P-10-833-2

Evaluation antidiarrheal effect of pomegranate peel extract

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Pomegranate is an important source of antioxidants, potassium and vitamin C. Pomegranate has anti-coagulative, anticancer, cholesterol lowering and sedative effects. The aim of this study was to evaluate antidiarrheal effect of pomegranate peel extract in rat. Hydroalcoholic peel extract of pomegranate was prepared by maceration method. In on group of rat, castor oil was orally administrated at dose 0.5 ml and the number of defecation and weight of feces was determined within 4 hours (control group). In other group of rats, peel extract of pomegranate was orally given at dose 400mg/kg and 30 min later castor oil was orally administrated as control group. In third group, diphenoxylate was orally given at dose 5mg/kg and 30 min later castor oil was orally administrated as control group. The results showed that pomegranate peel extract decreased the number of defecation and weight of feces in comparison to control group but this decreasing was not statistically different. Thus, pomegranate peel extract has antidiarrheal effect lesser degree than diphenoxylate.

Keywords: pomegranate peel extract, diphenoxylate, antidiarrheal effect, rats

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P-10-793-3

Protective effect of aqueous saffron extract, on dichloroethylsulfide (HD)-induced DNA damage in macrophage cells

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The aim of the present study was to estimate the antigenotoxicity effect of aqueous saffron extract, in macrophage cells treated with cadmium chloride as a heavy metal. Macrophage cells were obtained from peritoneum of mice (2x106 cells) divided to six groups (negative control, positive control HD, saffron, saffron+ HD, HD+Saffron). The test groups were treated with LD50 concentration of HD and 50mg/kg of aqueous saffron extract. The potential antigenotoxicity was determined by the comet assay as the extent of DNA fragmentation in mouse macrophage in vitro. The comet assay detects DNA strand breaks induced directly by genotoxic agents as well as DNA fragmentation due to cell death. Another oxidant agent, KMnO4, already proved to be genotoxic, was used as a positive control. The results of the study demonstrated that the genotoxicity of HD was comparable with that of KMnO4. However, the genotoxic activity of HD may be significantly reduced by pretreatment with 50mg/kg of aqueous saffron extract (approximately 60%) but didn't show any protective effect in post-treatment of intoxicated cells with saffron extract.

Keywords: comet assay, HD, macrophage, genotoxicity, saffron extract

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O-10-414-1

Antioxidant and radical scavenging activity of eriocitrin, a glycosylated flavanone from Citrus Limon (L.)

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This study deals with the investigation of in vitro antioxidant activity of eriocitrin, a flavanone glycoside, which was isolated by column chromatographic separation and systematic fractionation of a methanolic extract of citrus limon (L.) peel over silica gel. The isolated compound was identified through the usual methods of analysis and comparison with the authentic sample (mmp, Co-TLC and UV). Following the lead of activities reported for certain varieties of citrus fruit peels, antioxidative properties and free radical scavenging activity of the isolated eriocitrin was evaluated by two different systems, namely DPPH and carotene/linoleic acid assays. The compound demonstrated a significant ($p<0.05$) 1,1-diphenyl-2-picrylhydrazyl free radical scavenging ability. The percentage inhibitory effect was found to be 96.68% 0.56 which was almost comparable to that of standard antioxidant BHT (97.54% 0.63). The results of this study lies in close conformity with previously reported activities for various flavonoids. This compound fulfills some structural requirements like o-dihydroxy system for the manifestation of free radical scavenging activity. Further investigation with the total and individual phenolic components and the estimation of their possible synergistic effects remains to be the relevant interesting aspects in order to locate other active constituents of the peel extract.

Keywords: eriocitrin, radical scavenging activity

P-10-924-1

Allium hirtifolim (Iranian Shallot) as a anti cancer

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Allium hirtifolim Boiss. (Persian Shallot) belongs to Allium genus (Alliaceae family). We investigated the in vitro effects of extract of A. hirtifolium and its Allicin on the proliferation of HeLa (cervical cancer), MCF7 (human, Caucasian, breast, adenocarcinoma) and L929 (mouse, C3H/An, connective) cell lines. Then this study aims at defining the anti-microtubule activities of A. hirtifolium and its Allicin and examining its effects on nerve cell microtubules to investigate the anticancer effects of A. hirtifolium. Our results showed that components of A. hirtifolium might inhibit proliferation of tumor cell lines. This inhibition in HeLa and MCF-7 cells was dose-dependent. The presence of Allicin was evaluated by TLC method in bulbs and the extract of A. hirtifolium was analyzed by HPLC. MTT test was performed 24-48 and 72h after cell culture. A significant decrease in cell lines was observed in HeLa and MCF-7 as compared to L929 cell lines. DNA fragmentation analysis revealed a large number of apoptotic cells in treated HeLa and MCF-7 cell groups, but no effects in L929 cells. Therefore A. hirtifolium might be a candidate for tumor suppression. Inhibition of MTs polymerization induced by A. hirtifolium and its ability to bind to tubulin as a ligand

was tested through turbidimetry assay then investigated by Transmission Electron Microscopy (TEM). A. hirtifolium displayed growth inhibitory activity against HeLa and MCF-7 cells with IC50 value of 20 and 24µg/ml, respectively for 72 h. The concentration of A. hirtifolium necessary to inhibit the assembly of MTs by 50% was 96µg/ml. This plant decreased MTs polymerization. We suggest A. hirtifolium can be an effective ligand for cancer therapy.

Keywords: Allicin, Allium hirtifolium, dynamic instability, microtubule

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P-10-929-1

The heart of date palm: Its nutritional and functional constituents

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Kabkub is the main cultivated species of date palm, phoenix dactylifera L in southern part of Iran, Bushehr. The tree's terminal buds (heart of palm or palmitos) is widely used and believed to have many nutritional values. We analyzed the total carbohydrates, proteins, minerals, fats and dietary fiber in the sample. Fats were extracted and analyzed using Bligh-Dyer method and gas chromatography. Total proteins and carbohydrates were determined by Kjeldahl and Lane–Eynon methods respectively. The minerals were analyzed by atomic absorption spectroscopy. The unsaturated fatty acids present in the sample were mainly linoleic, linolenic and oleic acids, all together make 27.2 % of the fats and palmitic acid was the main saturated fat. The protein and carbohydrate content of the palm heart were 0.3 g and 2.29 g per one ounce, respectively. The minerals present in the sample were mainly Zn, Fe, Mg, P, Mn, Ca, Cu, Na, K and Se which all have potential benefits for health. This study conclude that, having many essential fatty acids, minerals and fiber the palm heart can be used as a good source of nutritional and functional nutrients. We suggest more investigations about the micronutrients present in the product including vitamins and amino acids.

Keywords: date palm, Kabkub, palmitos, palm heart, nutritional values

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P-10-841-9

The cytotoxic and pro-apoptotic effects of Pleurotus Florida body extract on cancer cell lines

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The use of mushrooms has been recommended in Traditional Medicine is meant for treatment of different disease including cancer. Nowadays, different medical approaches are used for the treatment of cancers, but in most cases they are not effective or have unpleasant side-effects. This enforced scientists to study more effective drugs with less toxicity. This study evaluated the cytotoxicity effect of aqueous extract of Pleurotus florida body on cytotoxicity of some cancer cell lines. The pattern of cellular death in sensitive cell line is evaluated too. Cancer cell lines were provided by Natural Cell Bank of Iran and incubated in culture medium. Aqueous extract was prepared from Pleurotus florida body. The growth inhibitory activity of this extract was determined for different cancer cell lines and fibroblast cell line using colorimetric MTT assay. Apoptotic cells were determined using AnnexinV-FITC and propidium iodide (PI) staining of treated cells by flow cytometry. The results showed that the aqueous extract induced a significant inhibitory activity for cancer cell lines in a dose-dependent manner. It exhibited the most cytotoxicity effect against AGS. This toxicity was induced by apoptotic and non-apoptotic cell death in AGS cell line. Edible mushroom, Pleurotus florida had cytotoxicity effect on cancer cell lines especially gastric adenocarcinoma cell line through apoptotic and non-apoptotic cell death. Further studies are needed to elucidate the mechanisms by which this extract acts.

Keywords: Pleurotus Florida, cancer cell lines, cytotoxicity, apoptosis, necrosis

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P-10-512-3

Investigation of antifungal effects of Pterocarya Fraxinifolia and characterization of an anti-fungal cream

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Pterocarya fraxinifolia is an indigenous plant found in north of Iran. Native people and farmers use the leaves of this tree as antifungal foot infections. Its neurotoxic effect has also been reported. Dermathopytes are the main cause in fungal infections like dermaphytosis and Tinea, in which keratinated region like hair, nail and external layer of skin especially foot fingers are involved. The United State spends 400 million dollars annually for the treatment of the disease. Moist warm conditions are suitable for fungi growth and cause infection, therefore infection is commonly seen in athlete's foot fingers known as athlete's foot. However the disease isn't a serious risk for human health but it can be dangerous for diabetes and HIV patients. In this study we used PDA (Potato-Dextrose Agar) and NB (Nutrient Broth) medium for the cultivation of fungi. Several conventional extraction methods are used but hydroalcoholic extraction with 50%-50% (w/w) ethanol-water concentration is preferred. After evaporation of solvent in 37°C, the dry residue was dissolved in water and used for inhibition analysis. We separated seven bands with TLC technique and determined the influence of each band separately on fungi growth. Base of absorption inhibition and previous studies the principle structure in the extract was 5-hydroxy 1,4 naphtaquinone. Plates were examined for growth and colony diameter then the minimum inhibition concentration (MIC) was determined. Different formulations regarding their appearance, particle size and phase homogenesity, emolliency and viscosity were evaluated. 2% of extract was added to make a proper formula having the best antifungal effect.

Keywords: Pterocarya fraxinifolia, fungal infections, athlete's foot

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