Chapter-3

THEORETICAL ANALYSIS
Chapter -3

Chapter -3. Theoretical Analysis

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3. THEORETICAL ANALYSIS

Natural products have been playing a vital role in health care for decades. Long before the development of modern medicine, in ancient times Indians were relying on herbs for health care.

Liver is one of the major organs responsible for maintenance of metabolic functions, secretion, and storage including regulation of various physiological processes. It involves in synthesizing useful principles and detoxicates toxic substances. Hepatotoxic agents like alcohol, toxic chemicals, infections etc induce liver diseases mainly through oxidative damage and lipid peroxidation.

Hence, we selected the proposed work to carry out a systematic pharmacognositcal, phytochemcial and biological evaluation of *Ecbolium viride* (Forssk.) Alston roots and *Rhyncosia beddomei* Baker leaves, used traditionally for the treatment of liver disorders.

3.1. Objectives

- To select the plants based on their ethnomedical uses and phytoconstituents
- Detailed pharmacognostical study of the selected plants
- Preparation of extracts
- Phytochemical screening
- Phytochemical studies
Screening of antioxidant activity using various *in vitro* and *in vivo* methods for the selected extracts

Screening of selected extract for hepatoprotective activity

3.2. Plan of work:

Phase-I: Collection of the plant materials and their authentication

Phase-II: Pharmacognostical studies

- Morphological, microscopical and macerate studies including proximate analysis.

Phase-III: Phytochemical studies

- Preparation of extracts
- Phytochemical screening of extracts
- Isolation of phytoconstituents

Phase-IV: *In vitro* Antioxidant studies

Phase-V: Pharmacological screening of the active extracts

- Acute toxicity studies
- *In vivo* Antioxidant studies
- Hepatoprotective studies including histopathological studies
  - CCl₄, Paracetamol and Ethanol induced hepatotoxicity