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Original Article

Evaluation of p53 and Bcl-2 genes and proteins expression in human breast cancer T47D cells treated with extracts of *Astrodaucus persicus* (Boiss.) Drude in comparison to Tamoxifen

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Abstract:

Background and purpose of the study: Screening of different plant components for new anticancer drugs is one of the main research activities throughout the world. In this study, the anticancer effects of *Astrodaucus persicus*, an Iranian species of family of Umbelliferae, in human breast cancer T47D cells was investigated. Also since tumorigenesis is thought to result from a series of progressive gene alterations, including activation of oncogenes and inactivation of tumor suppressor genes, expression of two such genes, p53 and Bcl-2 that are believed to play a crucial role in tumorigenesis and cell death were determined.

Materials and Methods: The p53 and Bcl-2 genes and proteins expression alterations in T47D cells at RNA synthesis level was studied by using RT-PCR analysis and protein synthesis using immunocytochemistry technique.



Results: p53 gene expression increased significantly in the presence of both plant extracts but Bcl-2 expression increased significantly in the presence of aerial and decreased significantly in the presence of root extract. In addition, treatment of T47D cells with plant extracts decreased the nuclear staining of p53 and cytoplasmic staining of Bcl-2 proteins.

Conclusion: These results suggest that the methanolic extracts of *Astrodaucus persicus* especially its root extract may contains bioactive compounds, probably coumarins that prevents proliferation of T47D breast carcinoma cells by mechanisms such as apoptosis. These data are the first report on the possible molecular mechanisms of action of *Astrodaucus persicus* extracts in breast cancer cell proliferation.

Keywords:

Astrodaucus persicus , T47D cells , p53 and Bcl-2 gens , RT-PCR , Immunocytochemistry

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