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Ministry of Higher Education and Scientific Research
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Study the Effect of Phytosterols Extract of *Ceratonia siliqua* fruit on Some Physiological Parameters in Diabetic Pregnant Rabbits Induced by Alloxan

A Thesis

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In

/ Physiology /

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Summary

The study has been done to induce diabetes mellitus by using alloxan and an investigation of the effect of diabetes on haematological, biochemical parameters and embryo development as well as on some histopathological changes in female rabbits. Moreover, the present study aimed to evaluate the anti-diabetic activity of Phytoesterol extract of *Ceratonia siliqua* compared with insulin drug in experimentally induced diabetic female rabbits.

For this purpose, the experiment has been included in the present study.

Using thirty two female rabbits were weighted (1500-2000g) and ages (7-7.5 M) and divided into equal four groups each (group/ 8 rabbits).

First group:-(Negative Control) Pregnant females rabbits were administrated 3ml of normal saline for 21 days.

Second group:- (Positive Control) Pregnant females rabbits were treated with alloxan by I.P. (150mg/kg B.W.) to diabetes mellitus for 3 days and remain without treated for 21 days.

Third group:- Pregnant females rabbits were treated with alloxan by I.P. (150mg/kg B.W.) to diabetes mellitus for 3days and treated with insulin by s/c (2 I.U) daily for 21 days.

Fourth group:- Pregnant females rabbits were treated with alloxan by I.P. (150mg/kg B.W.) to diabetes mellitus for 3days and treated with phytoesterol extract of *Ceratonia siliqua* fruit (100mg/kg B.W.) by drenched for 21 days.

The blood samples were collected from heart by cardiac puncture then animals during experimental work. These sample were used for the measurement of haematological and biochemical parameter as well as hormonal assay. In addition to embryo development and histological examination for pancreas, liver, kidney and ovaries.

The present study revealed the results in the following:-

The obtained results showed that diabetes mellitus pregnant female rabbits group that the revealed a significant($P \leq 0.05$) increase in serum glucose level and lipid profile except HDL-c of diabetic female rabbits compared with negative control and phytoesterol extract of *Ceratonia siliqua* fruit 100mg/kg B.W. groups.

The result also indicated the affected haematological and biochemical parameters by diabetic pregnant females rabbits group. The result showed significant ($P \leq 0.05$) decrease in RBC, Hb, PCV, MCHC and neutophiles% compared with negative control and phytoesterol extract of *Ceratonia siliqua* fruit 100mg/kg B.W. and insulin.

The obtained results revealed that diabetes mellitus has been induced by alloxan which accompanied by significant ($P<0.05$) decrease in serum concentrations of FSH and LH have been shown in serum positive control group. Moreover, serum estradiol and progesterone concentrations were significant ($P<0.05$) decreased in serum positive control group compared with negative control group, phytoesterol extract of *Ceratonia siliqua* fruit 100mg/kg B.W. group and insulin group.

The obtained results of reproductive efficiency also affected in diabetic group. Its showed more harmful on the fertility efficiency in female rabbits. Elongated gestation period, reduction of number of newborn as well as the occurrences of mortality rate and malformation rate have been registered in during pregnancy while significant ($P<0.05$) increase the weight of newborn. At the end of experiment sacrificed half number of each group for study weight endocrine gland -gonad as well as pancreas and other organs such as (liver, kidney and uterus) and histological changes of same organs as well as No. of corpus luteum and site of implantation.

The histological study revealed that showed many pathological changes of different degrees in pancreas, liver, kidneys and ovaries in diabetic group. show degeneration of islet of langerhans, vacuolation of

Concluded the phytoesterol of *Ceratonia siliqua* fruit can efficiently reduce and ameliorating the severity of hyperglycemia and also fertility. It ameliorating the mean fertile is 100% and increase number of newborn and absence of mortality and malformation in newborn is 0%. Also it can possibly be beneficial to defend against diabetic formed by alloxan and it roles in stimulate pancreas for producing newly islet of langerhan and revealed approximately normal structure of acinar cells and islets of langerhans. Phytoesterol could be an effective alternative therapy for diabetic patients to use the natural products with antidiabetic activity, because insulin and oral hypoglycemic drugs possess undesirable side effects.