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Effect of *Cordyceps militaris* methanolic extract in NCI-H460 tumor cells

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Mushroom extracts have been studied extensively for their potential antitumor effect in tumor cell lines and in animal models [1]. Recently, some of our collaborators have described that the methanolic extract from the medicinal mushroom *Cordyceps militaris* (L.) Link presented tumor cell growth inhibitory activity. In particular, this extract inhibited the growth of the non-small cell lung cancer (NSCLC) cell line NCI-H460, presenting a GI_{50} of approximately 50 µg/ml [2].

The aim of this work was to further study the effect of *C. militaris* methanolic extract in NCI-H460 cells, regarding its mechanism of action.

NCI-H460 cells were treated with *C. militaris* methanolic extract (at 25 and 50 µg/ml) for 48 h. Viable cell number was then assessed with the Trypan blue exclusion assay. Cellular proliferation was analyzed with the BrdU incorporation assay and cell cycle profile with flow cytometry following propidium iodide (PI) labeling. Levels of apoptotic cell death were determined with flow cytometry following Annexin V-FITC /PI labeling.

Treatment of cells with the *C. militaris* extract caused a dose-dependent decrease in viable cell number. Moreover, a clear and strong decrease in cellular proliferation was observed. In addition, alterations in cell cycle profile were found, with a strong decrease in the S and G2/M phases of the cell cycle together with an increase in G0/G1 phase. Furthermore, treatment with the extract also induced apoptosis in this cell line.

In conclusion, *C. militaris* methanolic extract was shown to interfere with cell proliferation, cell cycle and to induce apoptosis of NCI-H460 cells. Further studies will aim at further understanding the mechanism of action of this extract.

References:

[1] Ferreira, I.C., J.A. Vaz, M.H. Vasconcelos, and A. Martins. (2010), *Compounds from wild mushrooms with antitumor potential.* Anti-cancer agents in medicinal chemistry. 10:424-436
[2] Reis, F.S., Barros, L., Calhelha, R.C., Cirić, A., van Griensven, L.J., Soković, M., Ferreira, I.C. (2013), *The methanolic extract of Cordyceps militaris (L.) Link fruiting body shows antioxidant, antibacterial, antifungal and antihuman tumor cell lines properties,* Food and chemical toxicology, 62:91-98.