PREFACE

The drug invention and development is an endeavour process to discover biologically active molecules. Different heterocyclic systems have emerged as pharmacologically active principles due to enormous investigations in the field of pharmaceutical chemistry. In the last few decades spectacular advances have witnessed in medicinal chemistry, pharmacology, bio-technology, bio-emistry, bio-pharmaceutics and pharmacokinetics in correlation with drug invention.

New drug discovery mainly starts with the discovery of lead compounds which originates from synthetic chemistry, from natural sources or from bio-technological processes followed by optimization of the lead structure in order to improve potency, selectivity, decrease toxicity and establishment of structure activity relationships (SAR) finally development optimised synthetic route for bulk production.

In an effort to improve the efficiency of analogue development, a variety of statistical methods have been introduced. They range from Hansch approach to pattern recognition and factor analysis methods, non-quantitative methods, such as Topliss approach, computer aided drug design are also popular in pharmaceutical chemistry.

Thiazines are valuable moieties in the field of pharmaceutical chemistry known to possess a range of pharmacological activities such as antimicrobial, analgesic, anti-inflammatory, antitumour, antimycobacterial, anticonvulsant, antihelminth, antidiabetic and antirheumatic activity. Some of the drugs which possess thiazine
moiety alone are successfully introduced in to the market, such as cephalosporins a potent antimicrobial agent, piroxicam a non steroidal anti-inflammatory drug, chlorpromazine an antipsychotic agent. These drugs proved potential of thiazine moiety.

Thiazolidinone derivatives were found to possess diverse biological activities such as antitumor, antimicrobial, anticonvulsant, anti-HIV, anti-inflammatory, nematicidal, antipsychotic, antibacterial and anticancer activities. Thiazole and its derivatives when coupled with other heterocyclic systems pharmacologically successful drugs were achieved in the last few decades. One such derivative is penicillin, which contain thiazolidine ring coupled to β-lactum ring possess antibiotic activity, balaglitazone, which is obtained by fusion of quinazolinone with thiazolidinedione, which possess antidiabetic activity.

In this perception synthesis, characterization and biological studies of some new thiazolidinones and thiazines have been carried out and included in this thesis. The groundwork, supporting evidences and procedures employed for this work was explained in the chapters, introduction, literature survey, theoretical analysis and experimental investigations. The outcome of the present work was explained in the chapters, experimental results, discussion of results, summary, conclusion and recommendations. The references cited to carry out this work were enlisted in the last chapter.