

**Abstract:**

Cancer is one of the main causes of death all over world. After Cardiovascular disease, the second most common cause of death in the developed countries is cancer and it's the third reason in the developing countries. Breast cancer is the most common cancer among women and the second reason of death after lung cancer. Clinical effectiveness of chemotherapy is restricted because of side effects, pharmaceutical toxicity and Drug resistivity. Pharmaceutical plants are important sources for discovering new medicine. The effect of ethanolic extract of *citrullus colocynthis* and *Zingiber officinalis* on the viability of cell Line of MCF-7 is studied in this research. *Zingiber officinalis* has a significant cytotoxic effect in compare with *citrullus colocynthis*. For this purpose, breast cancer cells of the MCF-7 Line are culture and treated by concentrations of 2.5, 5 and 10 µg/mL for 48 hours. The effect of extract on viability of cells evaluated by MMT test (3-(4, 5-Dimethylthiazol-2-yl)-2, 5-diphenyltetrazolium). Afterwards, RNA extraction is performed and cDNA is created for measuring expression level of *K-Ras* and *Bcl-2* by Real-Time PCR. The results of cell Culture showed that by increasing concentration, viability of cells, decreases significantly in compare with control samples. Results of Real-Time PCR demonstrated that expression of *Bcl-2* in treating for 48 hours by 10 µg/mL of the extract of *Zingiber officinalis*, has significantly decreased compared to control samples, while expression of *K-Ras* has increased (P<0.05).

**Keywords:** breast cancer, *Zingiber officinalis*, apoptosis, *K-Ras*, *Bcl-2*



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**Evaluation of the effect extracts of Colocynth and Ginger  
using ultrasonic waves on expression of RAS and BCL-2  
genes in a MCF-7 breast cancer cell line**

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