ABSTRACT

γ –and β– lactams have attracted organic chemists for their varried biological activities and interesting structural frame works.In this dissertation we have presented the synthesis of novel monocyclic γ – lactam and steroidal β– lactam which are potent antibacterial compounds with unconventional binding modes, producing systems of greater structural diversity.Our synthetic approach involves the intermolecular Michael addition of anilinomalonates to α,β - unsaturated acid chloride.followed by intramolecular amidification to generate monogactam (monocyclic γ – lactam) diester. Further to study the antibacterial activity we resolved the monogactam diester to trans fused γ – lactam carboxylic acids. In first two Chapters we have described brief review of β– lactam derivatives as well as γ – lactam compounds and presented the design and synthesis of novel thiopheno γ – lactam derivatives.In third chapter antibacterial activities of γ - lactam compounds have been evaluated by using Oxford Plaque method.It's pesticidal activities also have been measured. In fourth Chapter deals with detailed X-Ray Crystallographic Studies of the synthetic γ – lactam derivatives to reveal some bond rotation and ring disorder phenomena.Finally we have concentrated on the synthesis of some other novel γ – lactam and one of the steroidal β -lactam involving (2+2) cycloaddition reaction to appropriate substrate.

Key Words: Novel thieno γ – lactams, Michael addition, Pesticidal activity, Antibacterial activity, X- Ray crystallography, Steroidal β – lactam,(2+2) cycloaddition.