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Aqueous Maté Extract Decreases the Viability Human Breast Cancer through Apoptosis and Cancer Repression

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Aqueous Maté Extract Decreases The Viability Human Breast Cancer

Through Apoptosis and Cancer Repression

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Ilex paraguariensis, also known as Yerba Maté, is a subtropical plant native to South America. In various South American cultures, the leaves of Yerba Maté tree are roasted to make a traditional herbal tea. Several studies have been conducted to elucidate the beneficial effects of this beverage. A recent study has shown that saponins isolated from Yerba Maté extract induce apoptosis in human colon cancer cells, while another study indicated that the consumption of Maté tea causes higher incidence of esophageal cancer. Our study looked into the effects Yerba Maté extract had on human breast cancer cells. The findings showed a decrease in viable T47D breast cancer cells after treatment with crude Maté extract in a dose-dependent manner. To elucidate the mechanism by which Maté extract causes breast cancer cells to die, we quantified different markers of apoptosis. Caspase 3-AF 647 and p53 FITC assays allowed us to detect an increase in both caspase 3 and p53 concentrations using flow cytometry. These results were corroborated by the analysis of gene expression of p53 and caspase 3 utilizing RT-qPCR. The treatment with Yerba Maté extract induced a 5-fold increase in p53, and 1.7 fold increase in caspase 3 gene expressions. These findings suggest that the treatment with Yerba Maté extract results in an up regulation of pro-apoptotic markers in breast cancer cells, thereby decreasing their viability through apoptosis, which is a programed cell death mechanism.