تأثير الحبة السوداء (Nigella sativa L.) على الجرذان المصاب بالأسمى البشري

بداية السكري وقصور الغدة الدرقية

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المستخلص

أجريت دراسة على جرذان بشرية مصابين بالأسمى البشري، حيث تم تغذية بعضهم بالحبة السوداء (Nigella sativa L.) وعكسيًا. وشملت الدراسة تقييم الأسدمة في الجرذان المصابين والأفريقيين في الفئران. وتعد الحبة السوداء فعالة في الحماية من أمراض السكري وقصور الغدة الدرقية في الأشخاص المصابين بالأسمى البشري. وتم استخدام عدد من النباتات الطبية في هذه الدراسة، بما في ذلك خضيرات اللبلاب، والجليسريدات ثلاثية. ولذا، تظهر النتائج أن الحبة السوداء يمكن أن تكون جزءًا من العلاج السكري في الفئران المصابين بالأسمى البشري.
Effect of Black Seed (*Nigella sativa* L.) on Diabetic and Hypothyroid Rats

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Abstract

*Nigella sativa* Linn. (Family-Ranunculaceae) known as Kalaunji and Black cumin was tested for whether it can improve the function of the liver in diabetic and hypothyroid rats. Adult male Wister rats (n=70) weighing 180–200 g were divided into 2 groups: control and experimental. The latter was then divided into 2 subgroups which were subjected to experimentally induced hypothyroidism and diabetes using propylthiouracil and streptozotocin respectively. *Nigella sativa* oil was also prepared by standard methods. Oil of *Nigella Sativa* was administrated to animal models of diabetes and hypothyroidism in daily doses of 400 mg/kg BW via gastric intubation for 4 weeks. Body weight gain, food intake, % food conversion efficiency, water intake, blood chemistry, glucose levels, insulin and thyroid hormones were determined. Histological study of the thyroid gland was carried out using hematoxilin and eosin stained paraffin sections. Data were expressed as mean ± SEM and were analyzed by one-way analysis of variance (ANOVA) and t-tests. The specific activity of *Na*⁺/K⁺- ATPase of both diabetic and hypothyroid rats treated with oil of *Nigella sativa* was increased significantly when compared with the untreated rats. There was improvement in the body and liver weight, food and water intake in treated diabetic and hypothyroid rats compared with the untreated rats. In *Nigella sativa* treated diabetic rats there were significant decreases in glucose total cholesterol (TC), triglycerides (TG), alkaline phosphatase (ALP), aspartate amino tranaminase (AST), thyroid stimulating hormone (TSH) and non significant decreases in alanineaminotransaminase (ALT), creatine kinase (CK) and low density lipoprotein cholesterol (LDL-C) compared to the untreated rats. On the other hand there were significant increases in the serum insulin triiodothyronine (T3), thyroxin (T4), total protein (TP) and non significant increases in lactate dehydrogenase (LDH) and high density lipoprotein cholesterol (HDL-C) in treated diabetic rats compared to the untreated rats. In *Nigella sativa* treated hypothyroid rats there were significant increases in insulin, TG, TP, T3, T4 and HDL-C and significant decreases in glucose, AST, TC, and TSH compared to the untreated rats. It was also observed that there were decreases in ALT, ALP, CK, LDL-C, compared to the untreated rats as well as no change in sodium, potassium, calcium, chloride, magnesium, for all treated diabetic and hypothyroid rats compared to the untreated rats. Histological examination of the treated hypothyroid rats showed matching follicular cell height and colloid content to those of the control.

In conclusion *Nigella sativa* oil could be considered to have a significant therapeutic role in diabetic and hypothyroid disease. It protects the liver via regulating the activity of *Na*⁺/K⁺-ATPase enzyme. Studying the effect of various *Nigella sativa* components on cells of target tissues could be tested in the future to identify which of them is involved in the addressed previous problems.