SUMMARY

The active principle of the plant Cajanus indicus used in Ayurveda for the treatment of hepatic disorders has been isolated and identified as a protein, CI-1. CI-1 is a single polypeptide with apparent molecular mass of 40-42 kDa. It is a glycoprotein, containing a carbohydrate moiety with isoelectric pl of 4.6 and LD_{50} of 40 mg/Kg in mice and 55.6 mg/Kg in rats. CI-1 given at a dose of 1.5-6.0 mg/Kg consecutively for 7-14 days in rodents induced a significant reduction in serum enzymes activities. Study of serum enzyme activities have been found to be of great importance in assessment of liver damage. It was interesting to observe that serum bilirubin, transaminases, lactate dehydrogenase and triglycerides were markedly reduced in CI-1 treated animals. The alkaline phosphatase level was found to be slightly elevated in liver damaged animals. The dramatic fall of the total serum bilirubin by 7th day of CI-1 treatment as compared to controls treated with hepatotoxins, suggests that this herbal drug may be enhancing bilirubin clearance by stimulating either hepatic or extra-hepatic clearance of bilirubin. The prothrombin time was found to be prolonged and the total protein, albumin were markedly reduced in paracetamol, ethanol and β-galactosamine toxicity. Administration of CI-1 reversed these effects, indicating the protective action of the protein. These findings were further confirmed by the in vitro studies on rat isolated hepatocytes. It was noted that CI-1 could offer protection to the experimental animals from the deleterious effects of CCl_{4}, paracetamol, β-galactosamine, ethanol induced toxicity. This herbal protein does bring about modulation in both pre and post exposure conditions. It alleviates the symptoms of liver damage as evident by the biochemical assays and is further confirmed by the histopathological and ultrastructural studies of liver.

As we know, the immune system plays a crucial role in regulation of health and diseases, the present study critically evaluated the role of CI-1 in modulation of humoral and cellular immune response. The results depicted so far, suggests that CI-1 probably acts as a non specific immunomodulator, enhancing both humoral and cell-mediating immune response.