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Evaluation of the antitumoral activity in cancer of colon *in vivo* of Argentatin A, isolated of *Parthenium argentatum* A. Gray

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Cancer continues to be one of the main causes of morbidity and mortality worldwide. Taking into account that drugs that are available for cancer therapy have limitations in terms of toxic effects, there is a need to discover and develop new drugs. Traditionally, natural products have been an important source of new medicines, from which successful synthetic drugs have been derived imitating the action of molecules of natural origin and that their low toxicity for the organism are also characteristic. Example of the diversity of compounds with biological activity are the triterpenes, which are secondary metabolites isolated from a variety of plants that act on specific characteristics of tumor cells such as inflammation, proliferation, apoptosis and metastasis. Argentatin A is a triterpene of the cycloartan type and is one of the main components of the resin of *Parthenium argentatum* Gray, a species known as guayule. This triterpene has shown growth inhibition properties in human cancer cell lines. However, the mechanism by which argentatin A inhibits cell proliferation remains unknown. Our objective was to investigate the mechanism by which argentatin A inhibits the proliferation of the HCT116 colon cancer cell line as well as its antitumor effect in a mouse colon cancer xenotransplantation model. Argentatin A induced inhibition of HCT-116 cells growth in a time-dependent manner. In addition, in flow cytometry, the compound caused 64% of cells in a process of late apoptosis. The administration of argentatin A to the healthy mice did not produce pathologies associated with the treatment in comparison with the positive control. Its effect on tumor growth was tested in a HCT 116 xenograft model. In addition, the administration of argentatin A (250 mg / kg or 500 mg / kg) once a week inhibited tumor growth. However, a greater antitumor effect was achieved when argentatin (250 mg / kg) was administered three times a week. The tumors will be analyzed by immunohistochemical and western blot techniques for the identification of proteins such as proliferation PCNA and Caspase 3 as an indicator of apoptosis.

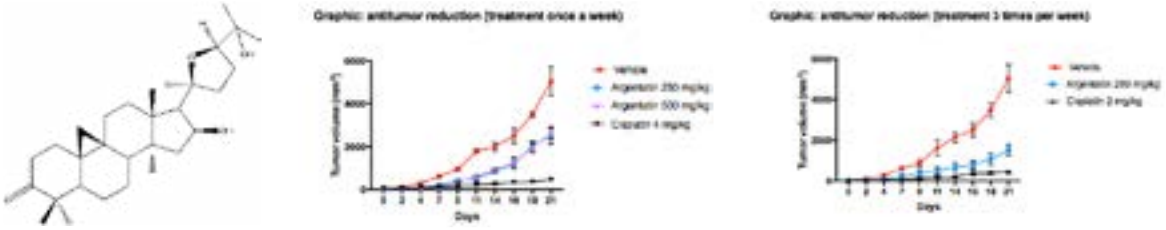

Fig 1: Chemical structure of Argentatin A

Graphic 1: antitumor reduction, treatment once a week

Graphic 2: antitumor reduction, treatment 3 times per week

Biography

Zaira Tavarez Santamaria is a PhD student in Biomedical Sciences at the National Autonomous University of Mexico (UNAM), in Mexico City. As a part of her doctorate program, she is attached to the Chemistry Institute at UNAM. Her research interest is in the search for new molecules from natural products in particular plant species, as potential sources of new drugs for treatment of cancer. Currently, she performs tests *in vitro* and *in vivo* however, her vision is to reach studies at a clinical level.

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