ABSTRACT

In view of the potential use of medicinal plants as a source of active constituents in eliciting novel drug molecules, two medicinal plants selected for investigation were *Leucas aspera* and *Cassia tora*. *Leucas aspera* roots and *Cassia tora* roots were collected from the forest near to vishakapatnam District, (Andhra Pradesh). Powdered plants was extracted with methanolic and petroleum ether using Soxhlet apparatus.

The preliminary phytochemical investigations of *Leucas aspera* and *Cassia tora* were carried out and were found to have alkaloids, glycosides, carbohydrates, flavonoids, phytosterols /terpenes, proteins, tannins, saponins and lipids.

The isolated compound from methanolic extract of *Leucas aspera* (LA-1) is identical with reported Rutin flavonoid and the isolated compound from methanolic extract of *Cassia tora* (CT-1) is identical with reported Flemingin D flavonoid.

The Methanolic and petroleum ether extracts of *Leucas aspera* and *Cassia tora* roots shows significant zone of inhibition against bacteria and fungi. Methanolic extract had produced good antibacterial activity against gram +ve and gram –ve bacteria as well as fungal strains when compared to petroleum ether extract.

The pure compounds (LA-1 and CT-1) were tested for minimum inhibitory concentration and all the tested compounds have shown significant activity.
The methanol and petroleum ether extracts of *Leucas aspera* and *Cassia tora* roots (MELA, PELA, MECT and PECT) established the dose dependent antioxidant activity. The MELA, PELA, MECT and PECT establish to have DPPH radical scavenging, superoxide anion scavenging activities and prevented the depletion of tissue GSH and decreased the lipid peroxidation. Therefore, for further studies MELA, PELA, MECT and PECT is selected for organ protective (hepatoprotective) activity.

The formalin induced paw oedema in rats was employed for screening of anti-inflammatory activity. The result of study showed that methanolic and petroleum ether extracts of *Leucas aspera* and *Cassia tora* roots have acute anti-inflammatory activity. It also showed appreciably chronic anti-inflammatory activity.

In this work the MELA, PELA, MECT and PECT extracts of *Leucas aspera* and *Cassia tora* roots is studied for its analgesic activity by acetic acid induced writhing in mice model. The MELA, PELA, MECT and PECT extracts created significantly analgesic activity.

In Paracetamol and thioacetamide induced hepatotoxicity model it was cleared that treatment with MELA, PELA, MECT and PECT has protected liver. This was demonstrated by reducing the elevated levels of biochemical markers like SGPT, SGOT, ALP, total protein, total and direct bilirubin, triglycerides, total cholesterol, HDL-Cholesterol, LDL-Cholesterol and VLDL-Cholesterol. In addition histopathological
observations have shown that there is an improvement in the architecture of liver.

In general the root extracts of *Leucas aspera* and *Cassia tora* roots are having anti-microbial, in-vitro antioxidant, analgesic, anti-inflammatory and hepatoprotective effect and also antioxidant activity.