

FINAL PROGRAM

# EUROFOODCHEM XVIII

OCTOBER 13-16, 2015  
MADRID, SPAIN

## UPCOMING CHALLENGES IN FOOD SCIENCE



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**CHC-P-112** STUDY OF PLASTICIZER MIGRATION PROCESSES FROM DOMESTIC CONTAINERS USED FOR STORAGE AND PROCESSING

*Mónica Ávila; Sergio Izcarra; Belén Gomara*

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**CHC-P-113** BROWNING REACTIONS IN WHEY PERMEATES

*Anke Förster; Marco Krämer; Marlies Götze; Thomas Henle*

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**CHC-P-114** IMPROVEMENT OF THE ANTIFOULING PERFORMANCES OF PVDF ULTRAFILTRATION MEMBRANE BY ATMOSPHERIC PRESSURE PLASMA SURFACE MODIFICATION IN WHEY PROCESSING

*Irem Damar Huner; Haci Ali Gulec*

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**CHC-P-115** QUANTIFICATION OF MAILLARD REACTION PRODUCTS IN BEER

*Michael Hellwig; Sophia Witte; Arndt Nobis; Thomas Henle*

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**CHC-P-116** POLYPHENOLS CONTENT AND AROMA COMPOSITION OF CIDERS TYPICALLY PRODUCED IN AOSTA VALLEY

*Sabina Valentini; Monica Chasseur; Laura Thedy; Marcello Freguglia; Antonella Sado; Provino Lale Demoz; Ivan Barrel; Morgan Diemoz; Andrea Barmaz*

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**CHC-P-117** FORMATION OF MAILLARD REACTION PRODUCTS DURING ROASTING OF HAZELNUTS

*Sophia Witte; Martin Globisch; Thomas Henle*

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**CHC-P-118** NUTRITIONAL VALUE OF INSECTS FROM ANGOLA

*Anke Förster; Thea Lautenschläger; Matthias Nuss; Thomas Henle*

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**CHC-P-119** GAMMA IRRADIATION AT 2 KGY TO PRESERVE WILD EDIBLE MUSHROOMS: EFFECTS ON CHEMICAL PARAMETERS

*José Pinela; Ângela Fernandes; Amilcar L. Antonio; João C.M. Barreira; M. Beatriz P.P. Oliveira; Anabela Martins; Isabel C.F.R. Ferreira*

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**CHC-P-120** SEPARATION OF WHEY PROTEINS FROM MILK BY POLY(ETHERSULFONE) MICROPOROUS MEMBRANE: EFFECT OF FEED COMPOSITION

*Haci Ali Gulec; Kadir Cinar*

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**CHC-P-121** EFFECT OF HIGH TEMPERATURE AND HUMIDITY IN STORAGE ON EMULSIBILITY OF SOY PROTEIN ISOLATE

*Bingyu Sun; Yanguo Shi*

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**CHC-P-122** EFFECT OF LIGHT EMITTING DIODE ON GABA CONTENT AND ANTIOXIDANT ACTIVITY OF BARLEY GERMINATION

*Mi Ja Lee; Woo Duck Seo; Kyung Hye Seo; Hyeon Jung Kang; Sun Lim Kim*

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**CHC-P-123** STORAGE STABILITY OF ANTIOXIDANT PEPTIDES FROM EGG WHITE PROTEIN

*Yujie Chi; Yuan Cheng; Ying Zhao*

## GAMMA IRRADIATION AT 2 KGY TO PRESERVE WILD EDIBLE MUSHROOMS: EFFECTS ON CHEMICAL PARAMETERS

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In spite of the immense popularity of mushrooms in the Northeast of Portugal, one of the European regions with higher wild edible mushrooms diversity, alternative technologies to increase mushrooms shelf-life are scarce. Treatment by irradiation emerges as a possible preservation technique, destroying microorganisms or insects that could be present in food and, sometimes, improving functional properties, with the least effects on sensory and nutritive quality (1). It has been successfully tested in several foods such as fruits, vegetables, meat, fish, aromatic and medicinal plants, being regulated by the European Union (EU) through the Directive (EC) No 1999/2/EC (2). In different countries (Croatia, Hungary, Poland, United Kingdom, Mexico) the recommended dose for extending the shelf life of fresh mushrooms is 1-3 kGy (3). Therefore, the aim of the present work was to validate the use of gamma irradiation at 2 kGy to maintain chemical parameters of wild mushrooms. The fruiting bodies of *Boletus pinophilus* Pilát & Dermek and *Clitocybe subconnexa* Murrill were collected in Trás-os-Montes (Northeast of Portugal) in November 2012 and 2013, respectively. The irradiation of these samples was carried out in experimental equipment with four <sup>60</sup>Co sources. The estimated doses, dose rates and dose uniformity ratios (Dmax/Dmin) were: 2.09±0.16 kGy, 1.56 kGy/h, 1.18 for *B. pinicola*; and 1.95±0.22 kGy, 1.95 kGy/h, 1.33 and for *C. subconnexa*. The proximate composition was evaluated by official procedures, fatty acids were analyzed by gas-chromatography coupled to flame ionization detection (GC-FID), while sugars and tocopherols were determined by high performance liquid chromatography (HPLC) coupled to refraction index (RI) and fluorescence detectors, respectively. Some of the analyzed chemical parameters (especially sugars and fatty acids) showed significant changes after irradiation treatment, particularly in *B. pinophilus*, probably due to its higher water content. Nevertheless, the obtained differences did not seem to be sufficient to change the organoleptic characteristics of these mushrooms. The detected chemical changes might be considered as acceptable, when considering the high advantages of gamma irradiation at decontamination and/or disinfestation level.

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### References:

- (1) Fernandes Â et al. (2013) Effect of gamma irradiation on chemical composition and antioxidant potential of processed samples of the wild mushroom *Macrolepiota procera*. *Food Chem.* 149, 91-98.
- (2) EU (1999) On the approximation of the laws of the Member States concerning foods and food ingredients treated with ionising radiation. Directive 1999/2/EC, OJEC p. 16-22.
- (3) Akram K & Kwon J-H (2010) Food Irradiation for Mushrooms: A Review. *J. Korean Soc. Appl. Biol. Chem.* 53, 257-265.

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## CERTIFICATE OF COMMUNICATION

I hereby certify that:

**José Pinela; Ângela Fernandes; Amilcar L. Antonio; João C.M. Barreira; M. Beatriz P.P. Oliveira; Anabela Martins; Isabel C.F.R. Ferreira**

have presented the POSTER entitled:

**GAMMA IRRADIATION AT 2 KGY TO PRESERVE WILD EDIBLE MUSHROOMS: EFFECTS ON CHEMICAL PARAMETERS**

during the **EURO FOOD CHEM XVIII**,  
celebrated in Madrid on October 13<sup>th</sup>-16<sup>th</sup>, 2015

Dr. Juana Frías  
Chair

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