

Antidiabetic and hepatoprotective activities of *bombax ceiba* extract in obese rats with metabolic syndrome

ABSTRACT

Increased global obesity prevalence is a serious issue as it causes several other chronic metabolic disorders, including diabetes mellitus, one of the major global pandemics a few days ago. Obesity increases the propensity by several folds to develop insulin resistance and type 2 diabetes mellitus (T2DM). Our aim was to investigate the hypoglycemic, hypolipidemic and hepatoprotective activities of *Bombax Ceiba* extract on the biochemical and histological evaluation in obese rats fed High-carbohydrate high-fat diets (HCHFD) to prevent of metabolic diseases that cause obesity.

Sixty male rats were divided randomly (12 rats/ group) into 5 experimental groups. First (control) group: 12 rats were fed with standard diet. 2nd group (Bombax) rats were fed on standard diet and *Bombax ceiba* extract (400 mg/kg body weight) was administrated daily orally. The third group (HCHFD), rats were fed on HCHF diet whereas rats in the fourth group Bombax + HCHFD (Prophylactic) rats fed on standard diet and take *Bombax ceiba* extract (400 mg/kg body weight orally daily for 8 weeks then fed on HCHF diet and take *Bombax ceiba* extract to the end of experiment. Fifth group HCHF + Bombax (Treatment) rats were also fed on HCHF diet then take *Bombax ceiba* extract (400 mg/kg body weight daily). The experiment period was 20 weeks. Blood glucose, insulin, HOMA-IR, lipid profile, aspartate aminotransferase (AST), alanine aminotransferase (ALT), adropin, interleukin-6 (IL-6), retinol binding protein-4 (RBP-4), salusin- β and salusin- α were measured. Also histopathology for aorta tissue was done.

Our findings have shown significant increases in glucose, HOMA-IR, cholesterol, triglycerides, AST, ALT, IL-6, RBP-4 and salusin- β levels with significant decrease in insulin, high density lipoprotein (HDL), adropin and salusin- α in HCHFD group in comparison with the control group, these findings improved in prophylactic and treated groups after treatment with *Bombax ceiba* extract in compare to HCHFD group.

Our study concluded that *Bombax ceiba* extract has potential hypoglycemic, hypolipidemic and hepatoprotective activities on the prevention of metabolic diseases resulting in rats fed HCHF diet and the histological evaluation confirm our biochemical results.