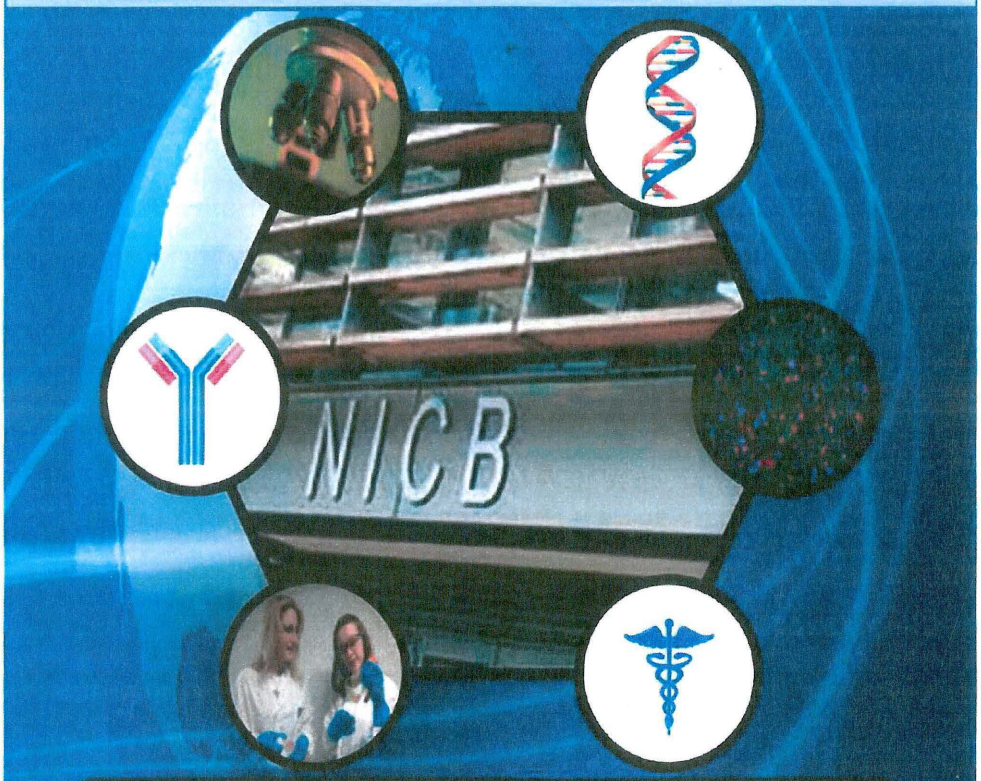
NICB DCU

BIOTECHNOLOGY IN ACTION: Stem Cells & Tissue Engineering, Biopharmaceutical Production and Cancer Biomarkers



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P6) SUILLUS LUTEUS METHANOLIC EXTRACT CAUSES GROWTH ARREST INDEPENDENT OF P53 IN A HUMAN COLON TUMOUR CELL LINE

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Abstract:

Mushrooms are macrofungi and a powerful source of compounds with antitumour activity. The most studied compounds isolated from mushrooms are the β-glucans "Lentinan" (from *Lentinus edodes*) and "Schizophyllan" (from the cultured medium of *Schizophyllum commune*) and the glucopeptides PSP and "Krestin" (PSK) (from *Coriolus versicolor*). The objective of this work was to investigate the tumour cell growth inhibitory potential of *Suillus luteus*, a wild edible mushroom collected from the Northeast of Portugal.

The methanolic extract of *S. luteus* caused growth arrest in four tested human tumour cell lines: MCF-7 (breast), NCI-H460 (non-small cell lung), AGS (gastric) and HCT-15 (colon). It was slightly more potent (GI_{50}= 17.8 ± 1.6 μg/ml) in the HCT-15 cell line (with mutant p53), indicating that the effect was not p53 dependent. In fact, even though the levels of p53 were increased in this cell line upon treatment with the extract, the levels of Bax (a p53 transactivated protein) were decreased. Growth inhibition in the HCT-15 cells was mostly due to inhibition of cell proliferation and a cell cycle arrest in G1, rather than to induction of cell death. Finally, the extract had no effect in primary cultures of porcine hepatocytes (GI>400 mg/ml), indicating that it was not toxic to non-tumour cells. This extract may be particularly interesting considering that many tumours present mutant p53.

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