This thesis is the compilation of the results obtained in the project entitled 'Effect of Ascorbic Acid on Drug Plants and their Constituents'. This thesis is divided into seven chapters.

In chapter 1, a general introduction of the plants undertaken for studies is given. We have selected Anethum sowa (dark Variyali and pale Variyali varieties), Trigonella foenum-graecum, Adhatoda vasica (big leaf and small leaf varieties) and Datura innoxia.

The literature available on the above plants and on Ascorbic Acid has been given in chapter 2. Review of literature covers traditional uses, active constituents and their percentages, analytical methods applied by different people, chromatographic techniques and pharmacology of the above plants. A detailed account of the involvement of ascorbic acid in the various metabolic processes of plants has also been given in this chapter.

In chapter 3, approach to the problem and plans laid out meticulously were briefly mentioned.

The details of the Materials and Methods are enumerated in chapter 4. Experimental part covers cultivation practices, collection, processing and analysis for the pharmacologically active ingredients.
In chapter 5, the results obtained and their discussion are given. The results obtained at different growth stages of herb and fruits in dark sowa are described. The variations occurring as a result of ascorbic acid treatment in the herb oils of dark and pale Variyali sowa are discussed. Ascorbic acid effect on the final yield, volatile oils and their constituents are described. Ascorbic acid was found to bring about some interesting changes in the volatile oil composition of dark and pale Variyali sowa. The response of fenugreek seeds to ascorbic acid treatment during germination, growth and in the final yield are elaborated. As regards Adhatoda vasica, morphological, pharmacognostic, anatomical and histological differences between big leaf variety and small leaf variety are detailed. Seasonal variation of total quinazoline alkaloids and effect of a 10 ppm. concentration of ascorbic acid on alkaloid percentage in roots and leaves of both big and small vasaka plants are mentioned. The last part of the results and discussion deals with the seasonal variation of total tropane alkaloids, hyoscyamine and scopolamine in the roots, leaves, stem and fruits of Datura innoxia plants grown during summer and winter. Effect of 10 ppm. concentration of ascorbic acid on the above active constituents is also discussed.
The results are finally summarised in chapter 6. Ascorbic Acid improved the yield of the active constituents in *Anethum sowa*, *Trigonella foenum-graecum*, and *Adhatoda vasica* but treatment with ascorbic acid resulted in a decrease of the total tropane alkaloids in all the parts.

In chapter 7, relevant bibliography of the plants and their active principles is provided.