

Evaluation of *Rheum turkestanicum* Janischew. root cytotoxic effects on human breast cancer cell line (MCF-7)

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Background and Aims: To evaluate cytotoxicity and apoptotic activity of *Rheum turkestanicum* Janischew. (polygonaceae) root three different extracts (ethyl acetate (EtOAc), n-hexane and H₂O) on human breast cancer cell line.

Methods: Malignant cells were cultured in RPMI 1640 medium and incubated with different concentrations of plant extracts. Cell viability was quantitated by MTS assay. Apoptotic cells were determined using PI staining of DNA fragmentation by flow cytometry (sub-G1 peak). Apoptosis was confirmed morphologically by DNA ladder formation method.

Results: Ethyl acetate and n-hexane extracts were found to inhibit the growth of MCF-7 cells as a concentration and time-dependent manner with IC(50)=155 and 320 μ g/ml after 48 hr, respectively. apoptosis was evidenced by fragmented DNA ladder, and the accumulation of DNA in the sub-G(1) phase of cell cycle.

Conclusions Both the extracts failed to induce a promising cytotoxic effect on MCF-7 cells. But further researches are needed to fully understand the possible anti-tumor properties.

Keywords: *Rheum turkestanicum*; Cytotoxicity; Apoptosis