Abstract

Human Ovarian cancer is the most lethal gynecological malignancies in women. This cancer represents the fifth rank of cancer death among females. Initial treatment of ovarian cancer achieves good clinical response, but most of patients will eventually develop resistance to treatment. Indeed nowadays, chemoresistance is a major barrier for successful treatment of human ovarian cancer patients. Therefore, the design of more effective drugs with fewer side effects or complementary treatment to enhance the quality of life of these patients is essential. In the last two decades, botanicals with effective anticancer activity have been studied. Zizyphus jujube has shown therapeutic effects in various diseases. Previous studies have demonstrated various anti-tumor effects of Zizyphus extracts alone or in combination with other botanical formulations on some cell lines of cancer. It is well-known that tumor development is accelerated by disruption of the balance between cell proliferation and cell death, which is maintained through the regulation of various signal transduction and apoptotic pathways. Several genes control apoptosis. *P53* is among the most crucial regulators of this process.The biological consequences of p53 activity include cell-cycle regulation, induction of apoptosis, development, differentiation gene amplification, DNA recombination, chromosomal segregation, and cellular senescence. Presently, p53 is known to play a key role in practically all types of human cancers, and the mutations of the p53 gene can be identified in more than 60% of human ovarian cancer.

The aim of the present study was to investigate the cytotoxic effects of aqueous and alcoholic zizyphus jujube extracts and analyzed *P53* alteration in response to this agent on the OV2008 human ovarian cancer cell. For this purpose OV cells cultured. After 24 h culture period, the cells were treated with different concentrations of aqueous and alcoholic extracts of Jujube for 24, 48 and 72 h. The influence of extracts on cell viability was determined by MTT assay. Effective dose determined, then cells cultured for RNA extraction. After of RNA extraction, cDNA synthesis and doing Real time PCR. Finally, statistical analysis and interpretation of the data were performed. An MTT assay showed a significant dose- and time-dependent inhibition of OV cells proliferation as a result of treatment with aqueous but not alcoholic extract ($P<0.05$). RT-PCR analyses revealed Time dependent not dose dependent up-regulation of P53 expression in 12h and 36 h treated cells. Hope that by determine mechanism of effect of this herbal drug design new drugs can prevent progression of ovarian cancer and thus can help to extend the lifetime of these patients against this silent killer.

University of Zabol
Faculty of Science
Department of Biology
Biology – Genetics

Title:

Ziziphus Jujube aqueous and alcoholic extracts effects on *P53* gene expression in ovarian cancer cells

Supervisor
Dr. G.H. Motalleb
Dr. M.R. Abedini

Advisor
Dr. M. Fereidouni

M. Gholami

February 2014