Cytotoxic Effects of Dehydrocrotonin on MCF-7 Human Breast Cancer Cells

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Introduction: Diterpenes exhibit potent antineoplastic properties against human and murine carcinoma cell lines. Dehydrocrotonin (DHC) is a diterpene lactone isolated from the Amazonian plant Croton cajucara and has antiulcerogenic and antitumor activities. The cancer chemopreventive activities of DHC in different systems are based on its antioxidant activities and apoptosis induction. Objective: The aim of this study was to investigate the cytotoxic effects of dehydrocrotonin on MCF-7 cells by MTT reduction viability assay. Material and Methods: MCF-7 cells were treated with different concentrations of dehydrocrotonin (0 – 1000 μM) during 24h after 48h of cell seeding (30,000 cells/mL). Cell viability assay evaluated by MTT reduction assay. Results and Discussion: After 24 hours, 250 μM of DHC was able to reduce 50% of cell growth. In previous studies, we examined the effect of DHC on the viability of leukemic cells (HL60 cells) by protein content and phosphatase activity of these cells. Protein quantification indicated that DHC reduced the number of cells with a 50% of inhibitory concentration of 500 μM. Conclusion: Our results suggest that DHC might act as a chemopreventive agent in breast cancer cells and according to results is more effective to kill breast cells than leukemic cells.

Key Words: dehydrocrotonin, MCF-7 cells, cytotoxicity