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Study of the cell growth inhibitory effect of aqueous extracts from *Tuberaria lignosa* in human tumor cell lines

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Tuberaria lignosa (Sweet) Samp. (“alcária”), a plant mostly found in Western regions of the Iberian Peninsula, has antioxidant properties due to its composition in ascorbic acid and phenolic compounds [1]. Given these antioxidant properties, together with the traditional use of the plant to treat several diseases, the aims of this work were to: i) investigate if aqueous extracts from this plant, obtained by infusion and decoction, were inhibitors of cell growth in three human tumor cell lines; ii) study the cellular mechanism of action of the most potent extract.

A screening of tumor cell growth inhibitory potential was performed with the Sulforhodamine B (SRB) assay using three different human tumor cell lines: MCF-7 (breast adenocarcinoma), NCI-H460 (non-small cell lung cancer) and HCT-15 (colorectal adenocarcinoma). Results showed that both aqueous extracts of *T. lignosa* decreased the growth of the cell lines tested and that the *T. lignosa* infusion extract was the most potent one, particularly in the NCI-H460 and HCT-15 cells.

The *T. lignosa* infusion extract was further tested in the NCI-H460 cells. A determination of its effect on cell cycle profile was carried out, by analyzing cellular DNA content by flow cytometry following incubation with propidium iodide. Determination of cellular apoptosis was also performed, with the Annexin V-FICT and propidium iodide assay, and analyzed by flow cytometry.

Preliminary results showed that the selected extract promoted a slight increase in the percentage of cells in the G1 phase of the cell cycle and induced cellular apoptosis.

In conclusion, the *T. lignosa* extract decreased growth of the human tumor cell lines tested and the most potent effect was observed for the *T. lignosa* infusion extract. Future work will confirm if this effect is due mainly to induction of apoptosis.

1. Pinela, J., et al., *Antioxidant activity, ascorbic acid, phenolic compounds and sugars of wild and commercial Tuberaria lignosa samples: effects of drying and oral preparation methods*. Food Chem, 2012. **135**(3): p. 1028-35.