

Cytotoxic effect of saffron stigma aqueous extract on human transitional cell carcinoma and mouse fibroblast.

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Abstract

INTRODUCTION: Saffron has been suggested to have inhibitory effects on tumoral cells. We evaluated the cytotoxic effect of aqueous extract of saffron on human transitional cell carcinoma (TCC) and mouse non-neoplastic fibroblast cell lines. **MATERIALS AND METHODS:** Human TCC 9737 cell line and mouse fibroblast cell line ($L929$) were cultivated and incubated with different concentrations of aqueous extract of saffron stigma (20 microg/mL to 4000 microg/mL). Cytotoxic effect of saffron was evaluated by morphologic observation and 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide colorimetric assay after 24, 48, 72, and 120 hours in each cell line. **RESULTS:** After 24 hours, morphological observations showed growth inhibitory effects at saffron extract concentrations higher than 200 microg/mL for $L929$ cells and at concentrations of 20 microg/mL to 200 microg/mL for the TCC cells. These changes became more prominent after 48 hours. However, significant growth inhibitory effects of the extract were shown at concentrations of 400 microg/mL and 800 microg/mL. Higher concentrations of saffron correlated inversely with cell population of both cell lines. Significant reduction of the survived cells was seen at concentrations of 400 microg/mL and 2000 microg/mL for TCC and $L929$ cell lines, respectively. After 120 hours, decrease in the percentage of survived cells at higher concentrations of saffron extract was seen in both cell lines. At a concentration of 800 microg/mL, the survived $L929$ cells plummeted to less than 10% after 120 hours, while no TCC cells survived at this time. No $L929$ cells survived at 2000 microg/mL. **CONCLUSION:** Saffron aqueous extract has inhibitory effects on the growth of both TCC 9737 and normal $L929$ cell lines. This effect is dose dependent.

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