The present thesis consists of six chapters. A brief resume of each one is given below:

CHAPTER - I is an introductory one and deals with a brief account of the growth and development of plant chemistry with the advent of modern physico-chemical techniques. Recent investigations have been incorporated. The importance of the present investigations along with a brief account of work done has also been reported.

CHAPTER - II describes the structural study of a new saponin isolated from the alcoholic extract of the leaves of Achyranthes aspera Linn. (N.O. Amaranthaceae). The structure (1) has been assigned as olean- Δ^{12}-ene-28 oic-3-0[\alpha-L-rhamnopyranosyl (1 \rightarrow 4) \beta-D-galactopyranosyl (1 \rightarrow 4) \beta-D-glucopyranoside] on the basis of chemical and spectroscopic studies. Quantitative estimations of the sugars indicates that a molecule of the sapogenin (oleanolic acid) is attached with one molecule of D-glucose, D-galactose and L-rhamnose.
CHAPTER III - presents the chemical examination of a light yellowish white essential oil (0.22%), obtained from the flowers of *Artabotrys odoratissimus* R.Br. (N.O. Annonaceae), which has been found to contain the percentage composition: Caryophyllene oxide (40.01%), β-Caryophyllene (16.88%), dl-α-Pinene (14.38%), d-Linalool (12.45%), Farnesol (10.05%), α-Terpineol (3.05%), Geraniol (1.03%), Methyl heptenone (0.36%), d-Citronellol (0.35%), Δ⁴-Carene (0.16%) & P-Cymene (0.12%). Geranyl acetate, 1:8 Cineole, 1-Borneol and two unidentified compounds have been found in GLC curve only. The former three have been confirmed by co-GLC only.

CHAPTER IV - gives an account of the chemical examination of the fixed oil, from the fruits (seeds) of *Artabotrys odoratissimus* R.Br. obtained in an yield of (2.85%). It has been found
to be a mixture of the triglycerides of the palmitic (17.15%), stearic (6.45%), arachidic (1.9%), oleic (59.03%), linoleic (12.40%) and linolenic acid (3.07%). The unsaponifiable matter (0.92%) has been found to contain β-amyrin, β-sitosterol, lupeol and an unidentified hydrocarbon. The presence of which has also been confirmed by I.R.

CHAPTER - V incorporates the studies on the defatted fruits (with seeds) of *A. odoratissimus* R.Br. and the leaves of *A. aspera* Linn.

The hydrolysates of the proteins have been analysed qualitatively and quantitatively by chromatography and colorimetry respectively. The amino acids (%) present in the proteins have been found to be respectively:

Alanine (-, 9 ), Arginine(2.5, 1.9), Aspartic acid (9.5, 12.2) Cystine (14.0, 6.8), Glutamic acid (8.0, 11.5), Glycine (13.0, -), Histidine (5.0, 4.3), Hydroxyproline (16.1, 9.4), Leucine/Isoleucine (8.4, 13.6), Lysine (3.5, 3.5), Methionine (6.2, 2.1), Phenylalanine (-, 6.0), Proline (-, 10.0), Threonine (7.6, 1.9), Tryptophane (5, 1.8) & Valine (-, 5.2).

The carbohydrate part showed the presence of D-Arabinose, D-Fructose, D-Galactose, D-Glucose and Sucrose
in the fruits of *A. odoratissimus* R.Br. and D-Galactose, D-glucose, L-Rhamnose and D-xylose in the leaves of *A. espea* Linn.

CHAPTER VI divided into two parts A and B, consists of the studies on the antimicrobial screening of different plant products against the bacteria: *Pseudomonas aeruginosa*, *Salmonella typhi*, *Salmonella paratyphi*, *Vibrio cholerae*, *Pseudomonas putida* and *Staphylococcus albus* and the fungi: *Aspergillus flavus*, *Keratinomyces aëriolae*, *Microsporum gypseum*, *Curvularia lunata*, *Aspergillus versicolor*, *Pseudomycous fusisporus*, *Penicillium* species and *Trichophyton rubrum*.

PART A deals with the investigation of antimicrobial activity of some plant products i.e. essential oils obtained from the flowers of *Artabotrys odoratissimus* R.Br. and the leaves of *Anisomeles indica* Linn., *Anisochilus carnosus* Wall and the fixed oil and the methyl esters of mixed fatty acids isolated from the fruits (with seeds) of *A. odoratissimus*. Both the essential oil and the fixed oil of *A. odoratissimus* have been found to have good antibacterial and antifungal activity.

PART B presents the studies on the antimicrobial activity of the different solvent extracts from the leaves of *A. espea* against the above stated bacteria and fungi using
Penicillin (1000 ppm) and Griseofulvin (1000 ppm) respectively as the standards.

The alcoholic extract has been found to have antibacterial and antifungal activity favourably comparing with that of the standards.