PREFA CE

Heterocyclic compounds have been found to be of paramount importance in chemotherapy, agrochemicals, textiles and analytical chemistry. Coumarin, the best known amongst all the isomeric benzopyranones, is unique amongst the oxygenated heterocycles. In view of its extensive plant origin and diverse biological properties, a large number of compounds containing coumarin nucleus have been synthesised. Warfarin and dicoumarol are the most important compounds of coumarin. Most of the work presented in this thesis is centered around coumarins ring system.

The thesis is divided into seven chapters. The first chapter mainly deals with the introduction, general characteristics, spectral properties of coumarin. This chapter also includes a brief survey of naturally occurring coumarin derivatives, biological properties, industrial importance and recent literature on coumarins.

Chapter-2 presents synthesis, reactions and biological properties of vanillyl ethers of 4-bromomethylcoumarins. The antimicrobial and antiinflammatory activities of these compounds have been discussed.

The work presented in Chapter-3 is in the form of two schemes. In the first scheme the reaction of 4-bromomethylcoumarins with 2,4-dihydroxy acetophenones is carried out. Further the resulting ethers have been converted into chromones, benzofurans and 4-hydroxy coumarins. In the 2nd scheme the reaction of 4-bromomethylcoumarins with 2,5-dihydroxy acetophenones has been carried out and the resulting ethers have been converted into chromones. The anticoagulant activity of some of the compounds has been carried out.

Chapter-4 deals with the synthesis and biological activity of 4-(chromonyl)furo coumarins. The biological activities like acute toxicity studies, gastric ulcerogenicity, analgesic and antiinflammatory activities of some compounds have been discussed.
The Chapter-5 deals with the synthesis and diuretic activity of 4-(pyrimidinyl) coumarinomethyl sulphides and 3-(3-coumarinyl)thiazolo[2,3-b]pyrimidines were presented.

Chapter-6 deals with the reactions of hydrazine hydrate and phenyl hydrazine with 4-bromomethyl coumarins. With the spectral data and literature support it has been concluded that they have been transformed into pyridazinone derivatives when treated with hydrazine hydrate.

Chapter-7 deals with the reaction of 3-chloro-4-fluoro aniline with 4-bromomethylcoumarins and 3-carbethoxycoumarins under microwave conditions. This has led to the formation of the corresponding fluorine containing 4-arylaminomethyl coumarins and 3-benzamido coumarins in a short period of time and enhanced yield.

All the new compounds synthesised during the present investigation have been characterised by spectral and analytical techniques.

Literature references have been cited at the end of each Chapter.