CHAPTER-3

Aim and Objective
## Chapter-3: Aim and objective

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3. AIM AND OBJECTIVE

3.1. Aim

Dependence on natural herbs as medications in the therapy of disease is typical among a large percentage of the human population because of their access and affordable price. As a result of the increasing knowledge of the value of traditional medicine in human and animal well being, researches into the effectiveness of a number of the natural herbs utilized in the therapy of some disease would be valuable. WHO (1993) supports the use of effective and safe medications and accept traditional medicine as a valuable resource for main health care. A whole new endeavor that is trans-disciplinary reverse pharmacology has recently materialized. Reverse pharmacology (RP), developed as a control to lessen three major problems of price, time and toxicity. The scope of reverse pharmacology is to comprehend the mechanisms of action at multiple levels of biology and to optimize safety, acceptability and effectiveness of the leads in natural products. In this approach, investigations travel a a reverse path from ‘clinics to laboratory’ instead than classical ‘laboratory to the clinics’. Although medicinal plants were historically utilized for diabetes therapy throughout the globe, few of them are validated by scientific specifications. Drug development for natural medications can follow different paths. Reverse pharmacology provides a major pattern of shift in discovery. The technology has to integrate documented medical and experimental hits into leads by
multi-disciplinary exploratory studies on defined targets in vitro plus in vivo and conducting a myriad of developmental activities.

Thus, basing on the wider literary works review, the decisive goal of the research set, is to discover off an appropriate natural drug prospect and this can be suitable over traditional medications in the therapy of diabetes mellitus. The current research was aimed for the phytochemical and pharmacological screening of *Grewia serrulata* DC for its antidiabetic activity.

### 3.2. Objective

The objective of the research envisaged is as follows

- **Collection and authentification of plant material**

- **Standardization, extraction and phytochemical evaluation of plant material**
  - Determination of ash value, extracting value and moisture content
  - Successive solvent extraction
  - Preliminary phytochemical analysis

- **Toxicity studies**
  - Acute toxicity study
  - Sub acute toxicity study

- **Pharmacological studies**
  - Antioxidant activity
  - Antidiabetic activity
  - In vivo studies
- Oral glucose tolerance test
- Single dose treatment of the extract
- Multi-dose treatment of the extract
  - In vitro studies
  - α-glucosidase inhibitory activity
  - α-amylase inhibitory activity
  - Glucose uptake enhancement by muscular tissue
  - Insulin secretagogue activity

- Structural elucidation of the components of plant material
- Identification and isolation of bioactive principle
- Pharmacological evaluation of bioactive principle for its antidiabetic activity