



BOOK OF ABSTRACTS

TITLE

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XX EUROFOODCHEM CONGRESS

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Congress organized under the auspices of the Food Chemistry Division of the European Chemical Society (FCD-EuChemS) and the Portuguese Chemical Society (SPQ).



12:30-12:45 Maria Rita Martins - Acorn Flour as bioactive compounds source in gluten free bread

Room 2 – Food Safety – Chairperson: Reto Battaglia

11:45-12:00 Zuzana Ciesarová - Health promoting foods with sea buckthorn: more benefits, less acrylamide

12:0-12:15 Rebeca Cruz- -Is it safe to eat seafood? A case study of flame-retardants

12:15-12:30 Iolanda Nicolau-Lapeña - Selecting alternatives to chlorine for strawberry sanitation while maintaining nutritional and physicochemical quality

12:30-12:45 Lieselot Hemeryck - Investigation of diet-related DNA adduct formation by means of DNA adductomics

Room 3 – Food Sustainability – Chairperson: Susana Cardoso

11:45-12:00 Kandi Sridhar - Kinetics modeling and effect of drying temperature on new commercial grape 'Kyoho' skin: Evaluation for functional and antioxidant properties

12:0-12:15 Franziska Hanschen - Stability of glucosinolate hydrolysis products and the identification of novel compounds in foods

12:15-12:30 Rossana Cardoso - Gamma irradiation preserves nutritional and chemical composition of *Agaricus bisporus* Portobello

12:30-12:45 Thi-Van-Linh Nguyen - Effects of Drying Conditions in Low-temperature Microwave-assisted Drying on Bioactive Compounds and Antioxidant Activity of Dehydrated Bitter Melon Slices (*Momordica charantia* L.)

Keynote 1 – Chairperson: Fernando Ramos

12:45-13:15 **Nicoletta Pellegrini** - Food design and low-calorie intake

13:15-14:30 *Lunch break*

Plenary session 2 – Chairperson: Tanja Dcirkovic Velickovic

14:30-15:10 **Isabel CFR Ferreira** - Functionalizing food with natural bioactive ingredients

Room 1 – Functional Foods – Chairperson: Nadia Mulinacci

15:15–15:30 Bartosz Fotschki - The effect of diets supplemented with hemp and poppy seed oils on the development of obesity-related disorders in Zucker rats

15:30-15:45 Oludemi Taofiq - Enhanced extraction of ergosterol from *Pleurotus ostreatus* using response surface methodology (RSM)

15:45-16:00 Tuba Esatbeyoglu - Biological activities of stilbenoids in vitro

16:00-16:15 Giovanni Caprioli - Simultaneous quantification of 30 different bioactive compounds including polyphenols in spent coffee ground and coffee silverskin by HPLC-MS/MS triple quadrupole

Room 2 – Food Composition – Chairperson: Roberto Larcher

15:15–15:30 Antonio Salatino - How diverse is Brazilian propolis?

ORAL COMMUNICATIONS

Food Processing

Gamma irradiation preserves nutritional and chemical composition of *Agaricus bisporus* Portobello

Rossana V. C. Cardoso^{1,2}, Ângela Fernandes¹, João C.M. Barreira¹, Sandra Cabo Verde³, Amílcar L. Antonio¹, Pedro M.P. Santos³, Ana M. González-Paramás², Lillian Barros¹, Isabel C.F.R. Ferreira^{1,*}

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Mushrooms are being increasingly produced and consumed, but their high perishability still represents a major drawback for commercial purposes. Besides the main effect of increasing the product shelf-life, the conservation technologies should be the most innocuous possible for the consumers. Among the current approaches, irradiation technologies seem to represent interesting alternatives [1, 2].

The present work reports the effects of gamma radiation (1, 2 and 5 kGy) and storage time (0, 4 and 8 days at 5 °C) on the nutritional (moisture, fat, proteins, ash, carbohydrates and energy) and chemical composition (free sugars, ergosterol, tocopherols, organic acids and fatty acids) of *Agaricus bisporus* Portobello fresh samples, and the results were compared with control samples (0 kGy, non-irradiated). The irradiation was performed in a Co-60 experimental four sources chamber. The proximate composition was evaluated by AOAC official procedures. Free sugars, ergosterol and tocopherols were determined using high performance liquid chromatography coupled to a refraction index, UV and fluorescence detector, respectively; organic acids were determined using ultrafast liquid chromatography coupled to a diode array detector, while fatty acids were determined using a gas chromatography coupled to a flame ionization detector [3].

Irradiation dose did not exert any remarkably negative effect over the nutritional parameters of stored (up to 8 days) Portobello samples, specifically the irradiated samples at 5 kGy indicated a preserved nutritional profile with the highest levels of protein. It was possible to observe the maintenance of fructose, mannitol and trehalose contents in the irradiated samples, along storage time. All the applied doses also preserved the total organic acids (oxalic, quinic and malic acids) in relation to the control sample. A higher ergosterol level was found in samples irradiated at 2 kGy, while the highest percentages of C16:0 (8.6%) were found in samples treated with 5 kGy.

Gamma irradiation was effective in maintaining nutritional and chemical profiles throughout the assayed time intervals. Accordingly, this technology might represent an effective preservation approach for Portobello mushrooms.

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References:

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- [2] Directive 1999/2/CE, Official Journal L, 66, 13th March, p. 16 - 22.
- [3] R.V.C. Cardoso, Â. Fernandes, J.C.M. Barreira, S.C. Verde, A. L. Antonio, A.M. González-Paramás, L. Barros, I.C.F.R. Ferreira, Food Chemistry, 278 (2019) 760-766.,