GENERAL REMARKS

The chemical structures appearing in each chapters are given numbers, which apply only to the respective chapters. All the figures pertinent to a chapter are placed after the relevant discussion and experimental section. Each chapter contains a separate experimental section.

The following abbreviations are used in the text.

aq - aqueous
alc - alcoholic
calcd - calculated
conc - concentrated
dil - diluted
h - hour(s)
gla - glacial
MS - mass spectra
Mp - melting point
tlc - thin layer chromatography

The solvents and reagents used for the synthesis were of reagent grade and were purified by standard methods. Petroleum ether used was of boiling range 60 – 80°C. Anhydrous sodium sulphate was used to dry the solutions of organic extracts.

Thin layer chromatography (tlc) was performed using glass plates coated with silica gel-G containing 13% calcium sulphate as binder. Petroleum ether, benzene, ethyl acetate, methanol and ethanol were used as developing solvents. A chamber containing iodine vapour was used to locate the spots. Columns packed with activated silica gel (60-120 mesh) were used to purify the crude products.

Separation or purification of the crude products was carried out using chromatographic columns packed with activated silica gel (60 – 120 mesh).
Melting points (Mp) were determined either on Boetius micro heating table or on Mettler FP 5 apparatus and are uncorrected. They are expressed in degree centigrade (°C).

IR spectra were recorded on Perkin Elmer 537 spectrometer or Shimadzu FT IR 8201(PC)S spectrometer using KBr disc, nujol mull or dry chloroform and the absorption frequencies are expressed in reciprocal centimeters (cm⁻¹).

¹H NMR spectra were recorded on Varian AMX 400 (400 MHz) spectrometer using tetramethylsilane (TMS) as an internal reference. The chemical shifts are expressed in parts per million (ppm). The following abbreviations are used:

- s - singlet
- d - doublet
- dd - doublet of doublet
- t - triplet
- m - multiplet
- b s - broad singlet
- J - coupling constant

¹³C NMR spectra were recorded on General electric QE 300 spectrometer with tetramethyl silane (TMS) as an internal reference.

MS were recorded on Jeol 300 mass spectrometer.

Microanalyses were performed on Carlo Erba 1106 or perkin Elmer 24 B CHN analyzer.

Introduction, literature review, discussion, experimental and references for chapter 5 are presented separately.