Abstract
Mangiferin, present in Mangifera indica bark, was reported to produce hypoglycemic and antidiabetic activity in an animal model of genetic type 2 diabetes and in streptozotocin diabetic rats. Its effect on diabetic insulin-resistant animals has not been investigated. The current work aimed to explore the effect of mangiferin on diabetic insulin-resistant rat model. Diabetes was induced by high-fat/high fructose diet for eight weeks followed by a subdiabetogenic dose of streptozotocin (HFD-Fr-STZ). Rats were treated with mangiferin (20 mg/kg i.p.) for 28 days starting one week after STZ and its effects were compared to the standard insulin sensitizer, rosiglitazone. HFD-Fr-STZ, induced obesity, hyperglycemia and insulin resistance accompanied by depletion in liver glycogen and dyslipidemia. Moreover, there was an elevation in serum TNF-α and a reduction in adiponectin. Mangiferin ameliorated the consequences of HFD-Fr-STZ and its actions were comparable to the effects of the standard insulin sensitizer, rosiglitazone. The results obtained in this study provide evidence that mangiferin is a possible beneficial natural compound for type 2 diabetes and metabolic disorders associated with the metabolic syndrome. This effect is mediated through improving insulin sensitivity, modulating lipid profile and reverting adipokine levels to normal.

Keywords
Mangiferin, diabetes, dyslipidemia, adipokines, insulin resistance.