

Effect Of Some Plant Natural Products On Fat Metabolism In Rats

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B.Sc. (Ain Shams University)

Thesis

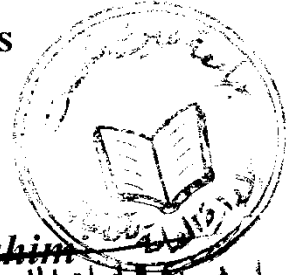
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ABSTRACT

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The hypolipemic effect of black cumin and squash seeds was investigated using hyperlipemic female albino rats. Hyperlipemia was induced by feeding rats on diet containing 65.5 % sucrose for 45 days . Hyperlipemia was characterized by significant increase in the average levels of total lipids, total cholesterol, triglycerides , LDL - cholesterol , and HDL - cholesterol, and significant decrease in phospholipids content as compared with corresponding levels of untreated rats (negative control). Also, the results show that hyperlipaemia was associated with significant increases serum GOT, GPT, alkaline phosphatase and acid phosphatase activities . Serum Bilirubin content was found to be elevated by feeding on high sucrose diets . In addition to that , feeding on diet containing 65.5 % sucrose not only caused hyperlipaemia but also induced hyperglycemia . Body weight gain was found to be highly elevated by feeding on hyperlipemic diet .

Black cumin (*Nigella sativa* , L.) seeds and squash (*Cucurbita pepo*) were used as additives to diets in order to improve lipid metabolism in hyperlipaemic rats . Adminstration of squash and black cumin seeds at low and high doses (5% and 10%) to hyperlipemic rats significantly reduced blood total lipids and total cholesterol , whereas the cholesterol level was returned back near to the normal level with 10% black cumin seeds . Treatment with 10% squash seed or black cumin seed at both levels markedly improved the level of triglycerides , while 5% squash seeds treatment had no effect . In contrast , small changes in the phospholipids content were detected after feeding on diet containing 5% and 10% squash seed and 5% black cumin seed , while adminstration of diet containing 10% black cumin seed cause a significant increase . Replacement of squash and black cumin seeds in the diet by 5% and 10% resulted in a decrease of

LDL cholesterol together with an increase in HDL fraction . Both of sGOT and sGPT activities were reduced by feeding on diet containing 5 % or 10% of black cumin seeds or squash seeds . Similar effect of these treatment was observed on acid phosphatase and alkaline phosphatase activities . The obtained results show that black cumin seeds and squash seeds are a good hypoglycemic agents as well as hypolipemic agent . The bilirubin level of hyperlipemic rats fed on diet containing black cumin seeds or squash seeds was found to be reduced nearly to the level of normal rats . Rats fed on diets containing 5% or 10% of black cumin seeds or squash seeds exhibited a significant decrease in body weight gain than rats of positive control group .

Chemical composition of black cumin seeds and squash seeds show that, they contain a considerable amounts of lipids , carbohydrates, proteins. Potassium was found to be the predominant element in both species . Fatty acid composition of squash seed oil and black cumin seed oil were studied using gas - liquid chromatograph . The results indicate that linoleic and linolenic are the predominant fatty acid in both species .

Key words

Squash (*Cucurbita pepo*) , Black cumin (*Nigella sativa*) , Hyperlipemia, Cholesterol , Hypolipemia ,Liver , Fatty Acid .

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