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Cytotoxic activity of *Acanthophyllum bracteatum* and *A. microcephalum* in a human breast cancer cell line

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Statement of the Problem: In recent years, medicinal plants have been the focus of attention in pharmaceutical sciences evaluations. They have been the interest of researchers as potential agents for treatment of various ailments, one of which is cancer. Some medicinal plants have been proved to be able to fight cancer through inducing apoptosis in the cancerous cells. Apoptosis is a programmed cell death which will start in response to some stimuli. In the present study, the cytotoxic and possible apoptosis activity of two plant extracts derived from *Acanthophyllum bracteatum Boiss.* and *A. microcephalum Boiss.* (Caryophyllaceae) have been evaluated in MCF-7 cancerous cell line.

Methodology & Theoretical Orientation: The methanol extract of the plants were obtained by maceration and the cytotoxicity was evaluated with MTT assay. The apoptosis potential of the extracts were then evaluated by Hoechst 33258 staining which is a cell-permeant DNA-binding dye that brightly stains the condensed chromatin of apoptotic cells which could be examined by fluorescence microscopy afterwards.

Findings: The IC50 values in MTT assay were found to be 159 and 64 µg/mL for *Acanthophyllum bracteatum* and *A. microcephalum* in MCF-7 cells, respectively. Stained nuclei could be detected in the Hoechst assay.

Conclusion & Significance: Considering the results it is suggested that the two species go through further studies for isolation of their effective components.

Recent Publications

1.Hamzeloo-Moghadam M, Aghaei M, Fallahian F, Jafari SM, Dolati M, Abdolmohammadi H, Hajiahmadi S, Esmaeili S (2015) Britannin, sesquiterpene lactone, inhibits proliferation and induces apoptosis through the mitochondrial signaling pathway in human breast cancer cells. Tumor Biology; 36: 1191-1198.

2.Fallahian F, Aghaei M, Abdolmohammadi M H, Hamzeloo-Moghadam M (2015) Molecular mechanism of apoptosis induction by Gaillardin, a sesquiterpene lactone, in breast cancer cell lines. Cell Biology and Toxicology; 31: 295-305.

Biography

Maryam Hamzeloo-Moghadam has her research interests in cytotoxic evaluation and apoptotic induction of natural products along with exploring the traditional manuscript for biological evaluation or preparation of modern dosage forms.

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