

Evaluation of Insulin Sensitizing Effects of Different Fractions from Total Alcoholic Extract of *Moringa oleifera* Lam. Bark in Dexamethasone-Induced Insulin Resistant Rats

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Abstract : Alcoholic extract of the bark of *Moringa oleifera* Lam. (MO), (Moringaceae), has been evaluated experimentally in the past for its insulin sensitizing potentials. In order to explore the possibility of the class of phytochemical(s) responsible for this experimental claim, the alcoholic extract was fractionated into non-polar [petroleum ether (PEF)], moderately non-polar [ethyl acetate (EAF)] and polar [aqueous (AQF)] fractions. All the fractions and pioglitazone (PIO) as standard (10mg/kg were p.o., once daily for 11 d) were investigated for their chronic effect on fasting plasma glucose, triglycerides, total cholesterol, insulin, oral glucose tolerance and acute effect on oral glucose tolerance in dexamethasone-induced (1 mg/kg s.c., once daily for 11 d) chronic model and acute model (1 mg/kg i.p., for 4 h) respectively for insulin resistance (IR) in rats. Among all the fractions tested, chronic treatment with EAF (140 mg/kg) and PIO (10 mg/kg) prevented dexamethasone-induced IR, indicated by prevention of hypertriglyceridemia, hyperinsulinemia and oral glucose intolerance, whereas treatment with AQF (95 mg/kg) prevented hepatic IR but not peripheral IR. In acute study single dose treatment with EAF (140 mg/kg) and PIO (10 mg/kg) prevented dexamethasone-induced oral glucose intolerance, fraction PEF did not show any effect on these parameters in both the models. The present study indicates that the triterpenoidal and the phenolic class of phytochemicals detected in EAF of alcoholic extract of MO bark may be responsible for the prevention of dexamethasone-induced insulin resistance in rats.

Keywords : *Moringa oleifera*, insulin resistance, dexamethasone, serum triglyceride, insulin, oral glucose tolerance test

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