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PROTEIN-BOUND POLYSACCHARIDES FROM *AMANITA PONDEROSA* CULTURES: CHARACTERISATION, TOXICOLOGICAL ASSESSMENT AND ANTIOXIDANT PROPERTIESP. Nunes¹; C. Salvador²; J.M. Arteiro³; M.R. Martins⁴; A.T. Caldeira⁵

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In recent years, protein-polysaccharide complexes extracted from mushrooms have received great attention from the scientific community, due to their medicinal properties, namely antioxidant, antitumoral, antimicrobial, immunomodulatory, antiatherogenic and hypoglycemic properties [1, 2]. The southern of Portugal, due to its Mediterranean climate and flora diversity, is a region with a high prevalence of wild edible mushrooms *Amanita ponderosa* [3].

The aim of this work was to produce and characterize protein-polysaccharide complexes, extracted from cultures (mycelia or supernatants) of different strains of *A. ponderosa* in order to evaluate their antioxidant properties.

Batch cultures were performed during 15 days, and polysaccharides content were determined by the phenol-sulphuric method. A combined FTIR-ATR (Fourier-transform infrared using the attenuated total reflection) and Raman spectroscopy was used for the screening of bioactive protein-polysaccharides, showing bands profile compatible with this type of compounds. The characterization and separation of different polysaccharide-protein complexes using SEC UV-IR-HPLC (HPLC Size Exclusion Chromatography, coupled to UV (280nm) and RI detectors), showed the presence of four major complexes, with different molecular weight. Extracts showed no toxicity against *Artemia salina* (lethality < 5%). The polysaccharide-protein complexes presented antioxidant activity by DPPH and α -carotene/linoleic acid methods and showed ability to mimitize the catalase enzymatic activity.

Therefore, based on the observed biological properties, extracts of *A. ponderosa* cultures, could be an important source of bioactive compounds, with potential medicinal value.

[1] Arteiro JM, Martins MR, Salvador C, Candeias MF, Karmali A, Caldeira AT, Med Chem Res, 21 (2012) 937-943.

[2] Salvador C, Martins MR, Candeias MF, Karmali A, Arteiro JM, Caldeira AT, J Agr Sci Technol A, 2 (2012) 1296-1306.

[3] Salvador C, Martins MR, Vicente H, Neves J, Arteiro JM, Caldeira AT, Agroforest Sys, (2012) DOI 10.1007/s10457-012-9548-y.