

REGENERATION OF B - CELLS IN ISLET LANGERHANS OF DIABETIC PANCREAS OF FEMALE RABBITS BY PHYTOESTEROL EXTRACT OF *Ceratonia siliqua* FRUIT

Abstract

The present study was conducted in Collage of Veterinary Medicine, University of Basrah, to evaluate the effect of phytoesterol extract of *Ceratonia siliqua* fruit on biochemical parameters and histological examination by using pregnant diabetic female rabbits induced by alloxan. The study done was applied on 32 adult female rabbits, their weight ranged between (1500 – 2000 g) and aged between 7 - 7.5 M. The female mated with healthy male before 1st week of treated. The pregnant diabetic female rabbits divided randomly into three groups, each group consist of eight rabbits as the following. Group 1: Healthy female rabbits at 1st week of pregnant (-ve controls) administrated 3 ml of normal saline for 21 days. Group 2: Female rabbits at 1st week of pregnant given alloxan 150 mg/kg B.W. I.P for three days (+ve control) and remain for 21 days. Group 3: Female rabbits at 1st week of pregnant initially given alloxan 150 mg/kg B.W. I.P. for three days, then treated with Insulin for 21 days. Group 4: Female rabbits at 1st week of pregnant initially given alloxan 150 mg/kg I.P. for three days, then treated with phytoesterol of *Ceratonia siliqua* fruit 1 ml/kg B.W. orally administration for 21 days. At the end of treatment period blood

samples (10 ml) collected from animals heart. Blood sample put in plane tubes then centrifuge for obtained on serum for measurement biochemical parameters. Phytoesterol extract of whole fruit powder of *Ceratonia siliqua* in dose 1 ml/kg B.W. lowered glucose concentration 365 mg/dl to 129 mg/dl after 21days treatment in alloxan local rabbits, confirming antihyperglycemia effect of this plant animal and human. Histological observations with phytoesterol extract showed different phase of recovery of β - cells of the islet of langerhans of pancreas, which untreated diabetic rabbits were less in number and showed degree of atrophy. The most important finding of the present study was observation of the presence of small scattered islet among the acinartissue in some experimental animal, which may reflect neoformation of islet from pre-exsist ingislet cells. The liver of alloxan diabetic rabbits showed hydropic degeneration, fatty change and necrosis at some place but liver of animal treated with phytoesterol extract was normal. The kidney of alloxandiabetic rabbits revealed dilatation of inner cortical tubules and minimal partial capsular fibrosis, vacuolation of sub-capsular cortical tubules, infiltrations of inflammatory cells, vascular congestion and narrowed Bowman's space, glomeruli with high cellularity, cystic renal cortical tubules but kidneys of diabetic rabbits treated with phytoesterol extract of *Ceratonia siliqua* showed normal architecture. In addition to the kidneys of rabbits treated with Phytoesterol extract of *Ceratonia siliqua* fruit revealed amelioration in the kidneys compared to group of

diabetic by alloxan alone. It is concluded that good anti-diabetic activity, hypoglycemia effect, amelioration of histological examination corroborating the folk use of phytoesterol extract of *Ceratonia siliqua* fruit preparations, and contributing for its pharmacological validation.