Chapter 3

Aim and objective
Presently, it was found that the 70% of medicine prepared by the pharmaceutical industries are directly or indirectly derived from plant origins. It has been proved that the medicinal plants contain varying numbers of secondary metabolites like steroids, glycosides, flavonoids, tannins, alkaloids, terpenes etc. These metabolites from the plants are responsible to report the greater therapeutic value with lesser side effects as when compared with the synthetics medicine. In recent day plant based therapy is recommended for the treatment of several acute and chronic diseases.

In spite of advances in modern system of medicine certain areas like immune disorders and cardiac related diseases have been produced challenges to drug therapy. But the uses of medicinal plants have given a hope for such type of human ailments on the basis of practice adopted by the ethnic healers. It is required to standardize the more and more medicinal plant obtained from traditional system of medicine followed by isolation of active ingredients present on it and also need to evaluate the pharmacological properties of those bioactive constituents for the betterment of healthcare system. It is strongly believed that nature has given us all the remedies for the health problems related to the living organism of this earth. Hence the present research work has undertaken in the aim:

**Aim:**

- To study the pharmacognostical characteristics of tuberous root of *Mirabilis jalapa* Linn and leaf of *Physalis minima* Linn, which was never done before as per the literature survey.
- To study the physicochemical and phytochemical evaluation of selected parts of both the plants.
• To study the immunostimulatory and cardioprotective potentiality by using different in vivo models on the basis of their ethnomedicinal practice.

• To identify the bioconstituents responsible for the activity by using different spectral analysis.

To comply with the aim of the present research the following objective has been undertaken:

**Objectives:**

1. Collection of the plant materials, clean properly, dry and authenticate.

2. Pulverize the plant material in the powder form.

3. Evaluation of various organoleptic character and histology of the tuberous root of *Mirabilis jalapa* and leaf of *Physalis minima* Linn.

4. To carry out the histochemical test and size measurement for the identification of the different diagnostic characters present in the powdered form drugs.

5. To evaluate various physiochemical constant of tuberous root of *Mirabilis jalapa* and leaf of *Physalis minima* Linn. as per the methods available in the W.H.O. guidelines and Ayurvedic Pharmacopoeia.

6. To carry out the extraction of tuberous root of *Mirabilis jalapa* and leaf of *Physalis minima* with various solvents of increasing polarity.

7. To perform the qualitative preliminary phytochemical testing of the extract(s).

8. To isolate and purify the phytocconstituents present in the selected extract showing good phytochemical profile using chromatographic techniques.

9. To characterize the isolated components by various spectroscopic methods.
10. To carry out acute oral toxicity study for dose fixation of both the plant extract showing good phytochemical profile under various dose regimen.

11. To evaluate the \textit{in-vivo} immunostimulatory property of extract(s) showing good phytochemical profile and isolated compounds from the respective extract(s) of both plants.

12. To evaluate the \textit{in-vivo} cardioprotective activities of extract(s) showing good phytochemical profile and isolated compounds from the respective extract(s) of both plants.