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THE IMPACT OF GAMMA IRRADIATION ON THE CYTOTOXIC PROPERTIES AND PHENOLIC COMPOSITION OF *THYMUS VULGARIS* L. AND *MENTA X PIPERITA* L.

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Irradiation has been increasingly recognized as an effective decontamination technique, also ensuring the chemical and organoleptic quality of medicinal and aromatic plants ¹. The use of medicinal plants in the prevention and or treatment of several diseases has revealed satisfactory results as anti-inflammatory, antimutagenic, anti-cancer and antioxidant agents ². The aim of the present study was to evaluate the effects of gamma irradiation on the cytotoxic properties and phenolic composition of *Thymus vulgaris* L. and *Menta x piperita* L. (methanolic extracts). Phenolic compounds were analyzed by HPLC-DAD-ESI MS, while the cytotoxicity of the samples was assessed in MCF-7 (breast adenocarcinoma), NCI-H460 (non-small cell lung cancer), HeLa (cervical carcinoma), HepG2 (hepatocellular carcinoma) cell lines, as also in non-tumor cells (PLP2). Thirteen and fourteen phenolic compounds were detected in *T. vulgaris* and *M. piperita*, respectively, but none of them was affected by the irradiation up to a dose of 10 kGy. However, despite there were no changes in the cytotoxic properties of irradiated peppermint samples in tumor cell lines, the thyme samples irradiated with 10 kGy showed higher cytotoxicity in comparison with the samples submitted to other doses (2 and 5 kGy). This highlights that 10 kGy can be a suitable dose to ensure the sanitary treatment, without modifying the bioactive composition and properties of these aromatic plants.

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