The Effect of Withania Somnifera in Alloxan Induced Diabetic Rabbits

Authors : Farah Ali, Tehreem Fayyaz, Musadiq Idris

Abstract : The present work was undertaken to investigate effects of various extracts of withania somnifera for anti-diabetic activity in alloxan induced diabetic rabbits. Rabbits were acclimatized for a week to standard laboratory temperature. Animals were fed according to a strict schedule (8 am, 3 pm and 10 pm) with green fodder (Medicago sativa) and tap water ad libitum. Animals were divided into nine groups of six rabbits each in a random manner. Body weights and physical activities of all rabbits were recorded before start of experiments. The animals of group 1 and 2 were given lactose (250 mg/kg, p.o) and Withania somniferaroot powder (100 mg/kg, p.o) respectively daily from day 1-20. Animals of group 3 were given alloxan (100 mg/kg, i.v) as a single dose on day 1. Powdered root of Withania somnifera in the doses of 100, 150, 200 mg/kg and its aqueous and ethanol extracts (equivalent to 200 mg/kg of crude drug) were given to the treated animals (groups 4-8), respectively by oral route for three weeks (day 1-20o.d), along with alloxan (100 mg/kg, i.v) as a single dose on day 1. Group 9 was treated with metformin (200 mg/kg, p.o) daily from day 1-20, along with a single dose of alloxan (100 mg/ kg, i.v) on day 1. Fasting serum glucose concentration in groups 3-9 was increased significantly ($p<0.05$) on day 3, with a maximum increase (215.3 mg/dl) in animals of toxic control (TC) group (3) on day 21 of the experiment as compared to normal control (NC) group (1). Effects of different doses (100, 150, 200 mg/kg, p.o) of W. somnifera root powder (WS) decreased the fasting serum glucose concentration as compared to toxic control group, with a maximum decrease (88.3 mg/dl) in group 2 (treated control) on day 21 of the experiment. Metformin (200 mg/kg, p.o) (reference control), aqueous extract (AWS) and ethanol extract (EWS) of W. somnifera (equivalent to 100 mg/kg W.somnifera root, p.o) antagonized the effects of alloxan as compared to toxic control group. These results indicate that the W. somnifera possess significant anti–diabetic activity.

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