

Galium verum L. petroleum ether extract – antitumor potential on human melanoma cells

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Abstract. The important role of plants in the prevention and treatment of several ailments has been known since ancient times. Plants are a rich source of biocompounds with known therapeutic benefits. At the moment, natural products are a hope for certain diseases that modern medicine fails to cure. Cancerous pathologies were and still are a disease category in which the most effective treatment with the fewest adverse effects is constantly being sought. Malignant melanoma is the skin cancer that has produced the highest number of deaths and is intensively studied. *Galium verum* L. is a plant known for its traditional uses, for this reason, it is currently being studied in the therapy of several diseases, including cancer. Our study aimed to phytochemically characterize the petroleum ether extract and to evaluate its safety and antitumor potential on HaCaT and A375 cell lines, respectively. The FT-IR assay revealed that the GvPE extract comprises functional groups of lipophilic compounds and phenolic compounds, four compounds being qualitatively identified: rutin, isoquercitrin, quercetol, and chlorogenic acid through LC-MS analysis, in addition, a medium antioxidant capacity was observed. The results obtained on HaCaT showed that GvPE does not significantly reduce cell viability, and up to the tested doses it does not produce a relevant cytotoxic effect. In the case of skin cancer cells, the concentration of 55 µg/mL revealed a viability percentage of up to 55%, the cells becoming round and detaching from the plaque. Finally, the nuclear evaluation exhibited that the GvPE extract has an apoptotic-like effect, with the production of nuclear fragmentation and chromatin condensation.

Keywords: *Galium verum* L., FT-IR, phytochemical screening, anticancer potential, *in vitro* assays.

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