Nature has crowned its demesne with more than three lakh fifty thousand morphologically distinct plant species. Each plant species has the capacity to elaborate conspicuous molecules. Thus they have not only provided man with almost all essential commodities but have also roused his passion and soared his aspiration for the rejuvenation and annihilation of animal cell. One of the primary aspects of the basic scientific knowledge, required for an expeditious utilisation of vegetable products, broadly termed as Natural Products, is to probe into their Chemistry. Although unabated investigations in this direction have, profoundly, advanced the field of phytochemistry and widened its horizons to inter-disciplinary areas, such as plant physiology, biochemistry, chemotaxonomy and pharmacology, yet it continues to be a fertile field of fruitful research.

The State of Jammu and Kashmir (India) being a veritable emporium of aromatic and medicinal plants offers ample opportunities for phytochemical investigation, on the one hand, and commercial exploitation of these plants, on the other. Thus a study on the phytochemical investigation of some herbaceous medicinal plants, inhabiting the valley of Kashmir, was undertaken and is presented in this thesis.

The thesis is divided into six chapters and embodies the work done on the chemistry of Plectranthus rugosus, Phytolacca acinosa, Heracleum canescens and Archangelica Officinalis Var. Himaliaca as well as the anti fungal and anti bacterial activity of five essential oils.
The Chapter I delineates, concisely, the role of plants in biological world, highlights some of the recent developments in the field of phytochemistry with a special reference to plant physiology, biogenesis of natural products, chemo-ecology and chemo-systematics. The chapter outlines the curative potential of natural products with an emphasis on anti-cancerous drugs. A list of anti-cancerous drugs, discovered during the past six years is presented in tabular form. This chapter also gives a brief account of the future prospectus of phytochemistry and enunciates the problem isolated for detailed study during the present investigation.

The chapter II highlights previous findings on the genus Plectranthus. The genus is rich in diterpenoids, belonging to abietane and kaurane series. It has also been worked out for the composition of essential and fixed oils. The chemical composition of various species of the genus has been outlined in tabular form. Since the present work is primarily concerned with triterpenoid constituents of P. rugosus and because a study on triterpenoids of Phytolacca acinosa has also been made, the salient features of triterpenoids have been incorporated in this chapter. Subsequently a discussion on the isolation and structural elucidation of three new triterpenoids, designated as plectranthoic acid, acetylplectranthoic acid and plectranthadiol from P. rugosus is presented. These compounds have been respectively assigned the structures as 3(CH)-hydroxy-18(H)-urs-12-en-29β-oic acid, 3(CH)-acetoxy-18(H)-urs-12-en-29β-oic acid and 3(CH)-hydroxy-18(H)-urs-12-en-29β-ol. The details of the experiments adopted during the present study are given at the end of the chapter.
Following, an outline of the previous findings on the genus *Phytolacca*, in Chapter III, a discussion on the isolation and the elucidation of the structures of four triterpenoids, namely phytolaccanol, epiacetylaleuritolic acid, 30-methyl sperjulagenate and jaligonic acid, from *P. acinosa* is given. Of these the first two are new compounds. Phytolaccanol has been characterised as taraxer-14-en-3(β, 30)-diol, 3-acetate, while as epiacetylaleuritolic acid has been characterised as 30α-acetyl-taraxer-14-en-28β-oic acid. The details of the experiments employed during the present study follows the discussion on these compounds.

The genus *Heracleum* is well known for its pharmacological activity and the presence of furanocoumarins. A survey of the literature on the genus is summarised in chapter IV. This is continued by a discussion on the structural elucidation of the constituents of *H. canescens*, which include methyl-3,4,5-trimethoxy benzoate, osthol and ten linear furanocoumarins. Out of these, methyl-3,4,5-trimethoxy benzoate and alloisoimperatorin have been found for the first time in the genus. The other linear furanocoumarins characterised from the plant are, xanthotoxin, imperatorin, heracelenol, heraclenin, isogosferol, θ-geranyloxy psoralen, psoralen, alloimperatorin and isoheraclenin. All the furanocoumarins of this plant are substituted at position C-8. Based on the present findings a hypothetical biogenetic scheme, likely to be operative in the plant, has been charted out.

An outline of the previous findings on the genus *Archangelica* is given in chapter V. The genus is rich
in coumarins of various types. From the plant Archangelica officinalis var. himalica, seven linear furanocoumarins have been characterised. These are archangelin, iso-oxypeucedanin, bergapten, xanthotoxol, psoralen, isoimperatorin, oxypeucedanin hydrate. All these coumarins are substituted at C-5 position. The details of the experiments employed during the present study is given at the end of the chapter.

The last chapter gives an account of the antifungal and antibacterial activity of five essential oils, obtained by the steam distillation from Plectranthus rugosus, Skimmia laureola, Tagetes minuta, Heracleum canescens and Angelica Officinalis var. himalica. The oil of H. canescens was found to be least potent of all these oils.