7. CONCLUSIONS
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1. The results of the present studies suggest that *H. isora* possesses multiple effects on glucose and lipid metabolism and produces beneficial effects in various animal models of Diabetes mellitus.

2. Treatment with the methanol extract, n-butanol fraction and isolated saponins of *H. isora* roots produced a significant reduction in elevated levels of glucose and lipids in experimental models of type 1 and type 2 Diabetes mellitus.

3. Treatment had no effect on serum insulin levels in type 1 Diabetes mellitus indicating that it does not release insulin. However, the treatment improved insulin sensitivity in high fat diet fed and low dose STZ-treated type 2 diabetic rats.

4. In type-2 diabetic C57Bl/KsJ-db/db mice treatment with methanol extract and isolated saponins caused a significant reduction in the serum lipid and glucose levels and increased the expression of adipisin, ACOX, PPAR γ and Glut4 while reduced expression of FABP4 and G6Pase whereas there was no effect on the expression of adiponectin, LPL, PEPCK, Glut2, ANGPTL3, ANGPTL4 and PPAR α.

5. The mechanism(s) of action appears to be stimulation of glucose transport to skeletal muscle and liver cells by activating PI3K/AKT pathway, stimulation of glycogen synthesis through phosphorylation and inactivation of GSK-3α and β, inhibition of the enzyme Glucose-6-phosphatase in the liver and increased expression of insulin responsive glucose transporter Glut4 in adipose tissue and skeletal muscle cells.