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Cytotoxicity effect of ethanolic extract of *Ferula asafoetida* resin on oral squamous cell carcinoma

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Statement of the Problem: Medicinal plants are used to treat various diseases, including malignancies. Since no studies have evaluated the effect of *Ferula asafoetida* on oral squamous cell carcinoma, the current study was designed to evaluate in vitro effects of *Ferula asafoetida* on oral squamous cell carcinoma cells in comparison with normal mice fibroblast cells.

Methodology & Theoretical Orientation: Oral squamous cell carcinoma cells (KB) and normal rat fibroblast cells (L929) (as control) were cultured in enriched RPMI 1640 medium. Then extract of *Ferula asafoetida* was procured from the Iranian Research Center for Herbal and Traditional Medicine and the cells were treated with 0.75-160 µg/mL concentrations of the extract for 24, 48 and 72 hours. Thereafter, the viability of the cells was assessed by Methyl Toluidine Blue (MTT) method.

Findings: In this study IC50 was 40.69 and 90.34 µg/mL for KB and L929 cells, respectively. IC50 ratio for normal-to-tumoral cells was 90.347:40.69=2.22, indicating that a 2-fold higher concentration of *Ferula asafoetida* extract is needed for cytotoxic effects on normal cell compared to tumoral cells. As the result, *Ferula asafoetida* extract showed more cytotoxic effects on tumoral cells (KB) than on normal cells (L929).

Conclusion & Significance: This study showed that the alcoholic extract of *Ferula asafoetida* exerted cytotoxic effects on tumoral cells of oral squamous cell carcinoma. Moreover, it exerted more cytotoxic effects on tumoral cells compared with normal cells.

Biography

Jahangir Gavanji was introduced as the Best Elite and Inventor of Iran by Ministry of Science in 2008. He could win the global medal of invention in Germany in 2006. He continued his education in Azad University of Dolata bad branch. He was also chosen as the best Iranian young in invention and innovations in 2009.

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