



2nd Symposium on **Medicinal Chemistry** of University of Minho

8 May 2015

SCHOOL OF SCIENCE, CHEMISTRY DEPARTMENT

Campus de Gualtar

Gamma irradiation preserves oleic acid in wild *Hydnum repandum* L.: Fr.

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Oleic acid is an essential fatty acid, omega 9, which participates in the metabolism and plays a key role in the synthesis of hormones. Studies have demonstrated that monounsaturated fatty acids help in lowering the levels of LDL (low-density lipoprotein), increasing the levels of HDL (high-density lipoprotein), suppressed appetite and short-term food intake in overweight subjects [1]. Wild mushrooms are excellent to be included in low caloric diets, presenting higher levels of unsaturated fatty acids than saturated ones [2]. Nevertheless, the high perishability is a common characteristic in mushrooms that leads to lose quality immediately after harvest. In this sense, there are continuous investigations to find an effective conservation technology. Gamma irradiation has been applied with success in extend the postharvest of fresh mushrooms [3]. In the present work, the effects of gamma irradiation (1 and 2 kGy) in fresh samples of wild *Hydnum repandum* L.: Fr. were assessed, regarding the content and profile of fatty acids. The fruiting bodies were collected in Trás-os-Montes (Northeast of Portugal) in November 2012. The irradiation was performed in experimental equipment with four ⁶⁰Co sources and fatty acids were analyzed by gas-chromatography coupled to flame ionization detection (GC-FID). The most abundant fatty acids in *H. repandum* were palmitic acid (C16:0), oleic acid (C18:1) and linoleic acid (C18:2). The 1 kGy dose maximized the amount of oleic acid (40.9%), avoiding the oxidation observed in non-irradiated or irradiate at 2 kGy samples. These results indicate an interesting potential of gamma irradiation to be used as an effective conservation technology.

Acknowledgments:

FCT and COMPETE/QREN/UE - strategic projects PEst-OE/AGR/UI0690/2014 (CIMO) and PEst-C/EQB/LA0006/2014 (REQUIMTE); grants SFRH/BD/76019/2011 and SFRH/BPD/72802/2010 to A. Fernandes and J.C.M. Barreira, respectively.

References:

- [1] Z-H. Yang, J. Takeo, M. Katayama, *Appetite*, **2013**, *65*, 1-7.
- [2] C. Grangeia, S.A. Heleno, L. Barros, A. Martins, I.C.F.R. Ferreira, *Food Res. Int.*, **2011**, *44*, 1029-1035.
- [3] Â. Fernandes, A.L. Antonio, M.B.P.P. Oliveira, A. Martins, I.C.F.R. Ferreira, **2012**, *Food Chem.*, *135*, 641-650.