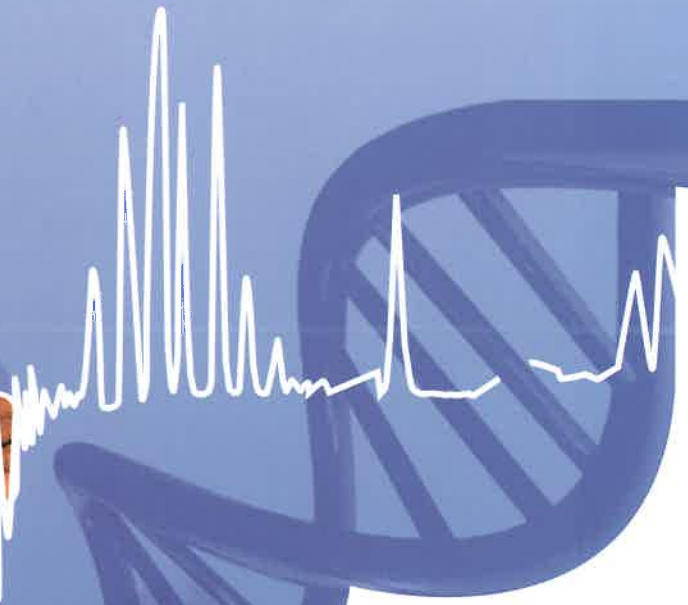


# 5<sup>th</sup> MoniQA International Conference 16-18 September 2015, Porto, Portugal

**Food and Health - Risks and Benefits**

**Book of Abstracts**



**MoniQA** MoniQA  
Association

# **5<sup>th</sup> MoniQA International Conference**

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## **Book of Abstracts**

**Book of Abstracts of the 5<sup>th</sup> MoniQA International Conference**

"Food and Health - Risks and Benefits" on "Innovative Technologies for Food Quality and Safety Management"

**EDITORS:**

Isabel Mafra

Joana Costa

Telmo Fernandes

Joana S. Amaral

M. Beatriz P. P. Oliveira

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## Electron beam irradiation as a method for preservation of the chemical composition of medicinal and aromatic plants

E. Pereira, C. Pereira, A. L. António, J.C.M. Barreira, L. Barros, A. Bento, I.C.F.R. Ferreira

*Mountain Research Centre (CIMO), ESA, Polytechnic Institute of Bragança, Campus de Santa Apolónia, Portugal*

Email: [eliana@ipb.pt](mailto:eliana@ipb.pt)

Medicinal and aromatic herbs are widely consumed as infusions, being used since the early ancient times as medicinal plants for different diseases, displaying antioxidant, antimicrobial and anti-inflammatory properties [1]. Electron beam irradiation is used for several purposes, being highlighted not only as decontamination but also as a preservation technique [2]. In this work the effects of different doses of electron beam (EB) irradiation (0 kGy - control, 1 kGy and 10 kGy) on chemical and nutritional compounds of *Aloysia citrodora* P., *Melissa officinalis* L., *Melittis melissophyllum* L. and *Mentha piperita* L. was evaluated. The nutritional value was determined by official methodologies for food analyses, determining the content of proteins, lipids, carbohydrates and ash. Individual profiles of sugars were determined by HPLC-RI, fatty acids by GC-FID, organic acids by UFLC-PDA and tocopherols by HPLC-fluorescence. The proximate composition remained nearly unaffected, independently of plant species or irradiation dose. Regarding sugars profile, the main changes were a decrease in the disaccharides content, while an opposite behaviour was observed from the monomer units (probably originated after the lysis of the disaccharides). The most noticeable variations in organic acids were exhibited by the plant species with the highest contents in these molecules, particularly the decrease observed in *M. officinalis* and *M. melissophyllum*. Among tocopherols,  $\alpha$  and  $\beta$  isoforms were the most susceptible to irradiation; using a 1 kGy dose tended to increase tocopherols' levels in *A. citrodora*, while the 10 kGy dose had the same effect on *M. melissophyllum*. *M. piperita* presented higher tocopherols' levels, independently of the dose. Finally, EB irradiated samples presented higher percentages of monounsaturated fatty acids than the control ones.

**Keywords:** Electron beam irradiation; Medicinal and aromatic plants; Chemical composition

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