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INFLAMMATORY MODULATION BY CALTROPS PREVENTS DIABETIC COMPLICATIONS PROGRESSION IN NICOTINAMIDE-STREPTOZOTOCIN INDUCED DIABETES MELLITUS IN WISTAR RAT

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Diabetic mellitus (DM) is dubiously known for its long-term micro and macrovascular complications such as retinopathy, neuropathy, nephropathy and cerebrovascular accidents. The outcomes of these complications are increased hospitalization, economical burden and mortality. Present study was aimed to evaluate the efficacy of Caltrops (*Tribulus terrestris*) in prevention of diabetic complications in Nicotinamide-Streptozotocin (NA-STZ) induced diabetic rats. 7th day after induction of diabetes treatment was started and continued for 16 weeks. Glycaemic (glucose, HbA1c, insulin), renal (urea, creatinine, microalbuminuria), hepatic (AST, ALT, GGT enzymes) and lipid (TC, TG, HDL) profiles and tests relating to retinopathy (Aldose Reductase (AR) activity and GSH in lens), neuropathy (Morris water maze test (MWM)) and inflammation (IL-6, IL-10 cytokines in serum and kidney) parameters were estimated. At the end of the study histopathology of pancreas, liver and kidney were examined. Diabetic control (DC) rats displayed high glucose, HbA1c, insulin, urea, creatinine, micro albumin and liver enzymes and lipid levels. AR activity in lens, IL-6 and IL-10 in serum were significantly elevated and GSH levels in lens drastically reduced in DC compared to normal controls. *T. terrestris* effectively controlled the glycaemic, renal, liver and lipid profiles. AR activity was significantly reduced in lens homogenate and GSH was improved in lens after treatment. Diabetic rats treated with plant extract showed reduction in escape latencies during MWM test and showed the swiftness in learning a task. IL-6 levels in kidney and serum were significantly reduced in plant treated groups. IL-10 levels were significantly elevated in treated groups. Plant extract treatment in diabetic rat showed pancreatic β -cell regeneration and reduced lymphocyte infiltration in liver and kidney under microscopic examination. Hence, *T. terrestris* extract could be an effective agent in preventing the progression of diabetic complications due to its anti-inflammatory, antidiabetic, antioxidant and hypolipidemic effects.