Abstract

The study was conducted to investigate the protective effect of five medicinal plants, *Asteracantha longifolia, Asparagus falcatus, Epaltes divaricata, Vetiveria zizanioides* and *Corriandrum sativum* on carbon tetrachloride and paracetamol induced acute hepatotoxicity in ICR mice. Detailed studies on three medicinal plants were carried out to investigate their antioxidative activity. An attempt was also made to study the toxicological effect of each plant extract used.

Hepatotoxicity was induced by the administration of a single intraperitonial dose of CCl_4 (0.5 mL kg^{-1} CCl_4 in olive oil) in one model and in the other by administration of paracetamol (300 mg kg^{-1} in saline) orally, after a 16 h fast. An aqueous extract of the whole plant (0.9 g kg^{-1}) was used on pre and post-treatment basis. The ability of all plant extracts to protect the liver against the changes mediated by carbon tetrachloride and paracetamol confirms that all plants possess antihepatotoxic properties at least against the two hepatotoxins used. Both pre and post-treatment decreased the CCl_4 and paracetamol mediated increase in serum enzyme activities and increased the liver reduced glutathione concentration. Histopathological studies also provided supportive evidence for the biochemical analysis. The magnitude of hepatoprotective properties varied among the five plants used.

Asteracantha, Asparagus and *Vetiveria* were selected on the basis of their hepatoprotective activity for further studies on the antioxidative effect. All three extracts were able to improve the activity of antioxidant enzymes, glutathione peroxidase, glutathione reductase and glutathione-S-

transferase and reduced the malondialdehyde formation significantly. Although the magnitude of antioxidant activity varied in the three plants used, *Vetiveria* can be considered as having the highest activity compared to the other two plants.

No toxicological effects on liver function, haematological parameters and histopathology of the body organs were noted in the experimental animals after administering the extracts daily for one month. General condition of the animals did not change and they remained in good health throughout the experiment.

Further studies are required to isolate the active constituents of the three effective plants and to find out the exact mechanism of action.