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Protective effect of the aqueous extract of Asparagus falcatus (Hathawariya) tubers against carbon tetrachloride induced hepatotoxicity in mice

Asparagus falcatus (Hathawariya) of the family Liliaceae is a well-known medicinal plant frequently used by traditional ayurvedic practitioners in Sri Lanka. In this study, we have carried out a preliminary analysis to evaluate the antihepatotoxic effect of *Asparagus falcatus* against carbon tetrachloride (CCl4) induced hepatotoxicity.

Overnight fasted healthy, ICR mice (30-35 g) were divided into 8 groups of 10 animals in each. Normal control group received distilled water orally by gavage. CCl4 control and drug control groups received 0.05 ml/ 100g of CCl4 in olive oil intraperitonially and 0.9 g/kg *Asparagus* extract orally respectively.CCl4 control, *Asparagus* pre-treated and *Asparagus* post-treated groups were further divided into two groups each and were sacrificed after 24 hrs and 4 days. Blood samples and liver slices were collected for biochemical and histopathological assessment of liver damage.

A marked increase in the serum ALT (alanine aminotransferase), AST (aspartate aminotransferase), ALP (alkaline phosphatase) levels and a decrease in the liver GSH (reduced glutathione) level was observed in the CCl4 control group compared to the normal untreated group. The elevated levels of enzymes declined while liver GSH levels increased significantly ($p < 0.001$, Student's t-test) in both pre-treated and post-treated groups. Pre-treatment resulted in a faster recovery of the livers in comparison with the post-treated group. Histopathological results also provided supportive evidence for the biochemical results. The toxin mediated changes in livers, pre or post-treated with *Asparagus* were of much less intensity than those observed in livers of CCl4 control group not treated with the plant extract. Overall results indicate that, aqueous extract of *Asparagus falcatus* tubers could afford a significant protection against CCl4 mediated hepatocellular damage.