Preface

Heterocyclic compounds are abundant in nature and they have important role in human life as they are present in vitamins, hormones, antibiotics and pigments. A vast number of nitrogen, oxygen and sulphur containing heterocyclic compounds show biological activities and are used as key building blocks to develop compounds of biological or medicinal interest to organic chemists. Heterocyclic compounds are present in many biologically important moiety out of them some of the main scaffolds are thiadiazoles, coumarin, imidazo[1,2-a]pyridines and 4-*H* pyran. In this context, the thesis entitled "***Green Approaches for the Synthesis of Some Biologically Relevant Heterocyclic Compounds***," will introduce various approaches for the synthesis of these heterocyclic compounds.

Chapter 1 will provide a general introduction and literature review of synthesis and applications of some main class of heterocyclic compounds. **Chapter 2** will describe synthesis of 1,2,4-thiadiazole and 1,2,4-selenadiazole by two different methods *i.e.* by *tert*-butyl nitrite and chloranil mediated dimerization of primary thioamides and selenoamides. **Chapter 3** will describe a facile and convenient approach for a practical synthesis of 3-functionalized coumarins under metal and catalyst-free condition using *tert*-butyl hydrogen peroxide. **Chapter 4** will describe a simple and efficient method for the synthesis of imidazo[1,2-a]pyridines in metal and solvent-free conditions using KI/TBHP catalytic system under grinding at room temperature. **Chapter 5** will explore a solar energy mediated green synthesis of tetrahydrobenzo[b]pyran derivatives by using organocatalyst L-ascorbic acid in aqueous mediated.