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Effects of gamma radiation on physical and chemical parameters of wild *Lactarius deliciosus* L.

Ângela Fernandes^{1,2}, Amilcar L. Antonio^{1,3,4}, M. Beatriz P.P. Oliveira²,
Anabela Martins¹, Isabel C.F.R. Ferreira^{1*}

¹CIMO-ESA, Instituto Politécnico de Bragança, Portugal.

²REQUIMTE/ Depto. de Ciências Químicas, Faculdade de Farmácia, Universidade do Porto, Portugal.

³IST/ITN, Instituto Tecnológico e Nuclear, Portugal.

⁴Departamento de Física Fundamental, Universidade de Salamanca, Espanha.

* iferreira@ipb.pt

The short shelf life of mushrooms is a barrier to their distribution and, therefore, there has been extensive research to find technologies that ensure the preservation of mushrooms, maintaining their organoleptic properties. Irradiation is an alternative that has already been successfully applied in various food products¹. There are several studies in the literature assessing the effects of the application of ionizing radiation in cultivated mushrooms in particular *Agaricus bisporus*, *Lentinus edodes* and *Pleurotus ostreatus*, as reviewed recently by our research group.² However, there are almost no studies on wild species, which are generally highly valued commercially. Herein, the effects of gamma radiation on physical and chemical properties of wild *Lactarius deliciosus* L. were evaluated. Irradiation was performed in an experimental equipment with ⁶⁰Co sources (at the doses 0.5 and 1 kGy) and analyzes were performed throughout the period of storage at 4 °C (0, 4 and 8 days). All results were compared with non-irradiated samples (control). The physical properties determined were mass, color and diameter of the cap³; the chemical properties evaluated included nutritional profile, and fatty acids, tocopherols, mono and oligosaccharides by chromatographic techniques⁴. The irradiated samples showed similar properties to the control. Up to 1 kGy, gamma irradiation may be an alternative to ensure the quality and prolong the shelf life of mushrooms, since the effects on the tested parameters were less significant than that caused by the storage time.

Key words: Wild mushroom; *Lactarius deliciosus*; gamma radiation, physical and chemical properties.

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References

- [1] Directive 1999/2/CE, Official Journal L 66, 13th March, p. 16 - 22.
- [2] Fernandes, A.; Antonio, A.L.; Oliveira, M.B.P.P.; Martins, A.; Ferreira, I.C.F.R. *Food Chemistry* **2012**, 135, 641–650.
- [3] Fernandes, A.; Antonio, A.L.; Barreira, J.C.M.; Oliveira, M.B.P.P.; Martins, A.; Ferreira, I.C.F.R. *Postharvest Biology and Technology* **2012**, 74, 79-84.
- [4] Fernandes, Â.; Antonio, A.L.; Barreira, J.C.M.; Botelho, M.L.; Oliveira, M.B.P.P.; Martins, A., Ferreira, I.C. F. R. *Food and Bioprocess Technology*, doi: 10.1007/s11947-012-0931-5.