

عنوان مقاله:

Evaluation of the anti-cancer effect of Dianthin-۳۰ on MCF-۷ breast cancer cell line in ۳D cell cultures

محل انتشار:

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خلاصه مقاله:

Objectives: Breast cancer is one of the most common types of cancer among women. One of these toxins that inhibits the growth of breast cancer cells in ۲D cell culture and has significant anti-tumor effects is Dianthin-۳۰. Therefore, in this manuscript, for the first time, the anti-cancer effect of Dianthin-۳۰ toxin against breast cancer cells (MCF-۷) in ۳D culture has been studied. Materials and Methods: In order to evaluate the anti-cancer effects and cytotoxicity of the toxin at concentrations of ۱.۲۵, ۲.۵, ۵ and ۱۰µg/ml, MTT methods were used and a Neutral red test was used to validate the results of this test. Nitric oxide, Catalase, GSH assays, cytochrome c, Caspase-۳ and Comet assay tests were also used to determine the type of mortality in cancer cells. Results: This toxin did not induce nitric oxide production, but at concentrations higher than ۵µg/ml increased catalase production compared to the control. However, the level of GSH produced in all of the concentrations was significant compared to the control. In addition, Dianthin-۳۰ increased cytochrome ۳۰ and activation of caspase-۳ in the above concentrations, but this effect was not significant compared to the control. The results of alkaline comet test also showed that the rate of induction of apoptosis by toxin was upward compared to the control. Conclusion: The results of this study show that Dianthin-۳۰ has anti-cancer effects and has caused death in breast cancer cells and this toxin probably induced apoptosis in cancer cells more than the non-mitochondrial pathway.

کلمات کلیدی:

Breast cancer, Dianthins ۳۰, Cytotoxicity, MCF-۷ cell line, ۳D culture

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