SUMMARY

- Study conducted in two phases, In phase-1 study, immediately after induction of diabetes treatment was started and continued for 16weeks. In phase-2 study, 4weeks after induction of diabetes treatment was started and continued for another 4weeks.
- NA-STZ model produced complete diabetes animal model with all the complications i.e. retinopathy, neuropathy, nephropathy, dyslipidaemia and severe systemic inflammation.
- Diabetic control rats displayed high glucose, HbA1c, insulin, urea, creatinine, microalbumin and liver enzymes and lipid levels. Aldose Reductase (AR) activity, IL-6 and IL-10 were significantly elevated and GSH levels drastically reduced in DC compared to normal controls. Severely affected pancreas, liver and kidney was seen in histopathology studies.
- Both plant extracts in phase-1 showed satisfactory results by effectively controlling the glycemic, renal, liver and lipid profiles. AR activity was significantly reduced lens and sciatic nerve homogenate and GSH was improved in lens after treatment. Diabetic rats treated with plant extracts showed reduction in escape latencies during Morris water maze test (MWM) test and improvement in learning and memory when compared to diabetic controls.
- Plant extract treatment in non-diabetic rat showed inflammation to the liver which was evident by increased lymphocyte infiltration under microscopic examination. Positive control glibenclamide group showed encouraging results in pahse-1 and phase-2 studies.
- In pahse-2, treatment with only plant extract showed inadequate results in all estimations. While, plant extracts combination with glibenclamide showed improvement in glycaemic profile and exerted anti-inflammatory potential.
- Hence *T.terrestris* and *P.marsupium* extracts seems to be effective in preventing the progression of diabetic complications. However they are ineffective if given alone to revert the complications in diabetes and requires to be combined with glibenclamide.