A., Teixeira, J. A., Achemchem, F., Valero, A., Cadavez, V., Gonzales-Barron, U. (2023) Meta-Analysis of In Vitro Antimicrobial capacity of extracts and essential oils of *Syzygium aromaticum*, *Citrus L.* and *Origanum L.*: Contrasting the results of different antimicrobial susceptibility methods. *Foods* 2023, 12, 1265. <https://doi.org/10.3390/foods12061265> [Uploaded on MEL]

Ezzaky, Y., Zanzan, M., Achemchem, F., Ait Baddi, G., Mamouni, R. (2023). Investigating the effect of commercial starter cultures on the physicochemical and microbiological properties of Merguez an artisanal Moroccan sausage. *Malaysian Journal of Microbiology* (Accepted).

#### Submitted

Ezzaky, Y., Elmoslih, A., Silva, B. N., Bonilla-Luque, O. M., Possas, A., Teixeira, J. A., Valero, V., Cadavez, V., Gonzales-Barron, U., Achemchem, F (2023). In-vitro antimicrobial activity of extracts and essential oils of *Cinnamomum*, *Salvia* and *Mentha* against foodborne pathogens: A meta-analysis & meta-regression study. *Comprehensive Reviews in Food Science and Food Safety* (under review).

Ezzaky, Y., Zanzan, M., Cadavez, V., Gonzales-Barron, U., Achemchem, F (2023). Microbiological risks associated with Moroccan Merguez sausage and bioprotective effects of oregano and thyme essential oils against *Salmonella* spp. *Folia Microbiologica* (submitted).

Ezzaky, Y., Zanzan, M., Elmoslih, A., Achemchem, F (2023). Impact of rosemary (*Rosmarinus officinalis*) and thyme (*Thymus satureioides*) essential oils on the physicochemical, microbiological, and sensory properties of Merguez sausage during the fermentation processing. *Brazilian Journal of Microbiology* (submitted).

## 9.2 Abstracts and proceedings from conference presentations

Y. Ezzaky, M. Zanzan, A. Elidrissi, K. Boussif, A. Valero, F. Achemchem. “Oregano essential oil and processing conditions: A predictive model for effective *Salmonella* spp. inactivation in sausage medium”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 71) (<https://doi.org/10.5281/zenodo.8067526>).

Y. Ezzaky, M. Zanzan, A. Elidrissi, K. Boussif, S. Ananou, F. Achemchem. “Impact of commercial starter cultures on the microbiological and physicochemical properties of traditional Merguez sausages”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 55) (<https://doi.org/10.5281/zenodo.8067526>).

A. Elmoslih, M. Zanzan, Y. Ezzaky, A. Ait Ben Aoumar, F. Achemchem. “Biocontrol of *Listeria monocytogenes* CECT 4032 in milk, using bacteriocinproducing strain *Enterococcus mundtii* A2”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 35) (<https://doi.org/10.5281/zenodo.8067526>).

- K. Boussif, A. Elmoslih, M. Zanzan, A. Elidrissi, Y. Ezzaky, G. Ait Baddi, F. Achemchem. “Effect of commercial starter cultures and selected bacteriocinogenic LAB on the microbiological quality of goat jben cheese”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 53) (<https://doi.org/10.5281/zenodo.8067526>).
- M. Zanzan, Y. Ezzaky, A. Elidrissi, K. Boussif, F. Achemchem. “Exploring the effects of rosemary and thyme essential oils on Merguez sausage fermentation: Physicochemical, microbiological, and sensory Properties”. In Book of Abstracts of the ArtiSaneFood International Final Seminar – Biopreservation and Risk Modelling Approaches. Bragança, Portugal (24-25 May 2023) (Page 30) (<https://doi.org/10.5281/zenodo.8067526>).
- O. Maria Bonilla Luque, A. Possas, Y. Ezzaky, F. Tomasello, A. Hussein, A. Valero. “Assessing *Listeria monocytogenes* growth in artisanal fresh goat milk cheeses over the distribution chain through the development and application of predictive models”. In 27th International ICFMH Conference. Athens, Greece (28-31 August 2022).
- Y. Ezzaky, M. Zanzan, A. Elmoslih, K. Boussif, F. Achemchem. “Biopreservation potential of lactic acid bacteria from Moroccan artisan sausage”. In 1st edition Workshop-Debate: From scientific research to practice: How to achieve practical impact to address the water-energy-food security environment NEXUS Challenges?. Agadir, Morocco (29-31 March 2022)
- K. Boussif, Y. Ezzaky, M. Zanzan, F. Achemchem. “A survey on the microbiological quality of Jben, a traditional Moroccan cheese of goat”. In 1st edition Workshop-Debate: From scientific research to practice: How to achieve practical impact to address the water-energy-food security environment NEXUS Challenges?. Agadir, Morocco (29-31 March 2022)
- O. Maria Bonilla Luque, A. Possas, Y. Ezzaky, A. Valero Diaz. “Growth behaviour of *Listeria monocytogenes* in lab-scale artisanal fresh goat cheeses at different storage temperatures”. In III International Multidisciplinary Congress of Researchers in Training (CIMIF-21). Córdoba, Spain (November 29 to 3 December 2021).

- O. Maria Bonilla Luque, A. Valero Diaz, Y. Ezzaky, A. Possas. “The behavior of *Listeria monocytogenes* in cheeses made with goat's milk at laboratorial scale”. In Euro-American Congress of Food Processes and Products. Brazil (9-11 December 2021)
- Y. Ezzaky, A. Elmoslih, M. Zanzan, F. Achemchem. “Inhibitory effect of lactic acid bacteria isolated from Moroccan artisan sausage”. In 8th edition of the International Research School. Agadir, Morocco (20-22 December 2021).
- K. Boussif, A. Elmoslih, Y. Ezzaky, G. Ait Baddi, F. Achemchem. “Isolation of bacteriocinogenic lactic acid bacteria from traditional Moroccan food products”. In 8th edition of the International Research School. Agadir, Morocco (20-22 December 2021).
- Y. Ezzaky, M. Zanzan, F. Achemchem. “The bacterial quality of Merguez sold in Agadir city, Morocco”. In Online International Conference on Life Sciences. Budapest, Hungary (19-20 December 2020).
- K. Boussif, Y. Ezzaky, M. Zanzan, F. Achemchem. “Hygienic quality of traditional Moroccan cheese from Raw goat’s milk Jben”. In Online International Conference on Life Sciences. Budapest, Hungary (19-20 December 2020).
- F. Achemchem, “Utilisation des cultures bio-protectrices de bactéries lactiques en combinaison avec des extraits de plantes pour améliorer la sécurité sanitaire des aliments traditionnels : les grandes lignes du projet PRIMA ArtiSaneFood”. In 3th International Congress «Biotech 2020». Fès, Morocco (27-29 February 2020).

### 9.3 Theses

Ezzaky, Y. “Biopreservation and risk modelling approaches for ensuring microbial safety and quality of Moroccan traditional food products: Argan-almond spread Amlou and Merguez sausage”. PhD Thesis. University of Ibn Zohr, Morocco. 224 pp. (Supervised by Achemchem, F.)

Oublid, H. “Contribution à la bio-conservation et le contrôle de *Staphylococcus aureus* dans le fromage de chèvre traditionnel par l’emploi des extraits de plantes”. Master thesis: University of Ibn Zohr, Morocco. 55 pp. (Supervised by Achemchem, F., and Msanda, F.)

#### Ongoing theses to be finalised in 2024:

Boussif, K., “Biopréservation et Modélisation des Risques pour Assurer la Sécurité Microbienne et la Qualité du Fromage *Jben* de chèvre traditionnel”. PhD Thesis. University of Ibn Zohr, Morocco (Supervised by Achemchem, F.).

## 9.4 Knowledge-exchange activities

### 9.4.1 Demos or workshops

Seminar: “De la R&D à la création de Start-up” (delivered in French)

Role: Organiser and Speaker

Number of hours: 4

Venue: Salle de Conférences, EST-Agadir, Morocco

Date: 14 Jan. 2023

Audience: Researchers, PhD & Master students, and general public





### **9.4.2 Mobility of young researchers**

Youssef Ezzaky (Moroccan national) [1\_ YoussefEzzaky \_Morocco]

Supervisor: Antonio Valero

Hosting institution: University of Cordoba, Spain

Grants: Obtained from University of Ibn Zohr, Morocco

Status: From 1st April to 31st July 2021

Research topic: Innovative Biointerventions and Risk Modelling Approaches for Ensuring Microbial Safety and Quality of Mediterranean Artisanal Fermented Foods. (PhD student registered at the University of Ibn Zohr Morocco).

## **10. Partner Anses/CNIEL**

### **10.1 Scientific publications**

Basak, Subhasish, J. Christy, L. Guillier, F. Audiat-Perrin, M. Sanaa, F. Tenenhaus-Aziza, Julien Bect, and Emmanuel Vazquez (2023). Quantitative risk assessment of Haemolytic and Uremic Syndrome (HUS) from consumption of raw milk soft cheese. *Food and Ecological Systems Modelling Journal*. Submitted.

### **10.2 Abstracts and proceedings from conference presentations**

Numerical issues in maximum likelihood parameter estimation for Gaussian process interpolation with Sébastien Petit, Julien Bect and Emmanuel Vazquez. Proceedings of LOD 2021: International Conference on Machine Learning, Optimization, and Data Science.

Integration of bounded monotone functions: Revisiting the nonsequential case, with a focus on unbiased Monte Carlo (randomized) methods with Julien Bect and Emmanuel Vazquez. Proceedings of 53èmes Journées de Statistique de la Société Française de Statistique (SFDS).

13-16 June 2023 ICPMF @ University of Hokkaido - Sapporo, Japan. Title : Minimizing the risk of foodborne illness and analytical costs using a QMRA model for raw milk cheeses.

24-25 May 2023 ArtisanFood Seminar @ Instituto Politécnico de Bragança, Portugal. Title : Minimizing multi-pathogen risk and costs through control measures: an application case for raw milk cheese.

3-6 April 2023 GdR Mascot NUM @ Le Domaine Port aux Rocs - Le Croisic, France. Title : Bayesian multi-objective optimization for stochastic simulators.

16 September 2022 COPIL ArtiSaneFood @ L'Association des ODG Laitiers - Caen, France. Title : Optimisation Bayésienne pour l'appréciation quantitative des risques en microbiologie.

15 September 2022 Journée de doctorats @ L2S, CentarleSupélec - Gif-sur-yvette, France. Title : Bayesian multi-objective optimization for quantitative risk assessment in microbiology.

12-15 September 2022 IDF World Dairy Summit @ New Delhi, India (online). Poster : Quantitative risk assessment and optimization of process intervention parameters for French raw milk soft cheese.

29 Aug. – 2 Sept. 2022 IDESSAI @ Max-Planck Institute - Saarbrücken, Germany. Poster : Bayesian multi-objective optimization for quantitative risk assessment in microbiology.

7-9 July 2022 ArtisanFood meeting @ Università di Bologna - Bologna, Italy. Title : ArtiSaneFood WP 7: Study impact of intervention strategies.

13-17 June 2022 53èmes Journées de Statistique @ Université Claude Bernard - Lyon, France. Title : Integration of bounded monotone functions: Revisiting the nonsequential case, with a focus on unbiased Monte Carlo (randomized) methods.

7-9 June 2022 GdR Mascot NUM @ Sigma Clermont - Clermont-Ferrand, France. Poster :  
Bayesian multi-objective optimization for quantitative risk assessment in microbiology.

4-8 October 2021 LOD – 7th International Conference - Grasmere, UK (online). Title :  
Numerical issues in maximum likelihood parameter estimation for Gaussian process  
interpolation.

29 September 2021 Journée de doctorats @ L2S, CentarleSupélec - Gif-sur-yvette, France.  
Poster : Variance reduction with stratified sampling for bounded monotone function.

10 March 2021 DCE reading group @ The Alan Turing Institute - London, UK (online). Title :  
Numerical issues in maximum likelihood parameter estimation for Gaussian process  
interpolation.

### **10.3 Seminars with producers**

Presentation of the ArtiSanefood project and work advancements to the Steering Committee of  
the French part of the project, constituted, among others, of cheese producers.

- 2 July 2023, in Paris, France

- 16 Sept 2022, in Caen, Region of Normandy, France

### **10.4 Knowledge-exchange activities**

In November 2022, a presentation of the predictive microbiology and risk assessment tools was  
made by partners CNIEL (Fanny Tenenhaus-Aziza) and ANSES (Laurent Guillier) during an  
online workshop. The agenda of the workshop meeting was:

- Monday, November, the 21st - Morning session : 9:30 AM to 12:00 AM
  - Introduction on Quantitative Risk Assessment applied to microbiology.
  - Building a process risk model

- Application on the software R and Excel -> Excel was required and installation of the software RStudio and in particular the package “fitdistrplus” encouraged (<https://posit.co/download/rstudio-desktop/> )
- Monday, November, the 21st - Afternoon session 1:30 to 4:00 PM
  - Application on MicroHibro -> participants were required to create an account on the MicroHibro website <https://www.microhibro.com/>
  - Presentation of RAKIP
- Tuesday, November, the 22nd - Afternoon session 1:30 to 4:00 PM
  - Introduction on microbiological sampling plan
  - Building a sampling plan
  - Application on existing tools

Up to 26 participants participated to the workshop during the two days.

Training materials: <https://zenodo.org/record/8101977>.

## 11. Videos for training

Five demonstration videos for training were recorded as part of the ArtiSaneFood Methods Pack.

1. Ben Hmidene, I., Coelho-Fernandes, S., Faria, A. S., Cadavez, V., & Gonzales-Barron, U. (2022, February 28). Conduction of Fate Studies in Laboratory-Made Sausages (Version 1). Zenodo. <https://doi.org/10.5281/zenodo.8094876>

Video demonstrating the steps followed for the conduction of fate studies of a foodborne pathogen in laboratory-made sausages.

2. Valero, Antonio, & Achemchem, Fouad. (2021, June 9). Protocols for the Isolation of Lactic Acid Bacteria and Determination of the Inhibition Diameter. Zenodo.

<https://doi.org/10.5281/zenodo.5949260>

Video demonstrating the protocols for the isolation of lactic acid bacteria and the determination of the inhibition diameter

3. Skandamis, Panangiotis, & Moschopolou, Georgia. (2021, May 9). Determination of Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC). Zenodo. <https://doi.org/10.5281/zenodo.5949367>

Video demonstrating the protocol for determination of minimum inhibitory concentration (MIC) and minimum bactericidal concentration

4. De Cesare, Alessandra, & Manfreda, Gerardo. (2021, January 9). Protocol for DNA Extraction from Cheese. Zenodo. <https://doi.org/10.5281/zenodo.5949354>

Video demonstrating the protocol for DNA extraction from cheese based on PowerFood Microbial DNA isolation kit MO BIO.

5. De Cesare, Alessandra, & Manfreda, Gerardo. (2021, January 9). Protocol for Extraction of High-Molecular-Weight Genomic DNA from Gram-Negative Bacteria. Zenodo. <https://doi.org/10.5281/zenodo.5949312>

Protocol for extraction of High-Molecular-Weight Genomic DNA from Gram-Negative bacteria based on MagAttract HMW DNA kit QIAGEN.

## **12. The Final Seminar**

The Consortium organised the face-to-face event “International Seminar: ArtiSaneFood – Biopreservation and Risk Modelling Approaches” as the final public dissemination event of the ArtiSaneFood project at the Polytechnic Institute of Bragança, Portugal, on the 24-25<sup>th</sup> May 2023.

At this event, seventy-four contributions were presented in five sessions, namely: (1) Biopreservatives as agents to ensure quality of artisanal foods; (2) Bioprotective lactic acid bacteria in artisanal foods; (3) The microbiome of fermented foods; (4) Predictive modelling in artisanal foods; and (5) Miscellaneous topics on quality of traditional foods. In addition, a session of miscellaneous e-posters took place for those researchers who could not be present at the event,

and participated online. The food safety decision-support tool “ArtiSaneFood” was launched at this event.

The Book of Abstracts of this event, in electronic version, can be found at <https://doi.org/10.5281/zenodo.8067526>:

Gonzales-Barron, U. & Cadavez, V., Eds. (2023). ArtiSaneFood – Biopreservation and Risk Modelling Approaches: Book of Abstracts (p. 87). Instituto Politécnico de Bragança. ISBN 978-972-745-320-7.

Video of the Final Seminar: <https://www.youtube.com/watch?v=fVHWurZK-y8>







