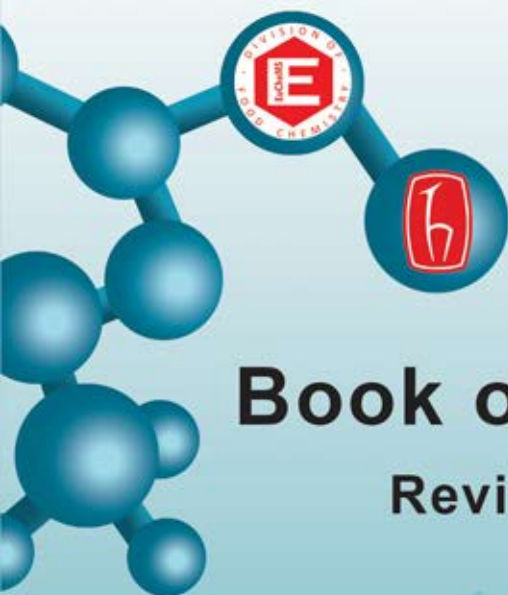


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INFLUENCE OF ELECTRON BEAM IRRADIATION IN THE ORGANIC ACIDS PROFILE OF PORTUGUESE CHESTNUTS (*Castanea sativa* MILL.)

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Organic acids are primary metabolites that play important roles in plant metabolism and confer distinct flavors in fruits. Their consumption is beneficial for humans, namely against certain illnesses. The food industry uses them as preservatives and flavor enhancers. In fruits conservation and transport, organic acids should be preserved at all costs in order to maintain physical quality and pleasant flavors until they reach the consumer. In 2010, due to European legislation, methyl bromide was banned as a conservation method for chestnuts due to its toxicity to operators and negative effects to the environment. Since then, various innovative techniques have been pursued, and irradiation has proved to be a viable, cheap and environment friendly one. Our research group has studied that both gamma and electron beam irradiation as a conservation method in Portuguese chestnuts and proven that they do not alter in a significant way the nutritional value and antioxidant potential of these fruits. Herein, the influence of increasing doses of electron beam irradiation (0- control, 0.5, 1, 3 and 6 kGy) and different storage times (0, 30 and 60 days), in the organic acids profile of Portuguese chestnuts, was studied. Ultra-fast liquid chromatography coupled to a photodiode array detector (UFLC-PDA) was used to quantify oxalic, quinic, malic, ascorbic, citric, fumaric, succinic and shikimic acids. Our results indicate that the irradiation doses did not significantly influence the quantity of organic acids in the samples, proving to be a safe and valuable conservation technique.

Keywords: Chestnuts, organic acids, food irradiation, electron beam

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