Prophylactic and curative effect of some natural products on blood sugar level

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The present investigation dealing with the effect of lupin seeds,foenugreek seeds, mulberry leaves and nabk leaves as well as their mixture(in equal parts) on blood glucose level of normal and STZ-diabeticrats.Also, their effect on liver, kidney, lipids, minerals and haemoglobinwas studied. These herbs were used in two doses 2.7 gm and 5.4gm/kg b.w. 300 rats (100-120 g) were used in 3 main experiments:1. Effect of different treatments on normal rats.This experiment aimed to study the effect of different plants onblood sugar of normal rats for 16 weeks as well as their effect on hepatorenalfunctions, lipids, minerals and haemoglobin.A total of 132 albino rats were divided randomly into equal 11groups (12 rats each). The first group remained untreated and served ascontrol and the other groups of rats w re received normal diet plus one ofthe different treatments as follows:Group 1 : Control rats,received only onnal diet.Group 2: Received normal diet plus pm (2.7 gm/kg b.w)Group 3 : ” ” ” (SA gm/kg b.w)Group 4: ” ” (2.7 gmlkg b.w)Group 5 : ” ” ” (SA gm/kg b.w)GrQPP 6: ” ” mulbe (2.7 gm/kg b.w)Group 7: ” ” ” ” (SA gmlkg b.w)- 94 .•Group 8: ” ” nabk (2.7 grn/kg b.w)Group 9: ” ” ” (5.4 gm.kg b.w)Group 10: ” ” mixture (2.7 gm/kg b.w)Group 11 : ” ” ” (5.4 gm/kg b.w)Blood samples were collected before the start of experiment and thenafter 4,8 and 16 weeks. The following parameters were carried out :hemoglobin, blood glucose, alkaline phosphatase, transaminases, totalprotein, albumin , urea, creatinine, uric acid, total and ionized calcium,inorganic phosphorus, sodium, potassium, cholesterol and triglycerides.The results of this experiment revealed the possibility of using theseplants as save anti-diabetic agents. No significant toxic effect was observedduring the course of experiment. Ho~ever some fluctuations in someparameters were noted such as increafes in the level of AST, urea andcholesterol or decreases in serum totall proteins, albumin in some groups,but all these changes are in the allowed livels.2. The rotectiveglycemia.Previous rats which were used in th first experiment were continued inthis part of thesis. The first group 0 animals was redivided into 2 equalsub-groups, the first remained as nega ive control and the other sub-groupwas received STZ and served as positi e control group. The other groupswere also injected with STZ and subject d to the different treatments for 14days,STZ was s.c injected in a dose equivalent to 27.5 mg/kg b.wand then followed by a booster dose after 3 days equivalent to 11.25mg/kg b.w. Blood samples were withdrawn from the individual rats beforetreatment and then after 3,7 and 14 days.STZ caused a significant increase in bl-sugar by 45.7% after 2 wksfrom its injection compared to the control group. The other groupswhich received the different plants were displayed a variable responsecomparing to the positive control group. It was concluded that NKleaves and ML leaves at a dose of’ 5.4 gm/kg b.w were significantlyaffected bi. glucose level.3. The curative effect of different treatments against hyperglycemia.In this experiment, 168 rats wefe used and divided randomly intoIequal 14 groups (12 rats each). The I first group remained untreated andserved as negative control. Rats in t~e second group were injected STZand served as positive control. The rest of groups were also injected withSTZ and subjected to the different ~reatments for 4 wks. Diamicron(l4.4mg/kg b.w) and Metaformin (45 mg/kg b.w)were used as standardhypoglycemic drugs.The results revealed that all plants used have a tendency to playarole as a hypoglycemic substances. The antidiabetic effect of the differentplants is dependent upon the active constituents and their concentrations aswell as the dose and duration of treatments. The prementioned exerts theirhypoglycemic effect due to the

preseef alkaloids, saponins, flavonoids,nicotinic acid, nicotinamide, glycoproteins and manganese.The administration of MIX caused a significant hypoglycemic effectas a protective or curative agent, unfortunately this MIX caused significantincrease in serum cholesterol during the course of experiment. We highlyrecommended to carry out further investigation to study the effect of thisMIX on lipid pattern in normal and STZ diabetic animals in short and longperiod time. Also, another species of animals i.e rabbits or guinea pigsshould be used in order to assessment the possibility of using this mixtureas a safe antidiabetic agent.