ABSTRACT

Four medicinal plants traditionally used by ayurvedic physicians were studied for their antihepatotoxic activity and hypoglycaemic activity in the present study.

Osbeckia octandra (Heenbovitiya) and *Melothria maderaspatana* (Heenkakiri) were investigated for antihepatotoxic activity whereas *Ficus benghalensis* (Nuga), *Artocarpus heterophyllus* (Kos) and *Osbeckia octandra* for hypoglycaemic activity.

The studies were carried out using Sprague-Dawley rats where hepatotoxicity was induced with carbon tetrachloride.

The antihepatotoxic properties of the two plant extracts against carbon tetrachloride damage was confirmed.

Investigations have also been made to isolate the active compounds from plant extracts and characterization of these compounds also was carried out.

Post treatment with the plant extracts markedly decreased carbon tetrachloride mediated alterations in liver histopathology as well as serum enzymes (Alanine aminotransferase, Asparatate aminotransferase and Alkaline phosphatase) levels.

In the present investigation it was evident that the liver protective actions of the crude extract of *Melothria maderaspatana* plant is mediated by a mixture of three alkaloids, of almost similar potency, while in *Osbeckia octandra* it is mediated through the action of three flavonoids and two other components.

The ability of the extracts of *Osbeckia octandra*, *Ficus benghalensis* and *Artocarpus heterophyllus* to lower the fasting blood glucose level and improve glucose tolerance was investigated using Sprague Dawley rats as the experimental model.

The results indicate that the extracts of *Osbeckia octandra* plant capable of significantly lowering the fasting blood glucose level and markedly improving glucose tolerance in rats is dependent on three flavonoids and one other component. The hypoglycaemic action of the crude extracts of *Ficus benghalensis* is mediated through flavonoids and that of the extract of *Artocarpus heterophyllus* by flavonoids and/or alkaloids.

The active components isolated from *Osbeckia octandra* were characterized as follows. Less polar compound (A1) (fast running compound) is a glycoside of a kaempferol related compound or a chalcone. The compound A2 could be a degradatory product of the compound A1. Polar compound (B) (slow running compound) is a derivative of 2-Furoic acid. The information obtained from this project is not sufficient to do a complete structural analysis.

Therefore further studies have to be carried out to characterize the structures of the antihepatotoxic and hypoglycaemic compounds present in four plants investigated.