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Study of cytotoxic and apoptogenic properties of saffron extract in human cancer cell lines

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View references (٢٧)

Abstract

Saffron (dried stigmas of Crocus sativus L.) has been used as a spice, food colorant and medicinal plant for millennia. In this study cytotoxic effect of saffron extract was evaluated in HepG٢ and HeLa cell lines. Meanwhile role of apoptosis and ROS were explored. Malignant and non-malignant cells (L٩٢٩) were cultured in DMEM medium and incubated with different concentrations of ethanolic saffron extract. Cell viability was quantitated by MTT assay. Apoptotic cells were determined using PI staining of DNA fragmentation by flow cytometry (sub-G١ peak). ROS was measured using DCF-DA by flow cytometry analysis. Saffron could decrease cell viability in malignant cells as a concentration and time-dependent manner. The IC٥٠ values against HeLa and HepG٢ were determined ٨٠٠ and ٩٥٠ μg/ml after ٤٨ h, respectively. Saffron induced a sub-G١ peak in flow cytometry histogram of treated cells compared to control indicating apoptotic cell death is involved in saffron toxicity. This toxicity was also independent of ROS production. It might be concluded that saffron could cause cell death in HeLa and HepG٢ cells, in which apoptosis or programmed cell death plays an important role. Saffron could be also considered as a promising chemotherapeutic agent in cancer treatment in future.

Reaxys Database Information

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Author keywords

Apoptosis; Crocus sativus L.; Cytotoxicity; HeLa; HepG٢

Indexed Keywords

EMTREE drug terms: Crocus sativus extract

EMTREE medical terms: apoptosis; article; cell strain HepG٢; cell strain L ٩٢٩; cell viability; controlled study; DNA degradation; drug cytotoxicity; flow cytometry; HeLa cell; human; human cell

MeSH: Anticarcinogenic Agents; Antimutagenic Agents; Apoptosis; Carcinoma, Hepatocellular; Cell Line, Tumor; Cell Survival; Crocus; DNA Fragmentation; Dose-Response Relationship, Drug; Female; Flow Cytometry; Hela Cells; Humans; Liver Neoplasms; Mutagenicity Tests; Plant Extracts; Reactive Oxygen Species; Time Factors; Uterine Cervical Neoplasms

Medline is the source for the MeSH terms of this document.

Species Index: Crocus sativus

Chemicals and CAS Registry Numbers: Anticarcinogenic Agents; Antimutagenic Agents; Plant Extracts; Reactive Oxygen Species

Manufacturers:Drug manufacturer: Novin Zaferan, Iran.