

ProdAL Scarl – University of Salerno | e-mail: nonthermal@prodalricerche.it

(<mailto:nonthermal@prodalricerche.it>) | Tel.: +39 089 964028

f (<https://www.facebook.com/events/201481263950686/>) **t** () **@** ()

in (<https://www.linkedin.com/groups/1785303>) **📍** (<https://goo.gl/maps/xMjQGv4RK312>)



(<http://nonthermal.prodalricerche.com/>) (<http://nonthermal.prodalricerche.com/>)

(<http://nonthermal.prodalricerche.com/>)



September 25 – Morning session

8:00 AM-8:30 AM – Late registration

8:30-9:00 – Welcome and Workshop presentation

Giovanna Ferrari

University of Salerno and ProdAL Scarl, Italy

Gustavo Barbosa-Canovas

Washington State University and IFT, USA

↑ TOP

M. Cap¹, C. Cingolani², C. Lires², Sergio R. Vaudagna^{1,3}, G. Leotta⁴, C. Horak²

¹*Centro de Investigación de Agroindustria – INTA, Argentina*

²*Comisión Nacional de Energía Atómica – CNEA, Argentina*

³*Consejo Nacional de Investigaciones Científicas y Técnicas – CONICET, Argentina*

⁴*Universidad Nacional de La Plata – CONICET, Argentina*

Comparative study of the effect of High Pressure and Pulsed Electromagnetic Fields technologies on sea-bream fillets quality indices and shelf-life extension

M. Giannoglou¹, A. Efthimiadou¹, G. Eleni², George Katsaros¹

¹*Hellenic Agricultural Organization-DEMETER, Greece*

²*SELONDA Aquaculture SA, Greece*

How gamma radiation affects antimicrobial potential of medicinal plants: *Mentha x piperita* L. as a case study

E. Pereira¹, A.I. Pimenta², L. Barros¹, Amílcar L. Antonio¹, S. Cabo Verde², I.C.F.R. Ferreira¹

¹*Instituto Politécnico de Bragança, Portugal*

²*Universidade de Lisboa, Portugal*

Combined effect of high pressure, nisin and mild temperatures on the inactivation of *Listeria innocua* and *Escherichia coli* in carrot juice

Prashant Raj Pokhrel¹, T. Toniazzo^{1,2}, S. Sablani¹, J. Tang¹, G.V. Barbosa-Cánovas¹

¹*Washington State University, WA*

↑ TOP

How gamma radiation affects antimicrobial potential of medicinal plants: *Mentha x piperita* L. as a case study

Eliana Pereira¹, Andreia I. Pimenta², Lillian Barros¹, Amilcar L. Antonio¹, Sandra Cabo Verde², Isabel C.F.R. Ferreira^{1,*}

¹ Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança, Bragança, Portugal;

² Centro de Ciências e Tecnologias Nucleares (C2TN), Instituto Superior Técnico, Universidade de Lisboa, Bobadela, Portugal.

*iferreira@ipb.pt

Abstract: Medicinal plants are being used by the food and pharmaceutical industries to extract relevant compounds. To be used in these industries as raw materials, it is required the non-presence of microorganisms. Therefore, it is essential that they undergo a decontamination process before entering processing lines, and these methods should not compromise their bioactive properties. In this context a non-thermal technology, gamma irradiation, was used as a decontamination procedure. For this purpose, samples of *Mentha piperita* L. (peppermint) was irradiated using a ⁶⁰Co experimental chamber, at the doses of 1, 5, and 10 kGy. The hydroethanolic extracts were then further evaluated through the virucidal efficacy assay, using two enteric viruses – human adenovirus type-5 (HAdV-5) and murine norovirus type-1 (MNV-1, as a human norovirus surrogate). The antibacterial activity was evaluated against a set of Gram-positive and Gram-negative bacteria. For the virucidal activity, data suggested that the irradiation treatment of all species can preserve the natural properties of the plant against enteric viral pathogens. The hydroethanolic extracts of peppermint reveal a low antibacterial potential for all the tested bacteria. However, antibacterial activity of gamma irradiated samples did not affect this bioactivity for none of the microbial agents tested. Validation of antimicrobial potential of medicinal plants, after gamma irradiation processing, are scarce in the literature. This study allowed defining the influence of this treatment on the bioactive properties of peppermint.

Acknowledgements

Foundation for Science and Technology (FCT, Portugal) and FEDER under Programme PT2020, for financial support to CIMO (UID/AGR/00690/2013), C2TN (UID/Multi/04349/2013), L. Barros contract; The authors are grateful to FEDER-Interreg España-Portugal programme for financial support through the project 0377_Iberphenol_6_E.