Chapter III

AIMS AND OBJECTIVES
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In spite of the strenuous efforts in modern medicine, there are hardly any drugs which stimulate liver function or regenerates hepatic cells. None of the available preparations is specific for liver disorders. While corticosteroids and immunosuppressive agents are the only drugs of choice in modern medicine for the management of liver ailments, plants and natural products are proving to be good hepatoprotectants. According to global estimates there are about 170 phytoconstituents isolated from 100 plants belonging to 55 families reported to possess liver protective activity and 600 commercial herbal formulations with claimed hepatoprotective activity being sold worldwide.

For centuries indigenous drugs either alone, or in combination have been used in the traditional system of medicine especially in Ayurveda for the treatment of liver disorders.

Polyherbal formulations reported to have hepatoprotective activity available in the Indian market comprises about 100 Indian medicinal plants. After the isolation of silymarin, a flavolignan from *Silybum marianum*, another promising drug was obtained from *Schizandra* species (a Chinese drug) and recently yet another discovery was made from *Cynara scolymus*. 
Many unknown and less known plants are used in folk and tribal medical practices in India. The medicinal values of these plants are unknown to the scientific world. One such plant *Acalypha indica* Linn. popularly called 'Kuppamani' of the family Euphorbiaceae used by 'Kani' tribes of Kerala for jaundice is thought worth investigating and hence selected.

In the present study efforts have been made to evaluate hepatoprotective effect of the leaves of *Acalypha indica* Linn. along with phytochemical study of the most effective fraction.

Phase I

a. Identification of the plant

b. Preparation of the extracts

c. Phytochemical screening and isolation of the active compounds

d. Anti oxidant studies of the extracts

Phase II

Pharmacological studies

a. Acute toxicity studies and gross behavioural profiles

b. Changes in liver function tests like Aspartate aminotransferase (AST), Alanine aminotransferase (ALT), Alkaline phosphatase (ALKP), Total Protein, Albumin and Total bilirubin of serum after Carbon tetrachloride (CCl4)
and Paracetamol intoxication in albino rats.

c. Changes in antioxidant defense enzymes and lipid peroxidation (concentration of Glutathione (GSH), Malondialdehyde (MDA), Glutathione Reductase (GR), Superoxide Dismutase (SOD), Glutathione Peroxidase (GPx) and Catalase.

Phase III

a. Choleretic effect by bile flow rate

b. Liver regeneration assessed by estimation of DNA, RNA, protein and cholesterol in hepatectomised rats.

Phase IV

Statistical evaluation of the data and their interpretation. The results are evaluated in concurrence with the maximum available data profile.