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Effect of Some Plants on Glucose Level and Insulin Blood in Induced Diabetic Rats Using Nanotechnology

BY

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M. Sc. Thesis

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ABSTRACT

The present study aims for studying the effect of some plants on glucose level and insulin in induced diabetic rats using nanotechnology. It was applied on 56 rats (180±20gm) fed on basal diet. They were divided in 7 groups: G1.Normal(c-), G2. Diabetics(c+), (no intervention). (G3 normal& G4 diabetics) had oral silver nanoparticles (AgNPs) (200mg/kg.wt/D) and (G5 normal and G6 diabetics) had oral Fenugreek- silver nanoparticles (F-AgNPs)(200mg/kg.wt/D) and G7 diabetics had oral antidiabetic tablet medication (Amyral) (300mg/b.wt/D). Duration of the experiment was two months for all groups. Evaluated FI, BWG, and FER everyweek, at the end of experiment rats were fasted overnight and anesthetized and blood samples were taken for blood analysis, relative organ wt. data obtained are statistically anlysis. Results showed that diabetics are the best FER in (F-AgNPs) G6 (1.27%).Glucose level deceased signficiantly in diabetic groups (4, 6, 7) (217.62, 247.98, 190.02) mg respectivly, HbA1c decreased in G4 and G6 (7.02 and 7.49) % and insulin levels increased signficiantly in diabetic G4 (9.04U/l), lipd profile renal and liver functions were improved Sig. ($P<0.05$) in diabetic groups which had oral (F-AgNPs and AgNPs). It is concluded that had oral (F-AgNPs and AgNPs) are more effective in controlling diabetes mellitus and improved isulin level in diabetics. It is recommended diabetic subjects are advised to eat fenugreek as (type of legumes) are considered treatment foods for Diabetes Mellitus and nanotechnology a useful method for showing the role of functional foods in controlling Diabetes and using nanotechnology reachers in treatment other diseases.

Key words: Diabetes Mellitus, Nanotechnology, Silver Nanoparticles, Fenugreek-Silver Nanoparticles.

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LIST OF ABBREVIATIONS

AgNO3	Silver nitrate
Ag-Nps	Silver-Nano particles
AGEs	Advanced glycation and products
AST(GOT)	Determination of glutamate pyruvate transmarine
AST(GPT)	Determination of glutamate oxaloacelate transmarine
BWG	Body weight gain
CHOL	Total Cholesterol
D.M	Diabetes mellitus
EDX	Energy-Dispersive Spectroscopy
ETOH	Ethenol
FDA	Food and Drug Administration
FER	Food efficiency ratio
FI	Feed Intake
FI-IR	Furier transform infrared
GDM	Gestational diabetes mellitus
HbA1c	Estimation of Glycosylated hemoglobin
HDL	High density Lipoprotein
4 HO-lle	amino acid 4 –hydroxyisoleucine
IDDM	Insulin–Dependent Diabetes Mellitus
IGT	Impaired glucose tolerance

List of Abbreviations (Cont.)

IR	Infra –red
LDL	Low density Lipoprotein
NIDM	Non Insulin– Dependent Diabetes Mellitus
Nm	Nano Meter
NPs	Nano Particles
STZ	Streptozotocin
T.G	Triglyceride
TC	Total Cholesterol
TEM	Transmission Electron Microscopy
VLDL	Very Low density Lipoprotein
XRD	X-Ray Diffraction