SUMMARY OF THE THESIS

The work to be presented in the Thesis with the title 'CHEMICAL ANALYSIS AND PHARMACOLOGICAL ACTIVITY OF MEDICINAL PLANTS' has been described under the following different sections:

SECTION-I:

PROXIMATE ANALYSIS OF SOME MEDICINAL PLANTS:

Medicine is an ancient art and plants have been used by man since prehistoric days for relieving, suffering and curing of disease. The history of medicinal plants and their uses can be traced to the remote past. The three important treatises, viz. Rigveda (2000 B.C.), Atharvaveda (2000-100 B.C.) and Ayurveda (1000-600 B.C.) record several medicinal plants and their uses. Medicinal plants are also mentioned in Babylonian Science of Drugs (2000-600 B.C.). In China (about 2000 B.C.) Emperor Shan Nang investigated properties of medicinal plants and discovered drugs like Ephedra, Cinchona, etc. The Papyrus Eberis of Egypt, a sort of formulary published about 1500 B.C. records use of several herbs. The Charak Samhita published between 1000
B.C. to A.D.100, is one of the valuable Indian records on medicinal plants and their uses. The chemical analysis provides useful data as the approximate distribution of moisture, fat, ash, proteins, carbohydrates, starch, fibre and alkaloids in the medicinal plants.

Eight well known medicinal plants which are useful in diabetes mellitus and fevers are selected for the present work and they are: Alhagi Camelorum Fisch (Camel thorn), Crataeva Religiosa Hook (Three leaved caper), Asparagus Racemosus Willd (Wild asparagus), Swertia Chirata Ham (Chiretta), Vernonia Anthelmintica Willd (Purple fleabane), Holarrhena Antidysenterica Wall (Easter tree or Ivory tree), Piper Nigrum Linn (White pepper), Vitex Negundo Linn (Five leaved chaste tree).

SECTION-II:

STUDIES ON VITAMIN-A, VITAMIN-C, CALCIUM, IRON AND COPPER IN SOME MEDICINAL PLANTS:

Vitamin-A and Vitamin-C are indispensable for the normal growth and maintenance of animal and man. Vitamin-A promotes a smooth and healthy mucous membranes and important for good
vision, while Vitamin-C is needed for healthy bones and for development of strong blood vessels. Calcium and Iron are far most abundant elements in the body. Calcium is important for healthy bones and Iron is unique and improves the quality of blood. Copper is essential for the formation of haemoglobin. It is required for melanin pigment formation, bone development and elastin formation.

In view of the importance of Vitamin-A, Vitamin-C, Calcium, Iron and Copper in human nutrition, an assessment of these in the selected medicinal plants was undertaken. Holarrhena Antidysentrica Wall contains highest amount of Vitamin-A and Vitamin-C. Crataeva Religiosa Hook contain least amount of Vitamin-A while Vernonia Anthelmintica Willd contains least amount of Vitamin-C. Calcium, Iron and Copper were also present in varying amounts. Asparagus Racemosus Willd contains highest amount of Calcium and Copper. Swertia Chirata Ham contains highest amount of Iron.
SECTION-III:

QUALITATIVE AND QUANTITATIVE DETERMINATION OF AMINOACIDS PRESENT IN SOME MEDICINAL PLANTS BY PAPER CHROMATOGRAPHY:

Proteins are the indispensable constituents of the living Protoplasm. Proteins on hydrolysis yield aminoacids. Proteins are made up of about twenty five different types of aminoacids of which ten are essential. These ten essential aminoacids are not all represented in the proteins in every plant. It is therefore, good nutritional practice to make up the protein of the diet from a number of different sources. In the present work the medicinal plants were analysed for their aminoacid profile by two dimensional chromatographic technique using m-cresol : phenol : borate buffer (30 g : 15 g : 7.5 ml) and n-butanol : acetic acid : water (4 : 1 : 5) as the solvents.

The medicinal plants are found to have in common some of the indispensable and dispensable aminoacids, such as asparagine, aspartic acid, cysteine, glutamic acid, methionine, proline and tryptophan. Holarrhena Antidysentrica Wall contains highest amount of aminoacids, while Vitex
Negundo Linn contains least. Histidine, glutamine, valine and tryptophan were absent in all plants.

SECTION-IV:

QUALITATIVE AND QUANTITATIVE DETERMINATION OF SUGARS PRESENT IN SOME MEDICINAL PLANTS BY PAPER CHROMATOGRAPHY.

Sugars are primary source of energy for the body. They serve as the starting point for the synthesis of certain aminoacids. It is therefore good nutritional to practice make up the sugar composition of plants. In the present work the medicinal plants were analysed for their sugar profile by two dimensional chromatographic technique using phenol : water (90 : 10 v/v)\[ \text{NH}_3 \text{ atmosphere} \] and n-butanol:acetic acid : water (4 : 1 : 5) as the solvent systems. Aniline hydrogen phthalate used as developing reagent.

Vitex Negundo Linn contains highest amount of sugars while Piper Nigrum Linn contains least amount.
PHARMACOLOGICAL ACTIVITY OF SOME MEDICINAL PLANTS

The pharmacological activity of these selected medicinal plants include both antibacterial and antifungal activity. The alcoholic extract of these medicinal plants were used for its antibacterial activity against *B. Subtilis*, *S. Aureus*, *E. Coli* and *B. Magterium* for Gram-positive and *S. marcescans*, *P. Vulgaris*, *E. coli* and *D. Gallinae* for Gram-negative test organisms. The zone of inhibitions are compared with penicillin sodium and dihydrostreptomycin sulphate for Gram-positive and Gram-negative organisms, respectively. For antifungal activity *A. Nigri*, *P. Scleritum* and yeast *Saccharomyces cerevisiae* organisms are used and compared with that of standard solution of resorcinol.

Among these medicinal plants *Vitex Negundo Linn* was active on both Gram-positive and Gram-negative organisms. *Holarrhena Antidysentrica Wall*, *Vitex Negundo Linn* and *Alhagi Camelorum Fisch* were active against different fungii.
The antidiabetic activity of selected medicinal plants, alkaloids and aminoacids were studied. The animals used for the Pharmacological studies were adult albino rats of holtzsman strain, weighing nearly 200 gms in weight. The animals were maintained in ideal laboratory conditions with standard diet and water *ad libitum*.

The selected part of medicinal plants and aminoacids when treated were found to be effective as antidiabetic agent. From the results it revealed that Holarrhena antidysentrica Wall and Leucine were found to be significant in decreasing mg percentage blood sugar in the normal and alloxan diabetic albino rats.