Effects of an Extract from Lippia origanoides on Apoptosis and Cell Cycle Arrest in Cancerous and Non-cancerous Mammary Epithelial Cells

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Conventional therapies that target hormone receptors typically fail to effectively treat triple negative breast cancers (TNBC), an aggressive subtype of cancer that lacks expression of genes coding for estrogen receptor, progesterone receptor and human epidermal growth factor 2 receptor. In previous studies, an extract from the tropical plant, Lippia origanoides has been shown to possess anti-cancer properties. The extract (LOE) was tested on the TNBC cell-line MDA-MB-231 with preliminary results confirming that LOE promotes apoptosis with concomitant arrest of the cell cycle in the G1 phase in TNBC, resulting in a decrease in cell viability. However, to be a viable therapeutic treatment for aggressive cancer, LOE must induce apoptosis in breast cancer cells specifically without compromising the viability of normal, non-tumorigenic mammary cells. Building on the initial results, we aim to investigate the effects of LOE on the cell cycle progression and apoptosis in the non-tumorigenic mammary epithelial cell-line MCF10A using flow cytometry.