5th Portuguese Young Chemists Meeting

(5th PYCheM)

&

1st European Young Chemists Meeting

(1st EYCheM)

Centro Cultural Vila Flor

Guimarães, Portugal

26th – 29th of April

ICVS/3B's

Câmara Municipal de Guimarães

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General Programme

	26 April	27 April	28 April	29 April
9:00-13:20	Registration and Workshop of Open Science and European Open Access Policies in H2020	Organic Chemistry and Medicinal Chemistry	Inorganic, Physical, Analytical and Electrochemistry	Materials Chemistry and Nanomaterials and Surface Chemistry
13:30	Opening Ceremony	Lunch	Lunch	Lunch
14:00 - 18:00	Green Chemistry + Chemistry of Natural Products	Biochemistry and Medicinal Chemistry	CHEM2NATURE Symposium. Chemical strategies for modification of natural origin materials Assembleia GQJ (17h)	Materials Chemistry and Nanomaterials and Surface Chemistry
18:00		Walking Tour		Closing Ceremony
19:00	Welcome Cocktail		Gala Dinner	
21:30	Get-together night			

P2. Effects of electron-beam irradiation on chemical and antioxidant parameters of wild *Macrolepiota procera* dried samples

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Abstract
Mushrooms are very perishable foods due to their high susceptibility to moisture loss, changes in color and texture, or microbiological spoilage. Drying is considered as the most appropriate method to prevent these alterations, but it has some limitations, such as shrinkage, enzymatic and non-enzymatic browning reactions, and oxidation of lipids and vitamins. Irradiation might effectively attenuate the undesirable changes caused by drying process, ensuring also higher shelf-life of mushrooms and their decontamination [1]. In the present work, the combined effects of electron-beam irradiation (at 0, 0.5, 1 and 6 kGy doses) and storage time (at 0, 6 and 12 months) were evaluated and compared. *Macrolepiota procera* (Scop.) Singer wild samples were obtained in Trás-os-Montes, in the Northeast of Portugal, and dried at 30 °C in an oven. Subsequently, the samples were divided in four groups: control (non-irradiated, 0 kGy); sample 1 (0.5 kGy); sample 2 (1 kGy) and sample 3 (6 kGy). The irradiation was performed at the INCT-Institute of Nuclear Chemistry and Technology (INCT), in Warsaw, Poland. Moisture, protein, fat, carbohydrates and ash were determined following standard procedures. Free sugars and tocopherols were determined by high performance liquid chromatography coupled to a refraction index detector (HPLC-RI) and a fluorescence detector, respectively; fatty acids were determined by gas-liquid chromatography with flame ionization detection (GC-FID). Antioxidant activity was evaluated in the methanolic extracts by *in vitro* assays measuring DPPH (1,1-diphenyl-2-picrylhydrazyl) radical scavenging activity, reducing power, inhibition of β-carotene bleaching and inhibition of lipid peroxidation using thiobarbituric acid reactive substances (TBARS) assay. Total phenolics were also determined by the Folin-Ciocalteu assay. All the parameters showed a decrease tendency with storage time. Trehalose and γ-tocopherol were preserved with 1 kGy dose. Electron-beam irradiation did not impart additional changes to most of the chemical and antioxidant parameters of *M. procera* dried samples.
This is a very promising result, since electron-beam irradiation might attenuate most unwanted changes caused by drying, maintaining its long-term effectiveness.

References
[1] Fernandes, Â., Barreira, J. C. M.; Antonio, A. L.; Oliveira, M. B. P. P.; Martins, A.; Ferreira, I. C. F. R., Food Bioprocess Technol 2014, 7, 1606–1617.

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