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...PROGRAMA...

XIII Encontro de Química dos Alimentos

Disponibilidade, valorização e inovação: uma abordagem multidimensional dos alimentos

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Comunicações em painel
Poster communications

CP078

Leccinum vulpinum ANTITUMOR POTENTIAL: WHICH CELL BIOLOGICAL FUNCTIONS MAY BE AFFECTED?

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Besides being an excellent choice as food for their high nutritional value, mushrooms have been identified as products with bioactive properties, including antitumor potential.
Herein, a phenolic extract, obtained from the edible mushroom *Leccinum vulpinum* Watling, which was rich essentially in hydroxybenzoic acids (*i.e.*, gallic acid, protocatechuic acid and *p*-hydroxybenzoic acid) was analyzed. The extract was tested against a panel of four different human tumor cell lines (MCF-7, NCI-H460, HCT-15 and AGS), to perform an initial screening of its impact on the growth of these cells. Since the proliferation of all the tumor cell lines was inhibited, and given the evidence of an inverse relationship between mushroom's consumption and breast cancer risk reduction [1], a detailed study was performed on breast adenocarcinoma cells. Some functional assays were carried out, namely cell proliferation, cell cycle profile and apoptosis. The potential of the extract as an inducer of DNA damage was also evaluated. Overall, the extract decreased the cellular proliferation (cells treated with the GI_{75} concentration of the extract reduced significantly the percentage of cells in the S-phase) and induced apoptosis (cells treated with the GI_{50} concentration of the extract increased the percentage of cells undergoing apoptosis to 13.4% and cells treated with the GI_{75} concentration increased that percentage to 27%). The obtained results suggest that the extract also causes cellular DNA damage, since some proteins involved in the repair of DNA damage (PARP), are increased. Through the Comet assay, a significant increase of the percentage of Tail DNA upon treatment with 250 mg/mL of the extract, was also observed.

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[1] Shin, A.; Kim, J.; Lim, S. Y.; Kim, G.; Sung, M. K.; Lee, E. S.; Ro, J. *Nutrition and Cancer* 2010, 62, 476-483.