The present study investigated the effect of some drugs (Orlistat and Chitosan) and herbs (Neopuntia and Jamu Tea) on weight, lipid profile, glucose, liver function and kidney functions of obese rats fed on high fat diet. Healthy male albino rats weighing (200±5 g) were divided into two main groups. The first group (n = 6) fed on a basal diet B.D., while the second main group 30 rat were fed for 6 weeks on high fat diet. The high-fat diet (HFD) was prepared using beef tallow 19%, soybean oil 1% to provide essential fatty acids, sucrose 10%, and casein 20% to induce the obesity in rats. After these periods, rats were divided into 5 subgroups (n =6). Subgroup (1) fed on high fat and high protein diet (20% fat and 20% protein) as a positive control. Subgroup (2) fed on high fat and high protein diet and treated daily with 5 mg orlistat/ rat. Subgroup (3) fed on high fat and high protein diet and treated daily with 5 mg chitosan/ rat. Subgroup (4) fed on high fat and high protein diet and treated daily with 5 mg Neopuntia/ rat. Subgroup (5) fed on high fat and high protein diet and treated daily with 5 ml Jamu tea/ rat. Body weight was decreased due to all treatments. All parameters of lipid profile (cholesterol, triglycerides, HDL-c, LDL-c and VLDL-c), liver function (AST & ALT enzymes), glucose and kidney functions improved with treated the obese rats with Orlistat, Chitosan, Neopuntia and Jamu Tea, especially when using 5 mg orlistat/ rat followed by 5 mg chitosan / rat, and other herbs (Neopuntia and Jamu Tea), respectively. It was concluded that, treating obese rats which fed on high fat and high protein diet with Orlistat, Chitosan, Neopuntia and Jamu Tea decreased the weight of obese rats and improved the body functions.

Key words: rats, obese, Orlistat, Chitosan, Neopuntia and Jamu Tea, lipid profile, liver functions, glucose and kidney function.

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Effect of Water Extract Prepared from Green Tea, Black Tea and Cinnamon on Obese Rats Suffering from Diabetes

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Abstract: Recently, considerable attention has been focused on dietary and medicinal antioxidants that inhibit or retard diseases caused by oxidative processes. The active components and polyphenols of green or black tea and cinnamon have antioxidant properties. The present work was carried out to study the potential effect of some doses of water extract which prepared from green tea, black tea and cinnamon on obese rats suffering from diabetes. Water extracts of green tea, black tea and cinnamon were prepared with traditional methods. Sixty six male albino rats (Sprague Dawley Strain) weighting an average of (125±5g) used in this study. The rats were divided into two main groups. The first main group (6 rats) was fed on basal diet as a (control negative group). The second main group (n = 60) fed on high fat diet for 4 weeks to induced obesity. After this period we made sure of induction, the second main group injected with (150 mg aloxane/kg body weight) to induce hyperglycemia. Then, this group was divided into ten subgroups (n=6) as a following: Subgroup (1) fed on high fat diet, as a control positive group. Subgroup (2, 3 and 4) fed on high fat diet and treated daily with 1, 2 and 4 ml water extract prepared from green tea / each rat/day/day. Subgroup (5, 6 and 7) fed on high fat diet and treated daily with 1, 2 and 4 ml water extract prepared from black tea/each rat. Subgroup (8, 9 and 10) fed on high fat diet and treated daily with 1, 2 and 4 ml water extract prepared from cinnamon/each rat/day. The results revealed that, final weight, body weight gain %, liver weight /body weight% and serum (glucose, cholesterol, triglyceride, LDL-c, VLDL-c, uric acid, urea nitrogen, creatinine, AST, ALT and ALP) decreased in all treated groups, while HDL-c increased significantly, as compared to the positive control group. The highest improvement in all parameters recorded for all obese diabetic groups which treated with high doses from water extracts, followed by medium and low doses, respectively. It could be concluded the most effective treatment was observed on all treated groups with high doses from water extracts which prepared from (4ml green tea, black tea and cinnamon/ rat/ day). Obese diabetic group which treated with 4ml water extract prepared from green tea achieved the best results compared to other treated groups.

Key words: Rats, Obesity, Diabetes, Green tea, Black tea, Cinnamon, lipid profile, Kidney functions, Liver enzymes and glucose.

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Effect of Some Levels from Ginseng, Barley and Carob on Lipid Profile and Kidney Functions of Rats Fed on High Fructose Diets.

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Abstract: The main target of the present investigation is to study the effect of three levels from ginseng, barley and carob (2.5%, 5% and 7.5%) and their combinations on biological value, lipid profile and kidney functions and histopathological examination in kidney of rats fed on high fructose diet. Seventy male Sprague albino rats divided into two main groups. The first group fed on basal diet as a (-ve control group), while the second main group fed on high fructose diet for two weeks. The second main group divided into thirteen subgroups. Subgroups (1, 2&3) fed on high fructose diet (HFD) containing 2.5%, 5% and 7.5% ginseng, respectively. Subgroups (4, 5&6) fed on HFD containing 2.5%, 5% and 7.5% barley, respectively. Subgroups (7, 8 & 9) fed on HFD containing 2.5%, 5% and 7.5% carob. Subgroups (10, 11&12) fed on HFD containing 2.5%, 5% and 7.5% combination of (ginseng, barley and carob). Subgroups (13) fed on HFD only (control positive group). At the end of the experimental period (4 weeks) rats were fasted over night before sacrificing, blood was collected then centrifuged to separate the serum. Kidney was removed from each rat, cleaned and weighted to estimate of kidney weight / body weight percent. Kidney was examined histopathologically. The obtained results revealed that, feeding rats on high fructose diet led to significant increase in (body weight gain %, kidney weight/body weight %, cholesterol, triglycerides, LDL-c, VLDL-c, uric acid, urea nitrogen, creatinine) and decreased (food intake and HDL-c). Feeding rats on high fructose diet with the different levels from ginseng, barley, carob and their combinations improved all parameters and kidney weight, especially when used the high level from (barley, ginseng and combination of ginseng, barley and carob). The histopathological examination in the kidney confirmed this improvement.

Key words: ginseng – barley- carob - rats – fructose — kidney function – lipid profile – histopathology.


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To investigate effects of a shifting high fat diet to normal fat diet supplemented with magnesium, zinc and chromium on biochemical parameters in rats with diabetes

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Several minerals play an important role in modulating blood glucose and thyroid hormones. The aim of this study was to investigate the effect of individual and combined minerals; chromium (Cr), magnesium (Mg) and zinc (Zn) on blood glucose, lipid profile, kidney and liver functions, T3, T4 and TSH among obese diabetes rats. The study was carried out on 66 male Wistar rats (150-160g) for 90 days on two stages. First stage included 66 rats (6 of which were control) which were fed on a high fat diet (19% hydrogenated fats and 1% corn oil as a source of essential fatty acids) for 45 days. Second stage of the study included the same 66 rats (6 of which were control) which were injected with (150 mg Alloxan / kg b.w) to induce experimental diabetes and were then fed normal levels of dietary fat supplemented with individual and combined minerals; Cr, Mg and Zn at two levels (high and low). Results indicate that in the positive control rat group (PC) there was elevated cholesterol and triacylglycerol levels. While, rat groups supplemented with combined elements (at low and high levels) led to lowering cholesterol and triacylglycerol significantly (p < 0.05). In particular, Cr had improved triacylglycerol status. The vice versa was noticed in rat groups fed on diets supplemented with individual trace elements. Lipoprotein levels were increased in individual supplementation with zinc (20mg) and at higher levels of Mg, Zn and Cr. Cr, at higher levels (200 μg) led to significant reduction of the VLDL-C compared with negative control (NC) group. Uric acid, urea nitrogen and creatinine were decreased significantly with diets supplemented with individual Zn at higher levels (20mg/ kg b.w). The combination at high levels showed reduction of uric acid, urea nitrogen and creatinine compared to NC. Conclusion: our results indicate that diets supplemented with combined elements led to improving the tested parameters in this study.

Key words: diabetes mellitus, rats, alloxan, lipid profile, liver function, thyroid hormones

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Carbon tetrachloride-induced liver disease in rats: the potential effect of supplement oils with vitamins E and C on the nutritional status

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Abstract

The aim of the present investigation was to study the effects of olive oil (OO), corn oil (CO), and flaxseed oil (FO), with or without supplementation of vitamins E and C, on food intake, body weight gain %, liver weight to body weight %, total lipids, liver functions, and liver histology in male rats intoxicated with carbon tetrachloride (CCl4). Forty-two rats were divided into two main groups. The first main group was fed on basal diet (BD) as a negative control group (NC). The second main group received subcutaneous injections of CCl4 in paraffin oil (50% v/v 2ml/kg) twice a week to induce chronic damage in the liver. The group was then divided into six subgroups, three of which were fed on 4% unsupplemented oils (CO, FO, and OO) as positive control for the three oils used. The rest of the groups were fed on 4% of the same oils supplemented with vitamins E and C. The results of the flaxseed oil rat group indicate that supplementing vitamin E and C led to a significant reduction in the mean values of total cholesterol (TC), low density lipoprotein cholesterol (LDL-C), and liver alanine amino transferase enzyme (ALT). Moreover, it caused an increase of the mean value of high-density lipoprotein cholesterol (HDL-C) as compared to the negative control group (NC). The olive oil group supplemented with the same vitamins showed a significant decrease in the mean value of serum TC and significant (P<0.05) increase in the mean value of serum HDL-C as compared to NC. The results of the corn oil group supplemented with vitamins showed a significant increase in the mean value of serum HDL-C as compared to the negative control group. The histology results confirmed that the group hepatically injured with CCl4 treatment and fed on supplemented FO or OO showed apparently normal hepatocytes.

Conclusion: The most effective treatment was observed with oils supplemented with vitamins E and C. Hierarchically FO achieved the best results compared to other additives, followed by OO and finally CO showing the least effective treatment among the observed groups.

Keywords: chronic liver disease, rats, vitamin E, vitamin C, lipid profile, liver functions

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