

IMPACT OF GAMMA IRRADIATION ON CHEMICAL COMPOSITION OF *MELISSA OFFICINALIS* L.

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Food irradiation is increasingly recognized as an effective decontamination technique that ensures the chemical and organoleptic quality of the product. This decontamination method leads to a reduction in the application of chemical fumigants and preservatives, which are currently used by the food industry in order to provide higher safety for the consumer since it does not leave chemical residues in food. *Melissa officinalis* L. (commonly known as lemon balm) is used in several countries as aromatic, medicinal herb and also for culinary use. Traditionally it is consumed in infusions for various disorders such as headaches, gastrointestinal disorders (flatulence cramps, spasms and indigestion), nausea, nervousness, anemia, vertigo, syncope, malaise, asthma, bronchitis, amenorrhea, heart failure, arrhythmia, insomnia, epilepsy, depression, psychosis, hysteria, ulcers and wounds; it is also used as anti-bacterial [1-3]. The aim of the present work was to evaluate the effects of different doses of gamma irradiation (0 kGy – control, 1 kGy and 10 kGy) on nutritional value and chemical composition of *M. officinalis*. The nutritional value was determined according to official analysis procedures. The composition in free sugars, fatty acids and tocopherols was determined by high performance liquid chromatography-refraction index detection (HPLC-RI), gas chromatography-flame ionization detection (GC-FID), and HPLC-fluorescence, respectively. According to the results obtained this decontamination process has not modified the concentration of fructose and glucose; the dose of 1 kGy protected the concentration of α - and γ -tocopherol, sucrose, and macronutrients, with exception of carbohydrates. In general, 10 kGy protected sucrose, threolose, oxalic, quinic and malic acids, and γ - and δ - tocopherols level. Overall, irradiation might represent a suitable solution for *M. officinalis* postharvest treatment, since the doses of 1 and 10 kGy preserved various chemical compounds and the nutritional of the studied plant.

Keywords: *Melissa officinalis* L.; food irradiation; chemical composition

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