CHAPTER -3
AIMS AND OBJECTIVES
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The knowledge of drugs goes back to prehistoric times. Man as savage known by experience how to relieve his sufferings by the use of herbs growing him. In recent times, focus on plant research has increased all over the world and a large body of evidence has collected to show immense potential of medicinal plants used in various traditional systems. This century has witnessed many great achievements in the field of medicine. One of the great advancement in medical care in this century has been the introduction of a number of drugs which are having more toxic side effects. The floras of India are both abundant and rich in every kind and description of plant well known.

In country, the traditional medicine has survived and is in practice in our rural areas. Nearly 76% of our population can offer this form of medicine. This is also prevailing situation in all the developing countries taking note on the realities of these situations because of their effectiveness, less side effects and relatively low cost. Based on the WHO recommendations hypoglycemic agents and gastric ulcer agents of plant origin used in traditional medicine are important. Among Indian traditional medicinal plants several potential medicinal plants are being used as part of our diet since prehistoric time. As multiple defects in the patho physiology are mostly imprecisely understood and therefore warrant not isolating a single drug target to the reversal of all or majority of aspects of the disease.

The theories of herbal formulation have the synergistic, potentiative, agonists/ or antagonistic pharmacological agents within themselves due to incorporation of plant medicines with diverse pharmacological actions. These pharmacological principles work
together in a dynamic way to produce maximum therapeutic efficacy with minimum side effects. Based on the above theory the potential plants i.e. selected for investigation were *Ficus racemosa* Linn. (Gular) and *Aegle marmelos* extracts on gastric ulcer and diabetes in rats. In general there is very little biological knowledge on the specific modes of action in the treatment of selected diseases, but most of the plants have been found to contain substances like flavonoids, glycosides, alkaloids, terpenoids etc that are frequently implicated as having potential biological effects.

In the traditional system of Indian medicine, plant formulation and combined extracts of plants are used as drug of choice rather than single drug. In this context, the present studies have been designed to scientifically validate the traditional claims of *Ficus racemosa* Linn. (Gular) and *Aegle marmelos* (Bael) and formulate a potent anti-ulcer and anti-diabetic herbal formulation.

**The objectives of the present study are:**

1. Collection and authentication of plant and the plant parts
2. Extraction of plant materials with 50% ethanol
3. Carrying out preliminary phytochemical screening
4. Carrying out HPTLC and fingerprint profile analysis for both plant extracts
5. To study the acute toxicity studies for both plant extracts
6. To evaluate the *in-vitro* and *in-vivo* antioxidant activity
7. To evaluate the gastroprotective, antioxidant and anti-diabetic activities of *Ficus racemosa* fruit extract and *Aegle marmelos* root extract using the various standard experimental models
8. To study the effect of various combinations of *Ficus racemosa* and *Aegle marmelos* in experimental models of ulcer and diabetes.

9. To evaluate the drug and excipient interactions by FT-IR spectral studies

10. To evaluate the feasibility of formulating the selected combined extracts into compressed tablets and to evaluate various characteristics of the resulting tablets

11. Statistical analysis of pharmacological results

   Extensive laboratory experimentation was carried out to achieve the above objectives and the results obtained are presented in the subsequent chapters.