



ABSTRACT

Background & Objectives:

Zingiber officinale commonly known as 'Ginger' in Sanskrit. All scientific publications revealed that *Zingiber officinale* (Roscoe,) has anti-diabetic activity. But the influence of it with diabetic patients who are under treatment is not clear. Hence this work was aimed to find out whether hydroalcoholic extract of *Ziingiber officinale* (HAEZO) is producing synergistic effect or hypoglycemia when it is consumed along with pioglitazone in diabetic patients. Further it can indicates whether there is the necessity to trail the dose of pioglitazone or not when it is administered along with ginger hence the side effects of it can be minimized.

Materials and Methods:

The effect of HAEZO on anti-diabetic effect of pioglitazone was evaluated on alloxan induced diabetic model (125 mg/kg, i.p.) by estimating serum glucose, cholesterol, HDL cholesterol, triglycerides, SGOT, SGPT, total protein, albumin levels were estimated with Swemed diagnostics kits and other parameters like body weight, liver glycogen, lipid peroxidation and compared with diabetic control. Either sex of albino rats were used and divided into 7 groups. 1st and 2nd group served as normal and diabetic control. 3rd group received pioglitazone (3 mg/kg, p.o.) 4th and 5th group treated with HAEZO 400 mg/kg and 800 mg/kg, p.o., respectively. 6th group treated with HAEZO 400 mg/kg and pioglitazone 3 mg/kg p.o. 7th group treated with HAEZO 800 mg/kg and pioglitazone 3 mg/kg p.o.



Results:

HAEZO 800 mg/kg alone reduced 69.41%, 63.09% and 25.78% of elevated serum glucose, GOT inhibited peroxide levels 77.10% and cholesterol levels respectively and liver glycogen is increased to 40.36 %. Pioglitazone 3 mg/kg reduced 62.97%, 54.27% and 4.46 %, of elevated serum glucose, GOT inhibited peroxide levels 73.15% and cholesterol levels respectively and liver glycogen increased 51.72%. Combination of HAEZO 800 mg/kg with pioglitazone 3 mg/kg produced synergistic reduction in serum glucose 74.77%, cholesterol 34.37%, GOT 65.98% inhibited peroxide levels 85% and liver glycogen increased 61.06%. Body weight was restored in treatment animals.

Conclusion:

The HAEZO has potential anti-diabetic effect and showed synergistic rather than hypoglycemic effect with pioglitazone. The 800 mg/kg HAEZO has showed 19% highest anti-diabetic activity than pioglitazone 3 mg/kg. Combination of HAEZO 800 mg/kg with pioglitazone 3 mg/kg showed 24.36% highest anti-diabetic activity than pioglitazone 3 mg/kg alone.

Key words: *Zingiber officinale*, alloxan, diabetes, serum glucose.