Possible Modulation of FAS and PTP-1B Signaling in Ameliorative Potential of Bombax ceiba against High Fat Diet Induced Obesity

Authors : Paras Gupta, Rohit Goyal, Yamini Chauhan, Pyare Lal Sharma

Abstract : Background: Bombax ceiba Linn., commonly called as Semal, is used in various gastro-intestinal disturbances. It contains lupeol which inhibits PTP-1B, adipogenesis, TG synthesis and accumulation of lipids in adipocytes and adipokines whereas the flavonoids isolated from B. ceiba has FAS inhibitory activity. The present study was aimed to investigate ameliorative potential of Bombax ceiba to experimental obesity in Wistar rats, and its possible mechanism of action. Methods: Male Wistar albino rats weighing 180–220 g were employed in present study. Experimental obesity was induced by feeding high fat diet for 10 weeks. Methanolic extract of B. ceiba extract 100, 200 and 400 mg/kg and Gemfibrozil 50 mg/kg as standard drug were given orally from 7th to 10th week. Results: Induction with HFD for 10 weeks caused significant ($p < 0.05$) increase in % body wt, BMI, LEE indices; serum glucose, triglyceride, LDL, VLDL, cholesterol, free fatty acid, ALT, AST; tissue TBARS, nitrate/nitrite levels; different fat pads and relative liver weight; and significant decrease in food intake (g and kcal), serum HDL and tissue glutathione levels in HFD control rats. Treatment with B. ceiba extract and Gemfibrozil significantly attenuated these HFD induced changes, as compared to HFD control. The effect of B. ceiba 200 and 400 mg/kg was more pronounced in comparison to Gemfibrozil. Conclusion: On the basis of results obtained, it may be concluded that the methanolic extract of stem bark of Bombax ceiba has significant ameliorative potential against HFD induced obesity in rats, possibly through modulation of FAS and PTP-1B signaling due to the presence of flavonoids and lupeol.

Keywords : obesity, Bombax ceiba, free fatty acid, protein tyrosine phosphatase-1B, fatty acid synthase
Conference Title : ICPP 2014 : International Conference on Pharmacy and Pharmacology
Conference Location : London, United Kingdom
Conference Dates : September 26-27, 2014