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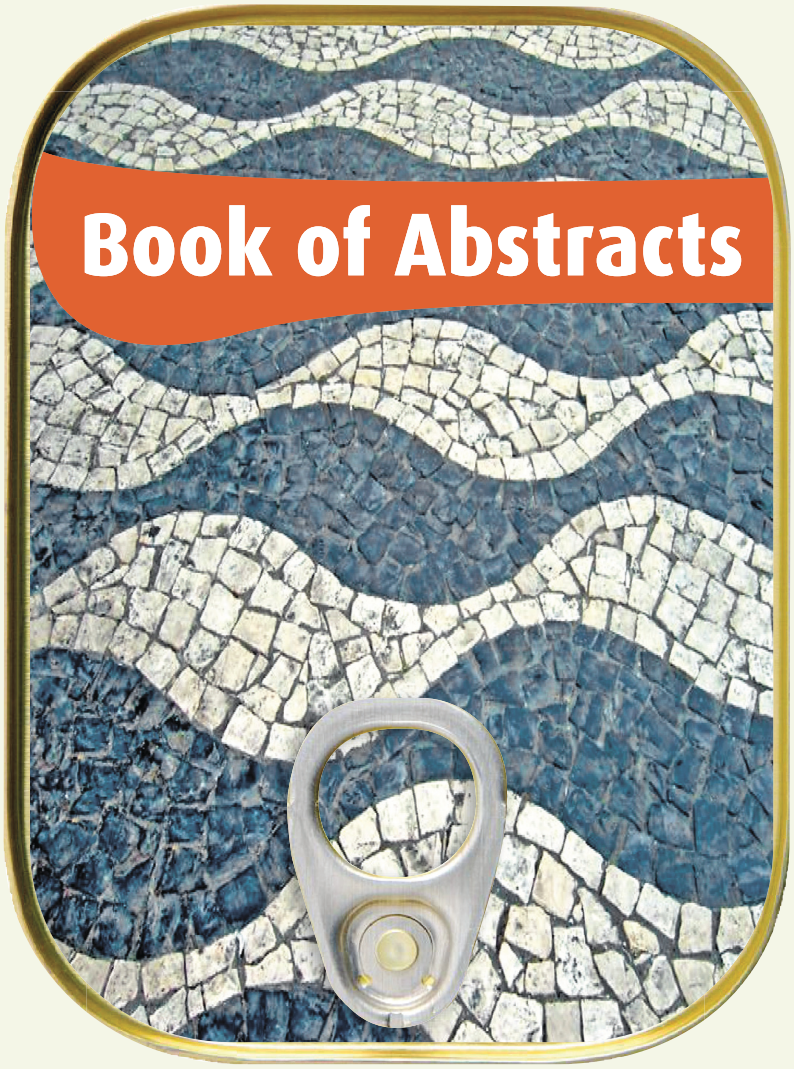
International Conference on Safety
and Innovation in Food Packaging 2016



National Institute of Health Dr Ricardo Jorge
Lisbon, Portugal

16th June 2016

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International Conference on Safety and Innovation in Food Packaging 2016

Book of Abstracts

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Conference Program

8:30 - 9:00	REGISTRATION	
9:00 - 9:30	Opening Session	Executive Board of INSA, I.P.
9:30 - 9:45	Insights on safety and innovation in Food Packaging	Ana Sanches Silva (INSA, Portugal)
9:45 - 11:10	**Session 1: Emergent issues on Food Packaging safety**	Chairs: Fernando Ramos & Giovanna Buonocore
	Migration modeling as screening tool for specific migration	Perfecto Paseiro Losada (USC, Spain)
	Use of inert gas-enriched atmospheres and post-packaging irradiation in shelf-life extension of watercress	José Pinela (CIMO, Portugal)
	Hygienic properties of fruits and vegetables packaging - comparison between wood and plastic	Ana Luísa Fernando (UNL, Portugal)
	Viral disinfection of strawberries and raspberries by gamma radiation	Andreia Pimenta (IST, Portugal)
11:10 - 11:40	Coffee break	
11:40 - 12:30	**Session 2: Food packaging laws and regulations**	Chairs: Ana Vera Machado & Susana Bernardino
	Current US Migration protocols for coatings. Strategies for potential migrant determination	Rafael Paseiro-Cerrato (FDA, USA)
	New developments in exposure assessment of FCM in EU	Maria do Céu Selbourne (UCP, Portugal)
	Review of new analytical techniques for food contact materials	Joel Pereira (UCP, Portugal)
12:30 - 14:00	Lunch	
14:00 - 15:00	**Session 3: Nano, Active and Intelligent packaging**	Chairs: Ana Luísa Fernando & Rafael Paseiro-Cerrato
	Nanostructured polymers as innovative materials for active food packaging	Giovanna Buonocore (CNR, Italy)
	Advanced films from architectured hybrid nanoparticles	José Paulo Farinha (IST, Portugal)
	Antioxidant active packaging based on chitosan incorporated with different essential oils	Victor de Souza (UNL, Portugal)
	Controlling permeability via morphological control: A safe approach for food packaging	Artur Mateus (IPL, Portugal)
15:00 - 15:30	Coffee break	
15:30 - 16:30	**Session 4: Bio food packaging**	Chairs: Perfecto Paseiro & Fátima Vaz
	Biomaterials with potential use for active packaging	Nathália Ramos de Melo (UFF/UFRRJ, Brazil)
	Biopolymer coatings for food packaging applications	Khaoula Khwaldia (INRAP, Tunisia)
	PLA nanocomposites: development, properties and environment	Ana Vera Machado (UM, Portugal)
16:30 - 17:00	**Best poster award. Closing ceremony**	Maria Antónia Calhau (INSA, Portugal)

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Oral Communications

OC-01

USE OF INERT GAS-ENRICHED ATMOSPHERES AND POST-PACKAGING IRRADIATION IN SHELF-LIFE EXTENSION OF WATERCRESS

José Pinela[1,2], Lillian Barros[1], Amilcar L. Antonio[1], João C.M. Barreira[1,2], Sandra Cabo Verde[3], Ana Maria Carvalho[1], M. Beatriz P.P. Oliveira[2], Isabel C.F.R. Ferreira[1] *

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Watercress (*Nasturtium officinale* R. Br.) is a semi-aquatic plant of the Brassicaceae family highly appreciated in the Mediterranean cuisine. It features sharp, peppery and slightly tangy taste and contains health-promoting phytochemicals. Its consumption as a fresh-cut product has increased in recent years, as well as the global market of minimally processed vegetables. This demand is driven by the growing interest in the role of food in promoting the human health and well-being and to meet consumer needs for fresh-like and more convenient foods. Due to the reduced shelf-life of this plant, the suitability of inert gas-enriched atmospheres and ionizing irradiation for preserving visual, nutritional and functional quality attributes during cold storage was studied. Watercress samples were gathered in the Northeast region of Portugal, rinsed in tap water and a portion was immediately analyzed (non-stored control). The remaining fresh material was packaged in polyethylene bags under N2- and Ar-enriched atmospheres, conventional atmosphere (air) and vacuum (no atmosphere). Samples under conventional atmosphere were irradiated at 1, 2 and 5 kGy of gamma-rays (predicted doses) in a 60Co experimental chamber. A non-irradiated control followed all the experiment. Then, all packaged samples were stored at 4 ºC for 7 days. The studied quality parameters included the colour that was measured with a Konica Minolta colorimeter, and total soluble solids and pH determined in squeezed juice. The proximate composition (moisture, proteins, fat, ash, carbohydrates and energy) was evaluated using the AOAC procedures. Organic acids, free sugars, fatty acids and tocopherols were analyzed by chromatographic techniques. Samples were also evaluated for its DPPH· scavenging activity, reducing power, and lipid peroxidation inhibition capacity trough the inhibition of the β-carotene bleaching and thiobarbituric acid reactive substances (TBARS) formation. Differences among treatments were analyzed using the one-way analysis of variance (ANOVA) and a linear discriminant analysis (LDA) was used to evaluate the effects on the overall postharvest quality. After evaluating the effect on the individual quality parameters, the LDA revealed that the Ar-enriched atmosphere and the irradiation at 2 kGy were suitable processing choices for preserving the integrity of the non-stored control samples during cold storage. Thus, these non-thermal treatments were highlighted for shelf-life extension of fresh-cut watercress.

Keywords: fresh-cut watercress, modified atmosphere packaging, gamma irradiation, cold storage, postharvest quality.

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Certificate of participation

This is to certify that

José Virgilio Santulhão Pinela

has attended *the International Conference on Safety and Innovation in Food Packaging 2016* (InSIPack), organized by INSA and held in Lisbon (Portugal) on the 16th June 2016.

Lisbon, 16th June 2016

Chairman of the Executive Board
National Institute of Health Dr Ricardo Jorge (INSA), I.P.

Dr. Fernando de Almeida

Certificado n.º 432/2016