CHAPTER 8

Summary
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The leaves were collected in month of July and seeds were collected in month of January from Saurashtra university region in Rajkot. Both parts were dried in shade and stored in airtight container for further studies.

The macroscopic and microscopic studies carried out to authenticate the plant Cassia occidentalis Linn. revealed that the characteristics of various parts were identical to those reported.

The seeds were roasted in oven between 100-110°C. Proximate analysis of the leaves and seeds were done to evaluate the parts of plant preliminary.

Results of extraction of leaves and seeds indicate maximum extractive values attained with polar solvents like methanol and water whereas with non polar solvents like petroleum ether, benzene, chloroform and acetone were comparatively less.

Qualitative chemical tests of leaves and seeds extract showed presence of alkaloids, glycosides, tannins, fixed oils, flavonoids, phenolics, triterpenoids, saponins, proteins, carbohydrates, gums and mucilage from which methanol and water extract showed significant presence of phenolic and flavonoids while fatty materials like fixed oil retained in petroleum ether and other non polar solvents.

Maximum extractive values were found with polar solvents, so 80% hydroalcoholic solvent was selected for extraction of leaves and roasted seeds of Cassia occidentalis Linn.

Study of UV Visible spectra of active extracts of leaves and seeds also revealed presence of flavanoids and phenol like compounds which can be further supported by hydroxyl peaks in IR spectras.

Pharmacological screening for anti-asthmatic activity of selected extract of leaves and roasted seeds of cassia occidentalis was done using different animal models.
Hydroalcoholic extract of leaves in dose 200 mg/kg and roasted seeds in dose 60 mg/kg of body weight were found effective in all these models.

Clonidine induced rat peritoneal mast cell degranulation: The prevention of degranulation process by the hydroalcoholic extract indicated a possible protective effect on the bio membrane of mast cells.

Histamine induced bronchospasm in guinea pigs: The bronchodilatory effect of leaves and seeds at high dose was comparable to ketotifen. The results showed antagonistic effects of the leaves and seeds against the contraction induced by the standard spasmogens.

Carrageenan-induced rat paw edema: efficacy of both the extracts against carrageenan –induced inflammation showed efficacy of these extracts to reveal inflammation. The degree of bronchial hyperresponsiveness and airway obstruction is closely linked to the extent of inflammation is many a times significant symptom of asthma.

Neutrophil adhesion test: reduced significant reduction in percentage of neutrophil adhesion help in decreasing the release of various cytokines and might be binding to A1 and/or A2 receptor on endothelium and results in producing anti-inflammatory action.

Because of significant efficacy of both extracts in different animals, efforts were made to develop a convenient and acceptable dosage form of extract from seeds as it is more potent than leaves. For this, human dose was calculated from animal dose which is 800 mg for an average human having 60 kg weight.

Fast dissolving tablets were prepared containing 200 mg extract, total weight of tablet was 400 mg. Daily dose of two tablets twice a day was required.

Since the powdered seed extract was free flowing and having all criteria for direct compression, a fast dissolving tablet was prepared using crosspovidone as superdisintigrant by direct compression method.
Different batches were prepared with different concentration of crosspovidone to have optimum hardness, disintegration time and friability. Final formulation with 5% crosspovidone, disintegrated in 10 seconds and having friability less than 1%.

IR analysis was done to demonstrate compatibility of excipients with drug extract. Results revealed no cases of incompatibility of excipients with drug extract.

A fingerprinting profile of Seed extract, Formulation and unroasted seeds were developed using HPTLC. The fingerprinting profile was developed with mobile phase Toluene, ethyl acetate and formic acid in ratio of 3:3:0.8

Seeds and leaves of cassia occidentalis were used to treat asthma in ancient time but now a days with speedy life style of people, one needs the methods that meet the urgent demand of people for medicinally useful herbal products. By this work, it is possible to explore and put leaves and seeds of this plant in more beneficial therapeutic use for patients.