

## BIOACTIVE PROPERTIES OF *LEPISTA INVERSA*

Josiana A. Vaz<sup>1,2,3,4</sup>, Sandrina A. Heleno<sup>1</sup>, Anabela Martins<sup>1</sup>, Gabriela M. Almeida<sup>2</sup>, M. Helena Vasconcelos<sup>2,4</sup>, Isabel C.F.R. Ferreira<sup>1</sup>

(1) CIMO- Instituto Politécnico de Bragança Campus de Santa Apolónia, Apartado 1172, 5301-855 Bragança, Portugal.

(2) Cancer Biology Group, IPATIMUP - Institute of Molecular Pathology and Immunology of the University of Porto, Portugal.

(3) CEQUIMED-UP - Center of Medicinal Chemistry- University of Porto, Portugal.

(4) Department of Biological Sciences, Faculty of Pharmacy, University of Porto, Portugal.

Some mushrooms are known to have strong antioxidant capacity. There is an accepted relationship between the physiopathology of several chronic diseases and oxidative stress. Therefore, the use of foods such as those mushrooms with antioxidant capacity, as phytochemical protectors, may be relevant for the prevention of oxidative stress related diseases such as cancer. Additionally, mushrooms have been described as a source of potential antitumour molecules, making them attractive candidates for drug discovery. However, there are no such studies on the Portuguese wild mushroom *Lepista inversa*. The aim of the present work was to study extracts obtained from the wild mushroom *Lepista inversa* for the *in vitro* antioxidant activity and growth inhibitory activity in human tumour cell lines.

The extracts studied were methanolic, ethanolic and polysaccharidic. For the antioxidant activity the following assays were used: evaluation of radical scavenging capacity, reducing power and inhibition of lipid peroxidation measured in liposome solutions. For the analysis of extract-induced cell growth inhibition the SRB assay was used, following treatment of four tumour cell lines (lung, breast, colon and gastric cancer) with the different extracts. The polysaccharidic extract presented the strongest antioxidant capacity ( $EC_{50} < 1.8 \pm 0.1$  mg/ml). Regarding the capacity to inhibit the growth of human tumour cell lines, the methanolic extract was the most effective, presenting the lowest GI<sub>50</sub> values ( $GI_{50} < 134.8 \pm 10.9$  µg/ml). Together, these activities indicate that this mushroom species is a promising source of bioactive compounds, including antioxidants. Future work will elucidate the mechanism of action of these extracts leading to the observed cell growth inhibition.