

***In vitro* cytotoxic assay of giant Fennel fractions**

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Background and Aims: The use of natural products with therapeutic properties is as ancient as human civilisation. Plants are used as an essential component of traditional medicine. Iran has a long history in this field. There are many books in Iranian traditional medicine (ITM) which have different remedies for various diseases including cancer. The findings showed that cancer in ITM has been categorized under /orâme / and classified as /orâme salbe/ and /orâme bârede/. In most developed countries, cancer is the second largest cause of death. It is necessary to increase research efforts as regards both the modalities of treatment, or the development of new agents. Medicinal plant drug discovery continues to provide new and important leads. According to previous investigation on cytotoxic effect of selected plants from ITM, methanolic extract of giant fennel (*Ferula assafoetida*) showed most cytotoxic effects among 10 selected plants.

Methods: In this study, the fractionation was prepared by maceration of the powdered material in Petroleum benzene, Chloroform and methanol. Cytotoxic activity of the fractions were tested against MCF7 (human breast carcinoma), HepG2 (hepatocellular carcinoma), A549 (lung carcinoma), HT-29 (human colon adenocarcinoma) and MDBK (cow's normal kidney cell) using MTT assay (3-(4,5-Dimethyl thiazol-2-yl)-2,5-diphenyltetrazolium bromide). The percentage inhibition at each concentration was determined and the mean of IC50 values of the cell viability was calculated.

Results: Methanolic fraction showed IC50 more than 100 µg/ml. The Petroleum fraction and Chloroform fraction showed IC50 values less than 52 µg/ml in four cell lines. The Chloroform fraction showed IC50 61.42 µg/ml in MCF7. The Petroleum fraction showed IC50 45.73 µg/ml in MCF7.

Conclusions: According to the obtained results, Chloroform and Petroleum fraction have better cytotoxic activity than methanolic fraction, thus nonpolar substances might be responsible for cytotoxic effects.

Keywords: Cancer; Cytotoxic; Giant fennel