Bacterial infections are raising serious alarm across the globe. The effectiveness of conventional antibiotics is decreasing due to the global emergence of multi-drug-resistant (MDR) bacterial pathogens. The problem of microbial resistance and untoward reactions are growing and the viewpoint for the use of antimicrobial drugs in the future is still vague. This problem can be reduced by controlling the use of antibiotics, continue studies to develop new drugs, either synthetic or natural and to develop research to better understand the genetic mechanisms of resistance. The area of design and synthesis of novel analgesic and anti-inflammatory drugs with less side effects, such as gastric irritation, intense respiratory depression, physical dependence and constipation. Therefore, studies aimed better tolerated and more powerful NSAIDs with fewer side effects as compared to currently used ones have been of interest in current years. The ultimate goal is to recommend selective and effective antimicrobial, analgesic and anti-inflammatory drugs to the public. So, an effort has been made to recocognise quinoxalines and stilbenes as effective antimicrobial, analgesic and antiinflammatory drugs.

The present thesis is divided into eight chapters. Chapter one describes the Introduction about the structure, properties, Current synthetic approach and medicinal importance of quinoxalines and stilbenes. Chapter two describes the literature survey that includes the information about the earlier work on different biological activities with its structural core of the structure of quinoxalines and stilbenes. Chapter three includes the theoretical analysis that includes the purpose of the present study and recommendations for future scope of work for antimicrobial, analgesic and anti-inflammatory activities of quinoxalines and stilbenes. Chapter four describes the Experimental investigation that includes synthetic schemes, procedures, characterization by IR, $^1$HNMR, C$^{13}$NMR and mass spectral studies of quinoxalines and stilbenes. Chapter five describes the experimental results. Chapter six describes the summary, conclusion and recommendations. Chapter seven mentions the references.