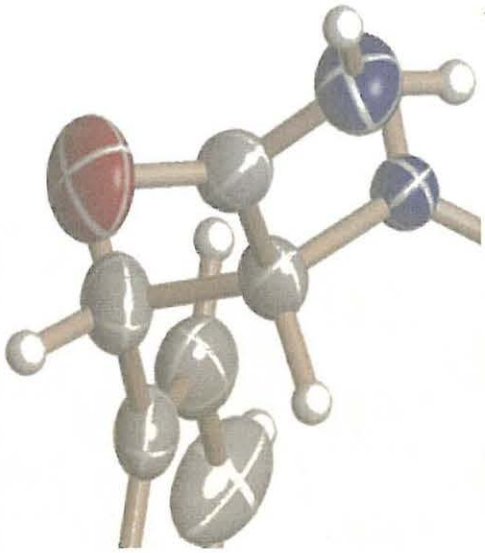
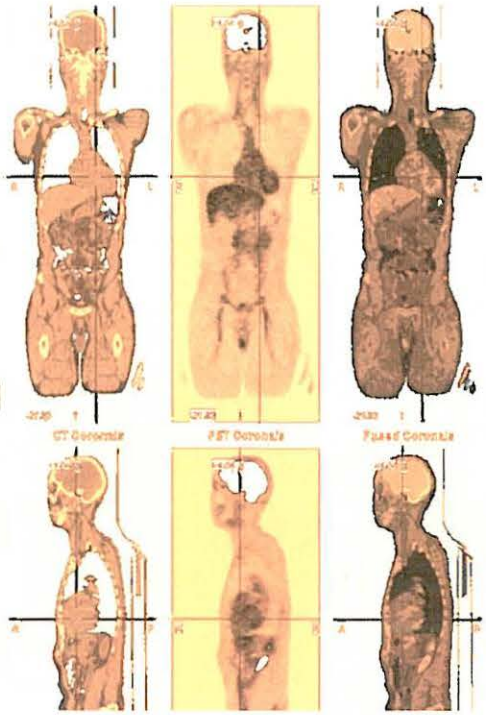


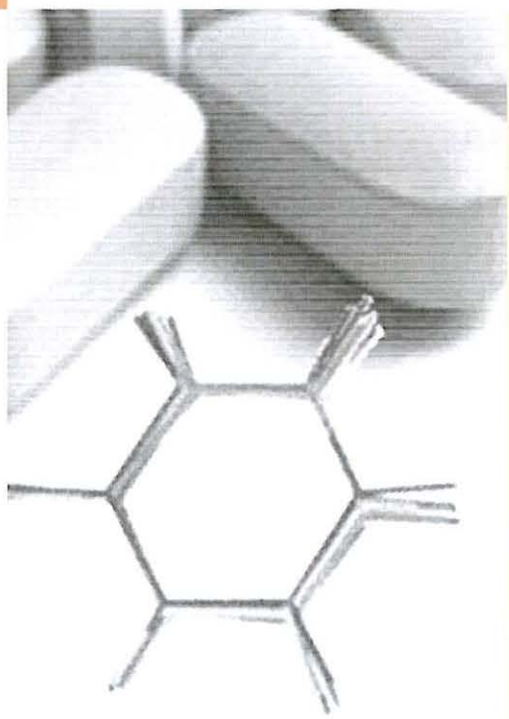


1st Symposium on MEDICINAL CHEMISTRY of University

Braga

Campus de Gualtar

17 May 2013



Universidade do Minho

Escola de Ciências

Sociedade Portuguesa de Química

1911-2011 100 ANOS

Antioxidant and bioactive compounds of two wild edible mushrooms from Northeast of Portugal: *Boletus porosporus* and *Boletus regius*

Ana Raquel Leal[a,b], Lillian Barros[a,b], João C.M. Barreira[a], Anabela Martins[b], Isabel C.F.R. Ferreira[a,b*]

[a]Mountain Research Centre (CIMO), ESA, Polytechnic Institute of Bragança, Campus de Santa Apolónia, Apartado 1172, 5301-855 Bragança, Portugal
[b]School of Agriculture, Polytechnic Institute of Bragança, Campus de Santa Apolónia, Apartado 1172, 5301-855 Bragança, Portugal.
*iferreira@ipb.pt

Free radicals are produced in the normal natural metabolism of aerobic cells, mostly in the form of reactive oxygen species (ROS). Maintenance of equilibrium between free radicals production and antioxidant defenses is an essential condition for normal organism functioning [1,2]. Although almost all organisms are equipped with antioxidant defense, the antioxidant supplements, or natural products containing bioactive compounds, may be used to help reduce oxidative damage to the human body [3]. Indeed, natural matrices with antioxidant activity, in particular mushrooms, are used to aid the endogenous protective system, increasing interest in the antioxidative role of functional foods or nutraceutical products [2]. The present study describes the antioxidant properties and bioactive compounds of wild edible mushrooms (*Boletus porosporus* and *Boletus regius*) collected in Northeast of Portugal (Bragança). The antioxidant properties were assessed through the evaluation of the reducing power, radical scavenging activity and lipid peroxidation inhibition of the samples. The individual profiles of organic acids and phenolic compounds were obtained by high performance liquid chromatography coupled to photodiode array detector (HPLC-PDA) and the tocopherols were characterized by HPLC-fluorescence.The *Boletus regius* sample revealed the best results in all the antioxidant activity assays, with the highest reducing power, highest scavenging activity and highest lipid peroxidation inhibition. Phenolic acids and a related compound (cinnamic acid) were found in both studied species and *B. regius* revealed the highest content in total phenolic compounds (23.49 mg/100 g dw), mainly due to the presence of two possible flavonoids. The highest levels of total tocopherols were found in *B. regius* (763.80 µg/100 g dw). The highest content in quinic and oxalic acids were found in *B. porosporus*(1.93 and 0.34 g/100 g dw, respectively), while*B. regius* revealed the highest level of citric acid (3.32 g/100 g dw).The results suggest that species of wild mushrooms from Northeast Portugal are a potential source of antioxidants to be explored.

Acknowledgments:

FCT and COMPETE/QREN/EU: project PTDC/AGR-ALI/110062/2009, PEst-PTDC/AGR-ALI/110062/2009 CIMO strategic project and L.B. grant (BPD/4609/2008).

References:

[1] M. Valko, D. Leibfritz, J. Moncol, M.T. Cronin, M. Mazur, J. Telser. *Int. J.Biochem. Cell Biol.***2007**, *39*, 44-84.
[2] I.C.F.R. Ferreira, L. Barros, R.M.V. Abreu. *Curr.Med. Chem.***2009**, 16, 1543-1560.
[3] M. Kanter.*Proc. Nutr. Soc.* **1998**, 57, 9-13.