4. AIM OF PRESENT WORK

Medicinal plants belong to the earliest known healthcare products that have been used by the mankind. They are not only the major sources or components of the many formulations used in Indigenous Systems of Medicine, but also of a large number of drugs in Allopathy. During the last few decades, there is a consequent expansion in the global interest in medicinal potential of plants due to emerging and re-emerging infections, uncontrollable drug-resistant diseases and huge rise in lifestyle diseases. Plant-based drugs could act as therapeutic agents to complement modern medicine in management of these irrepresible diseases and help to attain positive health.

Unfortunately, one of the stumbling blocks in the wider acceptance of herbal drugs is inadequacy or lack of quality control standards. Due to vast variation of chemical constituents in the raw plant material collected from different geographical sources and the practice of adulteration or substitution, proper quality control of the herbal raw material and finished products has become essential for standardization, efficacy, safety and consistency of the drugs. Therefore, it is imperative to develop adequate standards to exploit the efficacy and ensure safety of the long-standing traditional herbals in the light of modern tools and techniques.

Moreover, even though majority of the medicinal plants have huge therapeutic potential for exploitation in view of the value of their economic products for use as medicine, they are either under-utilized or are yet to be explored scientifically. Therefore, pharmacological screening of these medicinal plants is a more effective strategy for discovering new chemical entities as safe and effective medicines and to meet the growing needs of the human.

*Capparis decidua* Edgew. (Family: Capparidaceae) is commonly known as ‘Kair’ or ‘Caper plant’. It is a xerophytic plant which grows abundantly in dry, open wastelands throughout the arid and semi arid zones of India and different parts of the world. In Indian medicine, the entire herb is valued for medicinal properties and is used as laxative, anti-inflammatory, anti-arhritic, antipyretic, anthelmintic, antibacterial and diuretic. It is also advocated as a remedy for variety of diseases, including rheumatism, boils, swellings, skin diseases, biliousness, jaundice, diabetes, cardiac...
troubles, asthma and general weakness. Because of xerophytic nature of the plant, it can grow abundantly and automatically in the wastelands and arid areas without any extra efforts. It does not require any maintenance to survive because of its excellent adaptation to arid conditions and high resistance to drought, diseases, termites, etc. This makes the raw material of this plant highly economical. Consequently, this may provide benefit to common man and even tribal people by the use of easily available and cheaper plant as a medicine. However, a survey of literature and screening of scientific data revealed that a systematic standardization study of the plant is still lacking and hence pharmacognostical data needs to be generated for knowing the identity, purity and quality of C. decidua stem. Hence, the present investigation is an attempt to establish quality parameters through systematic evaluation of the plant material using modern analytical techniques, which would serve as a useful tool in standardization of the plant. Furthermore, inspite of the numerous evidences of multiple uses of the plant in traditional and folk medicines and its inexpensive and wide availability, it is not used in the modern medicine because its therapeutic efficacy is not validated till today. It was realized that systematic scientific investigations are still lacking regarding the pharmacological potentials of C. decidua stem. Hence, the study is also aimed to check and validate its therapeutic worth, thereby generating the pharmacological data, which would support its traditional and folklore uses and would contribute to the search of a safer, efficacious and cost-effective drug, so that local community and common man can explore and utilize its benefits as a medicine.

Plan of Work

- Identification and collection of fresh samples of C. decidua stem.
- Authentication of collected plant material.
- Morphological and microscopical studies of stem and its powder.
- Development of physico-chemical parameters.
- Preliminary phytochemical screening and estimation of phytoconstituents.
- Qualitative and quantitative analysis of marker compound using HPTLC.
- Preparation of different extracts from the stems for evaluation of pharmacological activities.
- Screening the extracts prepared from the stems for acute oral toxicity
Screening the extracts prepared from the stems for following pharmacological activities using different experimental models:

- Anti-inflammatory activity
- Hepatoprotective activity
- Anti-diabetic activity
- Anti-microbial activity