

## عنوان مقاله:

Cytotoxic activity of caffeic acid and gallic acid against MCF-7 human breast cancer cells: An in silico and in vitro study

## محل انتشار:

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## خلاصه مقاله:

**Objective:** Phenolic compounds have been considered inhibitors of various cancers. **Material and Methods:** In this study, caffeic acid and gallic acid were appraised for their possible effects on apoptotic genes expression in a breast cancer cell line in vitro. We also evaluated ligand interaction and ligand binding with estrogen receptor alpha by molecular docking. To determine half maximal inhibitory concentration, MCF-7 cells were treated with different concentrations of caffeic acid and gallic acid by 3-(4, 5-dimethylthiazol-2-yl)-2, 5-diphenyltetrazolium bromide assay. Furthermore, morphological changes in cells and alterations in P53, Mcl-1 and P21 gene expression were studied by real-time RT-PCR. Also, protein network and different interactions between the desired genes were analyzed using GeneMANIA database. **Results:** Evaluation of cell survival by MTT assay revealed that the half-maximal inhibitory concentration values for caffeic acid and gallic acid against MCF-7 cells, were 159 and 18 µg/ml, respectively. These compounds were found to affect P53, Mcl-1 and P21 gene expression; this alteration in gene expression probably occurred along with the activation of intrinsic apoptotic signaling pathway. **Conclusion:** Via apoptosis induction, caffeic acid and gallic acid have induce toxic effects and morphological changes in breast cancer cells, suggesting their possible future application as antitumor agents.

## کلمات کلیدی:

Caffeic acid, Gallic acid, MCF-7, P53, P21, Mcl-1

## لینک ثابت مقاله در پایگاه سیویلیکا:

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