BOOK OF ABSTRACTS

International conference on new knowledge on chemical reactions during food processing and storage

CHEMICAL REACTIONS IN FOODS VII

November 14–16, 2012
Prague, Czech Republic

J. Pulkrabová, M. Tomaniová, V. Godulová, K. Cejpek and J. Hajšlová
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INSTITUTE OF CHEMICAL TECHNOLOGY PRAGUE

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Edited by
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November 14–16, 2012 • Prague • Czech Republic

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Department of Food Analysis and Nutrition
&
Food Research Institute Prague, Czech Republic
&
Czech Chemical Society
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&
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COMPARATIVE EFFECTS OF ELECTRON BEAM AND GAMMA RADIATION ON THE TRIACYLGLYCEROL PROFILES OF PORTUGUESE CHESTNUTS (*CASTANEA SATIVA* MILL.)

João C. M. Barreira[1], Amilcar L. Antonio[2*], Carocho Márcio[3], Isabel C. F. R. Ferreira[4], Kaluska Iwona[5], M. Luisa Botelho[6], Albino Bento[7], M. Beatriz P. P. Oliveira[8]

[1] CIMO/School of Agriculture, Polytech Inst. Bragança, Portugal; REQUIMTE, Fac. Pharmacy Univ. Porto, Portugal
[2] CIMO/School of Agriculture, Polytech Inst. Bragança, Portugal; IST/ITN Nuclear and Techn. Institute, Portugal. Dep. Fundamental Physics, Univ. Salamanca, Spain
[3,4,7] CIMO/School of Agriculture, Polytech Inst. Bragança, Portugal
[5] Centre for Radiation Research and Technology, Institute of Nuclear Chemistry and Technology, Warsaw, Poland
[6] IST/ITN, Nuclear and Techn. Institute, Portugal
[8] REQUIMTE, Fac. Pharmacy Univ. Porto, Portugal
* E-mail: amilcar@ipb.pt, Phone: +351 273303200

Chestnut fruits (*Castanea sativa*) global production is continuously growing; Portugal produces about 20 000 ton per year, being 75% of this production concentrated in the Trás-os-Montes region [1]. In order to reach new markets, effective conservation technologies are mandatory, especially since the European Union banned methyl bromide for allegedly being toxic to operators and a severe environment pollutant [2]. Other conservation methods like heat treatment still lack efficiency [3], allowing other treatments like gamma [4] and electron beam irradiation [5] gaining interest as an alternative for food processing. In previous studies of our research group, the effects of gamma and e-beam irradiation doses on the chemical composition and bioactivity of chestnuts were evaluated. Despite the usefulness of those studies, the influence of irradiation on the triacylglycerol composition of chestnut remains undone. Herein, the effects on chestnut triacylglycerol profiles in fresh and stored samples of gamma and e-beam irradiation were studied. The results were classified trough an analysis of variance and a stepwise based linear discrimination analysis as a supervised classification technique, in order to understand the observed changes. Independently of radiation type, samples irradiated with upper doses showed higher modifications in their triacylglycerol profile. These differences classified the assayed samples in different groups trough the applied linear discriminant analysis, allowing identification of irradiated samples.

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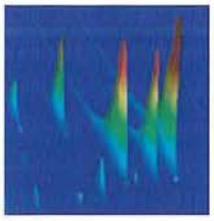

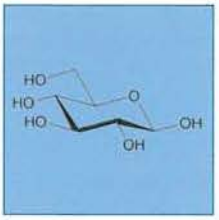

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