

EVALUATION OF THE ANTIPROLIFERATIVE ACTIVITY OF BIOACTIVE EXTRACTS FROM AVOCADO (*Persea americana*) RESIDUES ON BREAST CANCER CELLS

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Introduction. The extract of avocado *Hass* variety has been shown to possess biological activity as antioxidants, anticancer and others [1]. The objective of this work was the extraction and evaluation of avocado *Hass* variety residue extracts on breast cancer cells *in vitro*.

Methodology. The extraction was microwave-assisted (MAE), obtaining 4 extracts: ethanolic seed (ES), aqueous seed (AS), ethanolic peel (EP) and aqueous peel (AP), the extracts were identified by HPLC-MS, total phenols by Folin-Ciocalciu and DPPH and ABTS antioxidant assay were performed. Finally, the extract was evaluated on 4T1 and MDA-MB-231 breast cancer cells with MTT assay in cell culture. The following compounds was identified in the HPLC-MS with the highest presence: catechins, hydroxycinnamic and methoxycinnamic acids, procyanidins, flavones and proanthocyanidins.

Results. The extracts showed high antioxidant activity with 1.08 ± 0.11 and 2.20 ± 0.12 mg ET/mg extract ranges. Total phenols were in a range of 0.60 ± 0.02 and 0.74 ± 0.03 mg Eq Gallic acid/ mg dry matter. A significant decrease in the percentage range of viability was 1% to 37% in MDA-MB-231 cells with 2 mg/mL to 5 mg/mL with the 4 extracts, while in 4T1 cells the percentage of viability was 80% with 0.2 mg/mL to 1 mg/mL with all the extracts. Also, the pH was maintained between a range of 7.5 - 8 for all extracts indicating that the extracts do not affect the pH level of the culture medium.

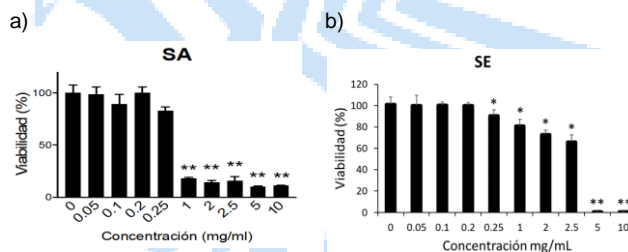


Fig 1. Viability effect of extracts on breast cancer cells, a) 4T1; b) MDA-MB-231.

Conclusions. This work demonstrated that we could obtain bioactive compounds from food residues such as avocado and take advantage of their high antioxidant activity to treat tumor cells and decrease their cell viability. This is important because large amounts of avocado waste are generated annually in the world, which have no commercial value, but this study shows that they can be considered for use as adjuvants in cancer treatments and can be used to valorize this waste.

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Bibliography.

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