SUMMARY AND CONCLUSION

Oxidative stress has been suggested as a contributory factor in development and complication of diabetes. The purpose of the present investigation was to assess the pharmacological properties and to determine the protective effect of well known N. arbortristis and C. gigantea in the treatment of diabetes mellitus. The antidiabetic activities were investigated in lab animals for hypoglycemic effect, exogenous insulin potentiation effect, oral glucose tolerance test and STZ-induced diabetic rats. The flower and leaves extract treated rats till 5th hour showed significant lowered blood serum glucose levels, compared to 0 hrs. The administration of extract, improved oral glucose tolerance test, significantly compared to control (glucose 2 g/kg) which is even comparable to glibenclamide 10 mg/kg, except at a dose of 50 mg/kg of chloroform leaves extract, (P>0.05). The potentiation action of exogenous insulin is carried out by administration of insulin (1 unit/kg, i.p) after the administration of extracts significantly potentiated exogenous action of insulin till 5th hour, when compared to 0 hrs of treatment.

The Lipid peroxidation (LPO) and antioxidant enzymes Superoxide dismutase (SOD), Catalase (CAT), decreased enzymatic in diabetic control rats. The serum transaminase such as SGOT, SGPT, and ALKP, serum total cholesterol and triglyceride levels were significantly elevated in the STZ-induced diabetic when compared to control normal rats. The Administration of extract lowered blood glucose and enhanced antioxidant protection by increasing the levels of SOD, CAT, there by reducing the damage caused by reactive oxygen free radicals it also brought down the levels of (LPO), serum transaminase such as SGOT, SGPT, and ALKP, serum total cholesterol and triglyceride, when compared to diabetic rats for 27 days treatment. We have investigated the effect of N. arbortristis and C. gigantea leaves and flowers extracts in high fructose diet induced insulin resistance in rats. The serum glucose, insulin, and triglyceride and Cholesterol levels were for 27th day.
The fasting serum glucose, insulin, insulin index levels increased significantly in high fructose diet (control) (P<0.001 vs. normal), like wise, serum triglyceride and cholesterol, increased significantly. The extracts treatments prevented increase in serum glucose, insulin, insulin index levels significantly, except glucose with *C. gigantea* leaves 50 mg/kg, (P<0.2176), decreased triglyceride and cholesterol, except in *Nyctanthes arbor-tritis* leaves 50 mg, did not shown decrease in triglyceride (P=0.08), *N. arbor-tritis* leaves and flowers 50 mg, did not show decrease in cholesterol (P=0.0503, P=0.1433 vs. control). Further more, high fructose diet (control) had higher fasting insulin resistance, insulin index, than normal. In contrast, *N. arbor-tritis* and *C. gigantea* significantly, decreased FIRI in the high fructose diet treated groups.

We conclude from this study that, the active ingredients of *N. arbor-tritis* and *C. gigantean* may be acting directly as protective at the cellular and tissue levels and indirectly through immunomodulatory, anti-inflammatory, endogenous somatic pathway, antioxidant thereby producing hypoglycemic, insulin potentiation and improvement in glucose tolerance. Hence, through this study we propose that the active constituents isolation and their clinical evaluation could give a positive lead in the successful treatment of diabetes mellitus. However, further series of studies are required to prove their clinical reliability, safety and efficacy. Further molecular level of study to prove the mechanism of action of these plant preparations are underway in our laboratory hence, it has been warned.