Aqueous Extracts of Cinnamomum spp., Syzygium romaticum and Cinnamaldehyde and Their Effects on the Growth of MDA-MB-231

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Throughout history, plant extracts have been used as treatments for a number of different illnesses. Past research suggests that clove oil and Eugenol, a chemical found both in cloves and cinnamon, may induce apoptosis in cancerous cells. No work, however, has been done to assess the effectiveness of clove aqueous extract on breast cancer cells. This study evaluated the ability of aqueous plant extracts to inhibit the growth of the breast cancer cell line MDA-MB-231 in vitro. Aqueous extracts were obtained from clove and two cinnamon species (C. cassia, C. verum) using a percolator and were diluted into three different concentrations. I also tested the effects of cinnamaldehyde. Hydrogen Peroxide and three concentrations of water were used as the control. Cell death was assessed using two different assays: Annexin V and Propridium Iodide staining, and Anchorage Independent Growth (AIG). All samples were run in duplicate. Overall, cinnamaldehyde had the highest average percentage of dying cells at 51.9%. High doses of C. cassia induced apoptosis and I found a significantly lower number of cells in the high concentration of C. cassia and cinnamaldehyde, as well as an increased number of dying cells. The lower number of cells could be either due to an effect on cell adhesion or an increased rate of cell death.