**ABSTRACT**

In the present study the *Bauhinia variegata* roots, *Schrebera swietenioides* fruits and *Tectona grandis* bark were selected for antioxidant, antidiabetic and hepatoprotective activity study.

All the plant parts (Crude drug) were shade dried, powdered, standardized & subjected for the extraction with 95% ethanol and petroleum ether (40-60°C) in a soxhlet apparatus & with chloroform water by cold maceration method. Obtained extracts exhibited the presence of flavonoidal glycosides, tannins, carbohydrates, quinones, terpenoids and sterols constituent in them, when subjected to phytochemical investigation.

The different solvent extracts of selected medicinal plants were tested for their antioxidant activity by DPPH model. It has been observed that antioxidant activity exerted by ethanolic extract of selected plants exhibited maximum percentage inhibition. Hence, they were further screened for antidiabetic and hepatoprotective activity.

The acute toxicity study for these extracts revealed that selected medicinal plants were safe up to dose of 2000 mg/kg, hence, 1/10th of this lethal dose i.e. 200 mg/kg b.w. was taken as effective dose (therapeutic dose).

When these extracts i.e. ethanolic extract of *Bauhinia variegata* root (200 mg/kg), *Tectona grandis* bark (200 mg/kg) and *Schrebera swietenioides* fruit (200 mg/kg) subjected for antidiabetic activity, it was confirmed that they possesses marked antihyperglycemic activity which was confirmed by improvement of glucose tolerance test and by lowering the blood glucose levels in alloxan-induced diabetic rats in single dose (acute) and multi dose (sub acute) treatment study. The extract treated groups shown prevention of reduction in body weight in diabetic rats. The hypoglycemic effect comparable to Glibenclamide (2.5 mg/kg) suggested that the active fractions may act by
regenerating the β cells in alloxan-induced diabetes. After administration of these extract to rats, it was found that TC, TG, LDL and VLDL level of all tested rats were significantly decreased and at the same time HDL level was increased. Histopathological examination of pancreas of these animals showed comparable regeneration of Islets of Langerhans and β cells by these extracts and Glibenclamide standard drug, which were earlier, necroses by alloxan.

When these extracts screened for hepatoprotective activity, the results obtained from CCl₄ induced hepatotoxic model in the healthy male Wister rats indicates that, after the treatment with CCl₄ there was significant rise in SGOT, SGPT, ALP and total bilirubin levels which were lowered by ethanolic extract of Bauhinia variegata root, Tectona grandis bark, Schrebera swietenioides fruit and Liv 52 syrup (1 ml/kg). The histopathological observation revealed that these extract treated liver found to have normal architecture with very mild fatty changes when compared with CCl₄ treated liver, which signifies hepatoprotective activity of these selected medicinal plants.

These extracts were fractionated with different solvents by column chromatography. These obtained column fractions were characterized by qualitative chemical test and TLC, which shown the presence of following phytoconstituents,

- sterols & flavonoids in Bauhinia variegata root ethanolic extract
- quinones & sterols in Tectona grandis bark ethanolic extract &
- triterpenoids in Schrebera swietenioides fruit ethanolic extract

From this study it was concluded that ethanolic extract of Bauhinia variegata root, Schrebera swietenioides fruit & Tectona grandis bark shown antioxidant, hypoglycemic and hepatoprotective action.

**Keywords:** Bauhinia variegata, Tectona grandis; Schrebera swietenioides; Antioxidant; Antidiabetic; Hepatoprotective; Quinones; Flavonoids; Terpenoids; Sterols.