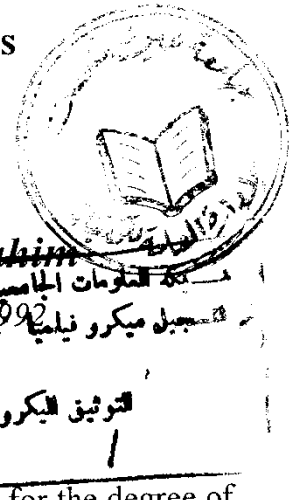
# Effect Of Some Plant Natural Products On Fat Metabolism In Rats



By

*Mervat Ahmed Raifat Ibrahim*

*B.Sc. ( Ain Shams University ) 1992*

**Thesis**

Submitted in partial fulfillment of requerments for the degree of



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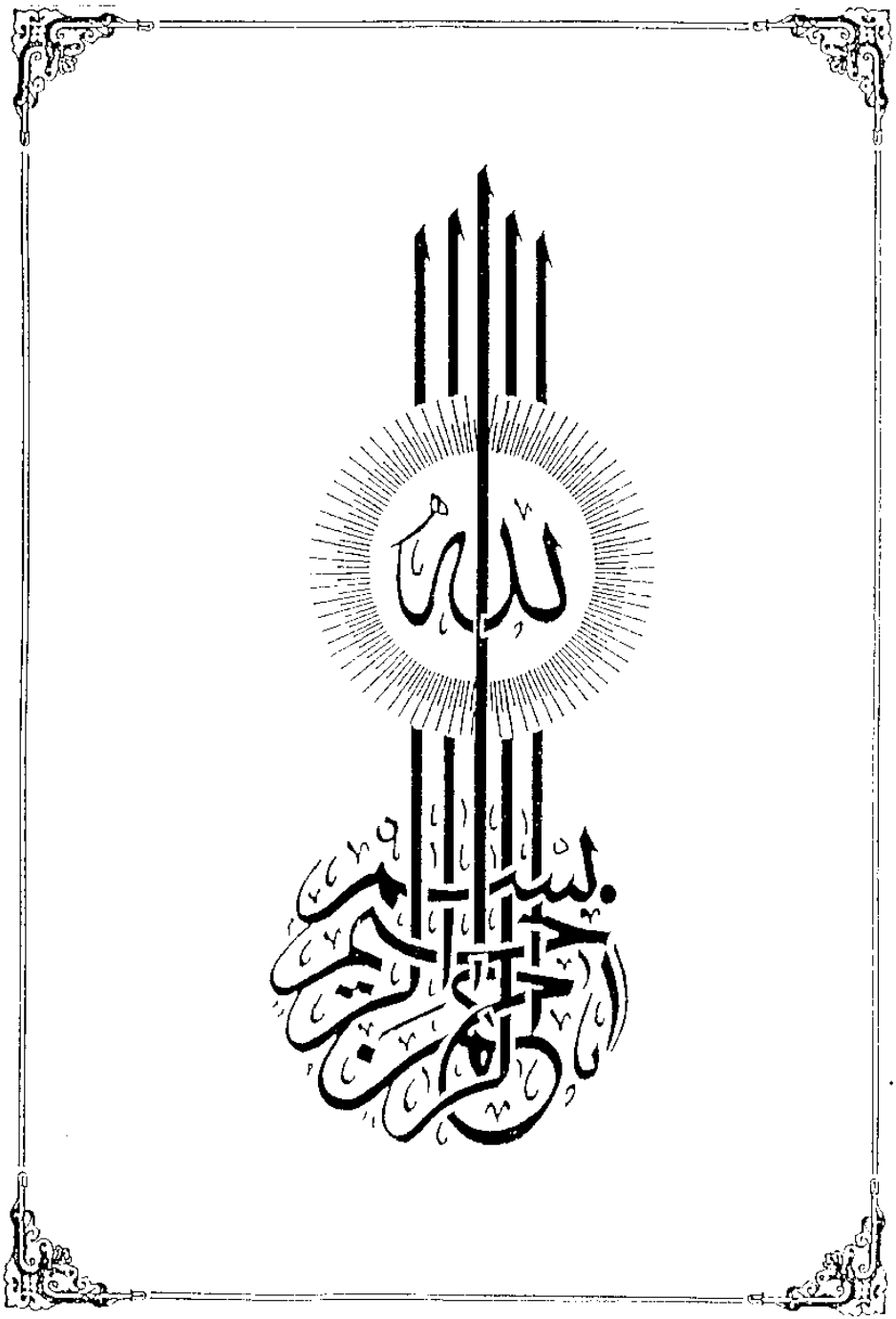

## APROVAL SHEEET

**Effect of some plant natural products on fat metabolism in rats.**

By

***MERVAT AHMED RAIFAT IBRAHIM***

B.Sc Agric Sc. ( Agric. Biochem. )

Ain Shams Univ. , 1992

**This thesis for M.Sc. degree has been approved by :**

***Prof Dr. M.A. Ghazy*** ..... M.A. Ghazy .....

Prof. of Biochemistry

Fac. Of Agric. Menia Univ.

***Prof Dr. A.A. Shreif*** ..... E.A. Shreif .....

Associated Prof. of Biochemistry

Fac. Of Agric. Ain Shams Univ

***Prof Dr. F.M. Abd - El-naeem*** ..... F.M. Abdel-Naeem .....

Prof. of Biochemistry

Fac. Of Agric. Ain Shams Univ.

**Date of examination : / / 1997**

# Effect Of Some Plant Natural Products On Fat Metabolism In Rats

By

***Mervat Ahmed Raeifat Ibrahem***

*B.Sc. ( Ain Shams University ) 1992*

Under the supervision of :

**Prof Dr. F.Abd El-naeem**

Prof. of Biochemistry Fac. Of Agric. , Ain Shams University

**Prof Dr. Zeinab A. Abdou**

Prof. of Biochemistry Fac. Of Agric. , Ain Shams University

**Prof Dr. W. Afefe**

Prof. of Biochemistry Fac. Of Agric. , Ain Shams University

**Aknowledgment**

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# ABSTRACT

**Mervat Ahmed Raifat Ibrahim. Effect of some Plant natural products on fat metabolism in rats.** Unpublished Master Of Science , University Of Ain Shams, Faculty Of Agriculture, Department Of Biochemistry (1997).

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, triglycrides , 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 , wherease the cholesterol level was returned back near to the normal level with 10% black cumin seeds . Treatment with 10% squash seed orblack cumin seed at both levels markedly improved the level of triglycrides , 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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