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7º ENCONTRO DE INVESTIGAÇÃO JOVEM DA U.PORTO

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# CREDITS

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## Investigating the cell growth inhibitory effect of flower extracts of *Sambucus nigra* L. in human tumor cell lines

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*Sambucus nigra* L. (elder) is widely used in traditional medicine, especially for its diuretic, anti-inflammatory, diaphoretic and expectorant properties. Its rich flavonoids and ascorbic acid contents makes *S. nigra* flowers a good source of antioxidant compounds [1]. Nonetheless, the tumor cell growth inhibitory activity of such plant material has never been studied. Therefore, the aim of this ongoing project is to investigate if the flower extracts of *S. nigra* have cell growth inhibitory activity in various human tumor cell lines.

The flower extracts were obtained by infusion, methanol extraction, methanol:water (80:20, v:v) extraction or by decoction. These specimens were processed in order to be lyophilized and extracted. Stock solutions of all extracts were prepared in DMSO at a maximum concentration of 100 mg/mL and further stored at -20 °C. Such extracts were screened for tumor cell growth inhibitory activity in three human tumor cell lines: NCI-H460 (non-small cell lung cancer), A375-C5 (melanoma) and MCF-7 (breast adenocarcinoma). The cell growth assay performed was the Sulforhodamine B assay, during which cells were treated for 48 hours with 100 µL of six serial dilutions of each extract, ranging from 25 µg/mL to 400 µg/mL. Doxorubicin was used as a positive control of tumor cell growth inhibition, at a maximum concentration of 150 nM. The effect of the solvent of the extracts (DMSO) on the growth of the cell lines was also evaluated, by treating cells with the maximum concentration of DMSO used (0.20 %).

Some of the extracts showed no tumor cell growth inhibitory activity up to the highest concentration tested, whereas other extracts have some tumor cell growth inhibitory potential. However, those extracts showed different activity over time, indicating possible lack of stability. The results will be confirmed with fresh aliquots of those extracts. The most potent extract will then be selected to be further studied in the most sensitive cell line. Such studies will consist in investigating its antiproliferative potential, the effect on cell cycle profile and on programmed cell death.

### References:

[1] Barros, L., Cabrita, L., Boas, M.V., Carvalho, A.M, Ferreira I. (2011), *Chemical, biochemical and electrochemical assays to evaluate phytochemicals and antioxidant activity of wild plants*, Food Chemistry, 127, 1600-1608.