3. AIM, OBJECTIVE AND PLAN OF WORK

3.1 Aim and Objectives

Diabetes mellitus is a chronic disease, characterized by derangement in carbohydrate, fat and protein metabolism. Westernized culture and change in lifestyle have resulted in a sharp rise in the cases of non-insulin dependent diabetes mellitus. Only in U.S.A 17 million people have diabetes, out of which 11.1 millions are diagnosed and 5.9 millions are undiagnosed, whilst in India 33 million. It is estimated that by the year 2025, more than 300 million people in the world will have diabetes, out which, 60-80 million people will be in India.

Oral anti-diabetic agents, act only on a part of the pathogenic process, may not produce any cure and prevent all the complications of diabetes. Insulin cannot be used orally and continuous insulin injection has many side effects and toxicity. Thus, people have started looking at the ancient healing systems due to the adverse effects associated with synthetic drugs, minimum side effects, inexpensive, better cultural acceptability and compatibility with human body. Since ancient times many medicinal plants claim to control the diabetes in humans but systematic evaluation of them are not done yet. The lack of documentation and stringent quality control are the key obstacles, have hindered the acceptance of the alternative medicines in the developed countries. In recent times, many studies have been carried out in the search of a proper plant drug that would be effective in diabetes mellitus.

Natural products have served as an important source of drugs since ancient times. The primary aim of ayurveda health care is to restore the physical, mental and emotional balance in patients, by improving health, preventing disease and also treating any current illness. Many western drugs had their origin in plant extract and can be useful as drug or supplement. About 67% of the today’s useful drugs are derived from natural sources. In developing countries 80% percent of the world’s population relies on medicinal plants for their primary health care. Ethnopharmacological studies on such herbs/medicinally important plants continue to fuel interest for investigators. Medicinal plant parts must be authentic and free from harmful materials like pesticides, heavy metals, microbial or radioactive contamination, etc. For uniform consistency, bioactive extract should be standardized on the basis of active principle or major compound(s) along with fingerprints.
**Bhunimbadi churna**, cited in ‘Bruhad Nighantu Ratnakar/(Ayurved Sar Samgrah’, contains ‘Chirayata’ whole plants of *Swertia chirata*, ‘Indrajav’ and ‘Kada chhal’ seeds and stem barks of *Holarrhena antidysenterica*, ‘Sunthi’ rhizomes of *Zingiber officinale*, ‘Marica’ fruits of *Piper nigrum*, ‘Pippali’ fruits of *Piper longum*, ‘Nagarmoth’ rhizome of *Cyperus rotundus*, ‘Katuki’ rhizome of *Picrorrhiza kurroa*, and ‘Chitrak’ root of *Plumbago zeylanica*. Literature survey revealed the antioxidant and antidiabetic activities of all plants yet no scientific reports are available for ‘*Bhunimbadi churna*’. Hence, present work on **Standardization and evaluation of Pharmacological activity of – An ayurvedic ‘Bhunimbadi churna’** was undertaken to check the quality, purity and efficacy of ‘*Bhunimbadi churna*.

### 3.2 Plan of the work

1. Collection of raw material.
2. Evaluation of Quality control parameters for raw material. Organoleptic parameter, microscopy study, physicochemical parameters like; moisture content/ loss on drying, extractive values, ash content and pH.
3. Evaluation of Quality control parameters for churna. Description, bulk density, tapped density, Hausner ratio, Carr’s index, angle of repose, pH, moisture content, extractive values and ash values.
4. Qualitative phytochemical evaluation of raw material and churna.
5. TLC of raw material and churna.
6. HPTLC of raw material and churna.
7. Heavy metals analysis.
8. Microbial analysis.