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Professor Doutor Pedro Rodrigues

ijup@reit.up.pt

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21852 | Evaluation of the anticancer potential of the macrofungus *Pisolithus arhizus* mycelium and culture medium

Germana Santos[1,2]; Marco Preto[2]; Vitor Vasconcelos[3]; Rosário Martins[1,2]; Rui S. Oliveira[4]

School of Health, Polytechnic Institute of Porto (ESS/P.PORTO), Porto, Portugal[1]; Interdisciplinary Centre of Marine and Environmental Research (CIIMAR/CIMAR), University of Porto, Matosinhos, Portugal[2]; Department of Biology, Faculty of Sciences, University of Porto (FCUP), Porto, Portugal[3]; Centre for Functional Ecology, Associate Laboratory TERRA, Department of Life Sciences, University of Coimbra, Coimbra, Portugal[4]

Background & Aim: Macrofungi produce remarkable biomedical products that can make a significant contribution to health. *Pisolithus arhizus* is a fungal species of the phylum *Basidiomycota*. It is mainly found in association with the roots of some trees species, establishing a mutualistic relationship with them, facilitating the absorption of nutrients from the soil in exchange for carbohydrates produced by the host plant. As recently reviewed by us [1], this macrofungus has aroused great interest due to its promising therapeutic properties and bioactive effects. **Methods:** Crude extracts were prepared from the mycelium and culture medium of *P.arhizus* using a mixture of dichloromethane:methanol (2:1. The extracts were then separated into nine fractions using vacuum liquid chromatography. The fractions were tested for cytotoxicity against the RKO colon adenocarcinoma cell line and 3T3 fibroblasts cell line. Cell viability was assessed using the 3-(4,5-dimethyl-2-thiazolyl)-2,5-diphenyl-2H-tetrazolium bromide (MTT) reduction assay. **Results:** Preliminary results revealed a dose dependent cytotoxicity against RKO cell line with no significant cytotoxicity to 3T3 cell lines, in fractions B and C. Those fractions corresponded to extraction with 70% Hex:30% EtOAc and 60% Hex:40% EtOAc, respectively. **Conclusions:** The results indicate that *P.arhizus* mycelium is a source of compounds with anticancer activity. However, more in-depth studies are needed to analyze the chemical compounds from the various parts of *P. arhizus* and investigate their biological and toxicological activities. Exploring the bioactive potential of *P. arhizus* is key to developing a complete understanding of its therapeutic benefits.

Keywords: *Pisolithus Arhizus*, Macrofungi, Anticancer Potential.

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[1] Oliveira RS, Preto M, Santos G, Silva AM, Vasconcelos V, Martins R. Exploring the Bioactive Potential of *Pisolithus* (Basidiomycota): Comprehensive Insights into Antimicrobial, Anticancer, and Antioxidant Properties for Innovative Applications. Microorganisms. 2024; 12(3):450. https://doi.org/10.3390/microorganisms12030450