CHAPTER - III

AIM OF WORK
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3. AIM OF WORK

3.1 Aim and Objectives

About 30-40% of world population is affected by allergic conditions. First allergic case was reported after wasp sting in 2641 BC. The term "allergy" was introduced by Von Pirquet in 1906, meaning "changed reactivity. World Allergy Organization define, allergy is a hypersensitivity reaction initiated by immunological mechanisms.

Allergy can be antibody (IgE and IgG) or cell mediated (contact dermatitis by lymphocytes). Allergens, mostly reacting with IgE and IgG antibody, are proteins, carbohydrates and low molecular weight chemicals. While in allergic contact dermatitis, allergens are low molecular weight chemicals reacting with cells. The avoidance of allergens is first step to control it e.g. soothing creams and wet wrapping can reduce skin allergy. Antiallergic drugs in allopathic are; block or reverse the effects of mediators released during allergic reactions, relax the constricted muscle around the airways of the lungs, shrink congested tissue, reduce inflammation, modify the immune response e.g. steroids, antihistamines and bronchodilators (beta-adrenergic blockers). In Ayurveda the main causative factor of allergy is the improper digested food ‘Ama’. Allergic reaction illnesses, drug allergies, or hypersensitivities are considered ‘Kapha’ dominated diseases, e.g. asthma and eczema. The treatment consists of identifying the allergens, avoiding the exposure to them, using drugs to relieve acute symptoms, improving digestion and cleaning the intestine of toxic materials in the gut (ama). Emesis is recommended to treat allergy and asthma, because allergic reaction illnesses are considered kaphaja disease.

Charaka prescribed a paste of gambhari leaves (shewan, Gmelina arborea Roxb. Fam.; Verbenaceae) for stiffness of the back, facial paralysis, soup of fruits in diarrhoea and Sushruta for bilious fever, haemoptysis, breathing trouble, asthma and adhesion of fracture bones. It is the important ingredient of Dashamularista and Shriparnaayaadi kwaath used in treatment of allergy. The plant Careya arborea Roxb (Lecythidaceae) is named kumbhi in Sanskrit due to hollow on top of the fruit giving water-pot like
appearance. Plants *G. arborea* and *C. arborea* with similar species and morphological characters but different genus and family, have been used in treatment of various allergic reactions. However there is no scientific report available on therapeutic claim for antiallergic activity. Hence, the present work was undertaken to evaluate parameters for pharmacognostic, physicochemical, phytochemical by chemical test and TLC, estimation of secondary metabolite likes; total phenolic, flavonoid, alkaloid, saponin and alkaloid content and justify the therapeutic claims of leaf and fruits of *G. arborea* and *C. arborea*.

### 3.2 Plan of Work

#### 3.2.1 Pharmacognostic evaluation

Collection and authentication, morphological and microscopical evaluation by TS, powder microscopy, quantitative microscopy; vein islet number, vein termination number, stomatal number & index, palisade ratio of *G. arborea* and *C. arborea* leaf.

#### 3.2.2 Physicochemical evaluation

- Determination of ash values (total ash, acid insoluble ash, water soluble ash)
- Determination of extractive values (water and alcohol soluble extractives)
- Determination of loss on drying, foaming index, fluorescence analysis

#### 3.2.3 Phytochemical studies

- Successive solvent extraction, qualitative chemical tests, TLC for identification of phytoconstituents from different extracts of leaves and fruits of the plants
- Estimation of phytoconstituents (total phenolic, flavonoid, saponin, and alkaloid)
- HPTLC Quantification

#### 3.2.4 Pharmacological evaluation

- Toxicity study,
- *In vitro* anti-allergic studies on isolated guinea pig ileum, rat ileum and passive paw anaphylaxis in rats.
- *In Vitro* antioxidant activity (DPPH, Reducing power by FeCl$_3$ model)