1- Molecular study on cytokine gene polymorphysim among cases of psoriasis

2- Mitigating effects of antioxidant properties of black berry juice on sodium fluoride induced hepatotoxicity and oxidative stress in rats.

Fluorosis is a serious public health problem in many parts of the world. As in the case of many chronic degenerative diseases, increased production of reactive oxygen species has been considered to play an important role, even in the pathogenesis of chronic fluoride toxicity. Black berry is closely linked to its protective properties against free radical attack. Therefore, the aim of this study was to demonstrate the role of black berry juice (BBJ) in decreasing the hepatotoxicity and oxidative stress of sodium fluoride (NaF). Results showed that NaF caused elevation in liver TBARS and nitric oxide (NO), and reduction in superoxide dismutase (SOD), catalase (CAT), total antioxidant capacity (TAC) and glutathione (GSH). Plasma transaminases (AST and ALT), creatine kinase (CK), lactate dehydrogenase (LDH), total lipids (TL), cholesterol, triglycerides (TG), and low density lipoproteinâ€“cholesterol (LDLâ€“c) were increased, while high density lipoproteinâ€“cholesterol (HDLâ€“c) was decreased. On the other hand, BBJ reduced NaF-induced TBARS, NO, TL, cholesterol, TG, LDLâ€“c, AST, ALT, CK and LD. Moreover, it ameliorated NaF-induced decrease in SOD, CAT, GSH, TAC and HDLâ€“c. Therefore, the present results revealed that BBJ has a protective effect against NaF-induced hepatotoxicity by antagonizing the free radicals generation and enhancement of the antioxidant defence mechanisms.

3- ROLE OF GARLIC OIL IN MANAGEMENT THE BIOCHEMICAL ALTERATIONS AND OXIDATIVE STRESS INDUCED BY SODIUM NITRITE IN MALE ALBINO RATS

The main purpose of this study was to elucidate the modifying role of garlic oil against the hazard effects of sodium nitrite (a food preservative agent) on some biochemical parameters and oxidative status in male albino rats. The present data observed that the ingestion of sodium nitrite (80 mg/ kg b.wt.) for three months induced a significant increase in serum levels of glucose, aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP), bilirubin, urea and creatinine. Also, hepatic AST and ALT enzymes activity was increased, whereas a significant decrease
was recorded in liver glycogen as well as serum, liver and renal total protein content. Similar decrease was noticed in liver ALP activity, renal urea and creatinine levels. Moreover, the results showed a significant increase in lipid peroxidation assessed as thiobarbituric acid reactive substance (TBARS) in both liver and kidney of sodium nitrite treated rats. In the mean time, glutathione (GSH) content as well as catalase activity were decreased in the same tissues. However, the oral administration of garlic oil at a dose of 5 ml/kg b. wt. showed a marked amelioration of the investigated parameters indicating the protective role of garlic oil.

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ADVERSE EFFECTS OF SOME FOOD ADDITIVES ON GROWTH RATE AND SOME BIOCHEMICAL AND HEMATOLOGICAL PARAMETERS IN MALE ALBINO RATS: ROLE OF BLACK SEED AND BEES HONEY AS PROTECTIVE AGENTS

Food additives are substances internationally added to food, this may be natural or synthetic. The safety of repeated use to permitted synthetic food additives (colorants or preservatives) has been questioned. So the aim of the present study was to investigate the impact of the administration of sodium nitrite (NaNO2, as a food preservative agent) and sunset yellow (as a colorant agent) on growth rate and some hematological parameters in rats. In addition, the study extended to evaluate the role of both black seed and bees honey as protective agents. NaNO2 was orally administered to the rats at a dose of 10 mg/kg/day, while sunset yellow was supplemented with diet at a dose equal 0.6% w/w for 30 days. The present data reported that the ingestion of NaNO2 plus sunset yellow causes growth retardation in rats. Also, a significant decrease in serum and liver total protein content was recorded in these rats. Meanwhile, thyroid hormones (T3 and T4) were significantly elevated indicating development of hyperthyroidism. The hematological analysis recorded a significant decrease in RBCs and platlets count accompanied by significant increase in WBCs count. Moreover, a decrease in Hb content as well as Hct, MCV and MCH values was suggested in food additive ingested rats. Fortunately, the administration of black seed (4% w/w in diet) and/or bees honey (orally 2.5g/kg b.w/day) ameliorated the disturbances observed, indicating remarkable protection against the adverse effects of these food additives on growth rate and the estimated biochemical and hematological parameters. Overall, the most pronounced effect was achieved by the combined treatment with black seed and bees honey, in addition the treatment by honey was more effective than black seed.

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Oxidative damage to cellular components such as lipids and cell membranes by free radicals and other reactive oxygen species is believed to be associated with the development of degenerative diseases. Fluoride intoxication is associated with oxidative stress and altered anti-oxidant defense mechanism. So the present study was extended to investigate black berry anti-oxidant capacity towards superoxide anion
radicals, hydroxyl radicals and nitrite in different organs of fluoride-intoxicated rats. The data indicated that sodium fluoride (10.3 mg/kg bw) administration induced oxidative stress as evidenced by elevated levels of lipid peroxidation and nitric oxide in red blood cells, kidney, testis and brain tissues. Moreover, significantly decreased glutathione level, total anti-oxidant capacity and superoxide dismutase activity were observed in the examined tissues. On the other hand, the induced oxidative stress and the alterations in anti-oxidant system were normalized by the oral administration of black berry juice (1.6 g/kg bw). Therefore it can be concluded that black berry administration could minimize the toxic effects of fluoride indicating its free radical-scavenging and potent anti-oxidant activities.

6- Garlic oil as a modulating agent for oxidative stress and neurotoxicity induced by sodium nitrite in male albino rats.

In the present study, we investigated the neurobiochemical alterations and oxidative stress induced by food preservative; sodium nitrite (NaNO2) as well as the role of the garlic oil in amelioration of the neurotoxicity in male albino rats. Serum and brain homogenates of the rats received NaNO2 (80 mg/kg body weight) for 3 months exhibited significant decrease in acetylcholine esterase (AChE) activity as well as the levels of phospholipids, total protein and the endogenous antioxidant system (glutathione; GSH and superoxide dismutase; SOD). In contrast, lactic dehydrogenase (LDH) activity, brain thiobarbituric acid reactive substances (TBARS) and nitric oxide (NO) levels were significantly increased. On the other hand, the oral administration of garlic oil (5 ml/kg body weight) daily for 3 months significantly improved the neurobiochemical disorders and inhibited the oxidative stress induced by NaNO2 ingestion. So, this study reveals the neural toxic effects of NaNO2 by exerting oxidative stress and retrograde the endogenous antioxidant system. However, garlic oil has a promising role in attenuating the obtained hazard effects of sodium nitrite by its high antioxidant properties which may eventually be related with the preservation of SOD activity and primary mitochondrial role against nitrite-induced neurotoxicity in rats.

The current study was carried out to elucidate the modulating effect of chicory (Cichorium intybus L.)-supplemented diet against nitrosamine-induced oxidative stress and hepatotoxicity in male rats. Rats were divided into four groups and treated for 8 weeks as follow: group 1 served as control; group 2 fed on chicory-supplemented diet (10% w/w); group 3 received simultaneously nitrosamine precursors [sodium nitrite (0.05% in drinking water) plus chlorpromazine (1.7 mg/kg body weight)] and group 4 received nitrosamine precursors and fed on chicory-supplemented diet. The obtained results revealed that rats received nitrosamine precursors showed a significant increase in liver TBARS and total lipids, total cholesterol, bilirubin, and enzymes activity (AST, ALT, ALP and c-GT) in both serum and liver. While a significant decrease in the levels of GSH, GSH-Rx, SOD, catalase, total protein and albumin was recorded. On the other hand, chicory-supplemented diet succeeded to modulate these observed abnormalities resulting from nitrosamine compounds as indicated by the reduction of TBARS and the pronounced improvement of the investigated biochemical and antioxidant parameters. So, it could be concluded that chicory has a promising role and it worth to be considered as a natural substance for ameliorating the oxidative stress and hepatic injury induced by nitrosamine compounds.

Effect of soybean oil on atherogenic metabolic risks associated with estrogen deficiency in ovariectomized rats

Abstract The aim of the present study was to investigate the cardiac biomarker changes in experimental bilateral ovariectomized (OVX) rats in addition to evaluating the role of soybean oil-supplemented diet to attenuate these alterations. Female rats were divided into four groups and treated for 2 months as follows: groups 1 and 2 fed with standard diet with or without 15% soybean oil. Groups 3 and 4 were bilateral OVX and received the standard diet with or without 15% soybean oil. The results revealed that rats subjected to ovariectomy exhibited an inhibition in estrogen and
high-density lipoprotein cholesterol levels and marked increase of lipid profile, low-density lipoprotein cholesterol, and VLDL-C accompanied with a marked elevation in atherogenic index, cardiac enzyme activity, tumor necrosis factor-\(\alpha\), and C-reactive protein. Signs of cardiovascular injury which included an increase in cardiac thiobarbituric acid-reactive substances were concomitantly noticed with a reduction in the reduced glutathione, total antioxidant capacity, and superoxide dismutase. However, supplementation of soybean oil resulted in the restoration of the changed lipid profile and improved cardiac biomarkers near to normal values as well as improved inflammatory and antioxidant status. It was concluded that consumption of soybean oil may have a role in retarding atherosclerosis and risk of cardiovascular disorders associated with estrogen deficiency in ovariectomy status.

**Role of phytoestrogenic oils in alleviating osteoporosis associated with ovariectomy in rats**

The objective of this study was to elucidate the effect of soybean oil (SbO) and sesame oil (SO) supplemented diets on bone biomarkers changes in OVX (ovariectomized) rats. The current data exhibited significant decrease in BMD (bone mineral density), accompanied with marked depletion in the level of Ca, P and Mg in both serum and bone of OVX rats. Also, serum estrogen, total protein, HDL-C (high density lipoprotein cholesterol), bone NO levels were decreased in OVX rats. However, a significant increase in the level of serum TL (total lipids), TC (total cholesterol), TG (triglycerides), LDL-C (low density lipoprotein cholesterol), VLDL-C (very low density lipoprotein cholesterol), urine minerals (Ca, P, Mg), as well as serum, bone and urine ALP (alkaline phosphatase) and ACP (acid phosphatase) activity were recorded in OVX rats. Further changes were also detected by the increased level of urine hydroxyproline, serum parathyroid hormone and osteocalcin, as well as urea and creatinine level in both serum and urine. On the other hand, when OVX rats were fed on SbO (soybean oil) (15 % w/w) or SO (sesame oil) (10 % w/w) supplemented diets, the data recorded a significant improvement in all the above mentioned parameters. So, it can be concluded that consumption of SbO or SO supplemented diets might be considered as a functional food for retarding...
risks of osteoporosis associated with estrogen deficiency in OVX states.

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The damaging effect of ionizing radiation on body systems on one hand, and the development of radio-protective agents on the other hand, have gained increased attention in the last decades. In the present study, male Swiss albino mice exposed to six gray gamma irradiation, exhibited significant increase in brain thiobarbituric acid reactive substances (TBARS), nitric oxide (NO), and free radicals such as hydrogen peroxide (H2O2). Significant decrease in the levels of reduced glutathione (GSH), glutathione-S-transferase (GST), superoxide dismutase (SOD), deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) contents, acetylcholinesterase (AchE), and the neurotransmitters dopamine (DA), serotonin (5-HT), and acetylcholine (Ach), was also documented. In addition, the levels of serum electrolytes sodium (Na), calcium (Ca), zinc (Zn), magnesium (Mg), and cupper (Cu) decreased significantly, while the levels of potassium (K), and iron (Fe) increased significantly. Additionally, some Lewy body aggregations were detected. On the other hand, pretreatment of gamma irradiated mice with Mentha piperita extract (1g /1Kg body weight /day) significantly abolished radiation induced elevations of TBARS, NO, H2O2, K and Fe levels, as well as significantly ameliorated the GSH, GST, SOD, AchE, DNA, RNA, Na, Ca, Zn, Mn, Cu and the mentioned-above neurotransmitters levels. In conclusion, Mentha extract may provide a significant level of protection against radiation-induced oxidative stress. It might have improved the antioxidant defense system in pre-treated mice also.

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A. Hassan , Maisaa M. Al-Rawi 2012. Grape seeds proanthocyanidin extract as a hepatic-reno-protective agent against gibberellic acid induced oxidative stress and cellular alterations

The present study aims to investigate the heptonephro-protective effect of grape seeds proanthocyanidin extract (GSPE) against the risks induced by gibberellic acid (GA3) in male rats. The results recorded that GA3 caused a significant increase in total lipids, total cholesterol, triglycerides and LDL-C levels in serum, concomitant with a significant decrease in serum HDLC. A significant increase in serum AST, ALT, urea and creatinine, while, a significant decrease in total protein content in serum was observed in rats given GA3. Hepatic and renal lipid peroxidation product (MDA) was significantly increased, meanwhile, total antioxidant capacity (TAC), glutathione, and catalase levels were significantly decreased. In addition, there was a negative change in liver structure including dilatation in the central veins with degeneration of endothelium cells and
cellular injury around the veins as well as in the kidney structure such as lesion in both glomeruli and tubules, detachment of the Malpighian corpuscles from the Bowman’s capsule’s epithelium, shrinkage in the glomerular capillary network. However, almost all of these adverse effects seemed to be ameliorated by oral administration of GSPE with GA3 to rats for 2 months indicating the protective effect of grape seeds GSPE on GA3 induced oxidative stress in rats.