

## ANTIOXIDANT ACTIVITY AND GROWTH INHIBITORY ACTIVITY OF PORTUGUESE WILD MUSHROOMS

**Vaz, Josiana A<sup>1,2,3,4</sup>, Heleno, Sandrina A<sup>1</sup>, Martins, Anabela<sup>1</sup>, Almeida, Gabriela M<sup>2</sup>, Vasconcelos, M Helena<sup>2,4</sup> and Ferreira, Isabel CFR<sup>1</sup>**

<sup>1</sup> CIMO- Instituto Politécnico de Bragança Campus de Santa Apolónia, Apartado 1172, 5301-855 Bragança, Portugal; <sup>2</sup> Cancer Biology Group, IPATIMUP - Institute of Molecular Pathology and Immunology of the University of Porto, Portugal; <sup>3</sup> CEQUIMED-UP - Center of Medicinal Chemistry- University of Porto, Portugal; <sup>4</sup> Department of Biological Sciences, Faculty of Pharmacy, University of Porto, Portugal.

**Background:** Some mushrooms are a powerful source of bioactive compounds including antioxidants, inhibitors of human tumour cell lines growth, inducers of apoptosis and enhancers of immunity. Indeed, many pre-clinical studies have been conducted in human tumour cell lines and in some cases a number of compounds extracted from mushrooms have followed to Phases I, II and III of clinical trials. There is an enormous source of wild mushrooms in Portugal, particularly in the North. However, to our knowledge, no studies have been conducted so far to verify their bioactivities.

**Aim:** The aim of this work was to study extracts obtained from Portuguese wild mushrooms, regarding in vitro antioxidant activity and growth inhibitory activity in human tumour cell lines.

**Methods:** Two wild mushrooms species were collected from Parque Natural de Montesinho, in the North of Portugal, and classified as being *Clitocybe alexandri* and *Lepista inversa*. Methanolic, ethanolic and polysaccharidic extracts were prepared from both mushrooms. Antioxidant activity assays were carried out in those extracts, including evaluation of radical scavenging capacity, reducing power and inhibition of lipid peroxidation measured in liposome solutions. Extract-induced cell growth inhibition was assessed with the sulforhodamine B assay in four tumour cell lines (lung, breast, colon and gastric cancer).

**Results and ongoing work:** All extracts presented antioxidant activity, the most potent being the polysaccharidic extract of *Lepista inversa* ( $EC_{50} < 1.8 \pm 0.1$  mg/ml). Regarding the growth inhibitory activity in human tumour cell lines, the ethanolic extract of *Clitocybe alexandri* was the most potent ( $GI_{50} < 52.1 \pm 2.5$   $\mu$ g/ml in all cell lines). Together, these activities indicate that these Portuguese wild mushrooms species are promising sources of bioactive compounds. In order to further understand the mechanism of action of the *Clitocybe alexandri* extracts, analysis of cell cycle profile and apoptosis are currently being carried out. Additionally, in an attempt to identify the molecules responsible for their biological activities, quantification of phenolic compounds from these mushrooms extracts has already been carried out by HPLC. The activity of the purified molecules is going to be assessed using the same assays used for the whole extracts.

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## DECLARAÇÃO

Para os devidos efeitos se declara que **JOSIANA VAZ** esteve presente no I3S Scientific Retreat "together in science", nos dias 6 e 7 de Maio de 2010, realizado no Hotel Áxis Vermar na Povoia de Varzim.

Apresentou o seguinte trabalho em forma de Poster "ANTIOXIDANT ACTIVITY AND GROWTH INHIBITORY ACTIVITY OF PORTUGUESE WILD MUSHROOMS"

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Pel' A organização

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Pedro Rodrigues

Porto, 12 de Julho 2010