

# الاستهلال

بسم الله الرحمن الرحيم

قال تعالى:

﴿قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ﴾

صدق الله العظيم

سورة البقرة الآية (32)

# ***Dedication***

***To my Lovely mother, to my father, to my sweet  
husband, to my sons, to my brothers and sister***

***To my colleagues and friends***

***To all who have lent me a hand***

***to make the accomplishment***

***of the work possible***

***I dedicate this work.***

**Yousra**

# Acknowledgements

Faithfully I would like to thank almighty Allah for giving the strength and stamina to accomplish this work.

I would like to express my gratitude and appreciation to my supervisor **Dr. Mohammed Abdel Rahim** who has given me much of his time to supervision, guidance and correction of work .

I would like thanks to my husband Dr.Ayman Mustafa for his care and encouragement.

I sincerely appreciate the endless help of **Dr .Shama Ibrahim** of department of Biochemistry and molecular Biology who kindly provide he experiment animals and allowed to use the faculties of the labs and voluble assistance.

Special gratitude also extended to **Ustaz. Ibrahim** , of the department of Biochemistry and molecular Biology , El Neelain University to his endless assistance in the practical and management of the experimental animals. Thy thanks also extended to all the staff of Department of Biochemistry Molecular Biology - El Neelaen University.

Special thanks are also extended to my brother **Dr. Amr Abd El Azim** for his unlimited helping in this work

Thanks also given to professor. **Amal Omer Bakheet** Sudan University of Science and Technology for her valuable remarks and assistance in clarifying and interpretation of histopathological finding.

Special thanks are also extended to **Dr. Hisham** senior staff of Histopathology department at Suba University Hospital for his unlimited helping in histopathological techniques .

I would like thanks to **Ustaza . Roya** Sudan University of science and technology.

## Abstract

This study was carried out during the period January – March, 2012 to investigate the potentiality of *Nigella sativa* seeds as lowering cholesterol agent in hypercholesterolemic – induced rats.

Eighteen albino rats aged 1-2 months, and weighting 110-182 grams were provided by the Faculty of Science and Technology, Elneelain university. The animals were reared and housed at the faculty premises, under optimum condition of light, temperature, standard diet, and water. Animals were acclimatized for two weeks before the commencement of the experiment.

Hypercholesterolemia in rats were induced by feeding the animals 0.5% of cholesterol for a period of 4 weeks until the hypercholesterolemia was evident.

*Nigella sativa* seeds treatment were imposed after dividing the animals into 3 group each group comprise 6 rats treated as follow: the first group (control group) was kept under the standard diet of the animals and continue to receive the 0.5% cholesterol for further one month. The second group was kept under the cholesterol supplementation and normal diet and given 5% of *N. sativa* seeds powder mixed with the diet. The third group treated as the same as second group but supplemented with 10% of *N. sativa* seeds.

*N. sativa* seeds treatment lasted for one month during which the body weight was recorded and the animals kept under observation. Following the end of the treatment period, some of the animals were slaughtered, and speceimen of liver, kidney, and heart were taken for histopathological examination.

The results obtained indicated that clear hypercholesterolemia was apparently seen in the 0.5% cholesterol – treated rats in which total cholesterol, HDL and

LDL-cholesterol, were significantly elevated and an increase of up to 86%, 190%, and 116% were obtained in treated rats compared with no-treated rats at  $p$  value = 0.000. triglycerides showed no significant increase of about 11%. 23 this treatment accompanied with a 10% increase in animal body weight compared with control. Treatment of the hypercholesterolemic rats with 5% or 10% of *N. sativa seeds* powder mixed with the standard animal diet, brought about non-significant increase in animal body weight compared with control at  $p$  value = 0.108 and 0.284. treatment the animals with 5% or 10% also brought about significant reduction in both total cholesterol and LDL-cholesterol, a reduction of about 35% and 38% from control value was seen for total cholesterol at 5% and 10% treatment, while LDL-cholesterol showed about 35% and 40% under both treatment. Triglycerides showed insignificant reduction under both treatment. HDL-cholesterol showed insignificant reduced value from control of 14% and 21% for 5% and 10% *N. sativa* treatment respectively.

The result of the study also showed no remarkable alteration on the hematological index except a significant rise in RBCs.

The histopathological finding of this study revealed that the histopathological lesions in some of the internal body organs of the rats as a result of the initial hypercholesterolemic treatment which 0.5% cholesterol, were not much altered and no remarkable changes occurred when *N. sativa* seeds applied at either concentration, in other mean , no protective role of *N. sativa* seeds were evident.

The outcome of this study can be summarized in that, *N. sativa* seeds proved to be save lipid lowering both herbal drug, and the effect is dose dependent plus potentiality of being of nutritive value were not excluded

## ملخص الدراسة

أجريت هذه الدراسة خلال الفترة بين يناير – مارس 2012 للتحقق من امكانية بذور حبة البركة على خفض الكوليسترول عند الفئران ذات الكوليسترول المرتفع.

أجريت التجربة علي 18 فأرمن فئران التجارب ذكور واناث تتراوح أعمارهم بين 1- 2 شهر وأوزانهم بين 110-112 جم من كلية العلوم والتكنولوجيا جامعة النيلين. وهذه الفئران تمت تربيتها وايواها بمباني الكلية تحت الظروف الطبيعية (الضوء ودرجة الحرارة) وتم توفير الغذاء والماء لها، ووضعت فترة اقلمة لمدة اسبوعين.

وقد تم رفع مستوي الكوليسترول عند الفئران باعطائها كوليسترول بتركيز 0.5% كجرعة يوميا لمدة شهر عن طريق حقنها في البلعوم باستخدام أنبوبة خاصة.

قسمت الفئران الي ثلاثة مجموعات كل مجموعه تضم 6 فئران على النحو التالي: المجموعة الاولى (المجموعة الضابطة) ظلت في اطار النظام الغذائي العادي والاستمرار على الكوليسترول بتركيز 0.5% لمدة شهر. المجموعة الثانية استمرت على الكوليسترول و الغذاء العادي مضافا اليه مسحوق حبة البركة بتركيز 5% من الغذاء. اما المجموعة الثالثة عوملت نفس المعاملة مع زيادة تركيز بذور حبة البركة الى 10% من حجم الغذاء. استمرت التجربة لمدة شهر، وفي هذه الفترة تم وزن الفئران وابعي تحت الملاحظة.

بعد انتهاء فترة العلاج تم تشريح بعض الفئران وأخذت عينات من الكبد والكلبي والقلب لفحص الانسجة.

جمعت العينات من الدم قبل بداية التجربة، وبعد شهر، ثم بعد شهرين من بداية التجربة للحصول علي تقدير مستويات الدهون المختلفة في مصل الفئران .

بعد اعطاء الكوليسترول 0.5 % اظهرت النتائج الاحصائية ارتفاعا واضحا وذو دلالة معنوية في كل من الكوليسترول الكلبي والبروتينات ذات الكثافة الدهنية المنخفضة (LDL) والبروتينات ذات الكثافة الدهنية العالية (HDL) بينما اظهرت الجليسيريدات الثلاثية ارتفاعا ليس له دلالة معنوية. كما اظهرت النتائج ارتفاعا ذو دلالة معنوية على اوزان الفئران.

اثبتت نتائج دراسته أن معاملة الفئران بأى من تراكيز الحبة السوداء تظهر انخفاضا ملحوظا ذو دلالة معنوية في تركيز كل من الكوليسترول الكلي والبروتينات ذات الكثافة الدهنية المنخفضة ( $P < 0.05$ ) بينما اظهر كل من الجليسيريدات الثلاثية والبروتينات ذات الكثافة الدهنية العاليه انخفاض غير معنوي, كما ان المعالجه لم تظهر اختلاف معنوي في اوزان الفئران. ( $P > 0.05$ ).

كما أثبتت هذه الدراسة عدم حدوث تغيرات ذات دلالة معنوية علي مكونات الدم, ماعدا كريات الدم الحمراء أظهرت زيادة ذات دلالة معنوية.

نتائج دراسة الانسجة المريضة لعينات من الكلي والكبد والقلب من فئران التجارب بعد انتهاء فترة التجربة لم تظهر اي قدرة لبذور الحبة السوداء في المعالجة أو التعديل من التغيرات المرئية التي حدثت في تلك الاعضاء الداخلية نتيجة لحالة فرط الدهون التي تعرضت لها الفئران قبل تغذيتها علي بذور الحبة السوداء.

تخلص هذه الدراسة الي ان بذور حبة البركة تستخدم كغذاء مخفض لمستويات الدهون في دم الفئران لذا يمكن اعتبارها من الأدوية التي تخفض من حالة فرط الدهون في الدم.

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## **Abbreviation**

CVD	Cardio Vascular Disease
AM	Alternative Medicine
CM	Conventional Medicine
MM	Modern Medicine
N. sativa	Nigella Sativa
TG	Triglycerides
VLDL	Very Low Density Lipoproteins
LDL	Low Density Lipoproteins
HDL	High Density Lipoproteins