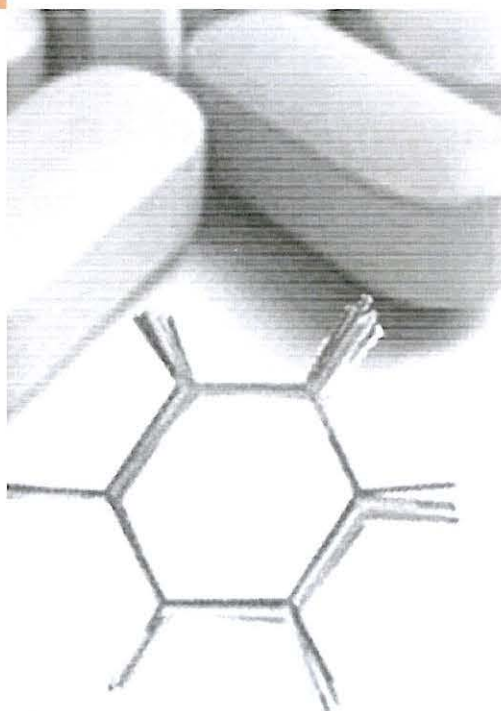


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Tocopherols profile of three *Castanea sativa* varieties submitted to electron beam irradiation

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Chestnuts are widely appreciated fruits all over the world, being China the biggest producer and Portugal standing in fourth place. The Trás-os-Montes region is responsible for 82% of our nation's production [1]. Electron beam irradiation has been tested as a postharvest phytosanitary treatment in chestnuts since the main fumigation agent, Methyl Bromide, was banned by the European Union in 2010 due to environmental concerns and danger to public health [2]. The results seem promising, surpassing the main drawbacks that other postharvest treatments still display for chestnut treatment. Tocopherols, constituents of vitamin E, are potent antioxidants in the human body, and the only lipid soluble chain breaking antioxidants. They can act independently or by regenerating vitamin C, which is also an antioxidant. The health benefits of antioxidants have also been reviewed by our research group [3]. Recently, we have been studying the effects of electron beam and gamma irradiation in the nutritional and antioxidant parameters of chestnuts [4]. Our previous findings reveal that storage time plays a more important role in tocopherols degradation when compared to irradiation doses. In this work, we attempted to generalize the application of electron beam irradiation to three chestnut varieties (Longal, Judia and Cota), evaluating the effects on tocopherols profile obtained by High Performance Liquid Chromatography coupled to a fluorescence detector. α - and δ -Tocopherols were not affected in none of the analyzed varieties, while γ -tocopherol was higher in irradiated samples for Longal and Cota and lower for Judia. Despite these slight variations, they were not significant and corroborate our previous findings, in which storage time had a major role in tocopherols degradation than the irradiation process.

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