

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 moieties out of them some of the main scaffolds are thiadiazols, coumarin, imidazo[1,2-a] pyridines and 4-*H* pyran. In this context, the thesis entitled “**Green and Benign Strategies for Efficient Synthesis of 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** In this chapter, we have discussed a new synthetic method for the preparation of coumarin derivatives from *o*-cresols and active methylene compounds under metal and catalyst-free condition using beta-cyclodextrin as a green catalyst with the equimolar ratio of ethanol: water (**1:1**) reaction medium. **Chapter 3** is concerned with the development of novel, facile, efficient and scalable route for the synthesis of imidazo[1,2-a] pyridines. **Chapter 4** In this chapter, we have developed a facile, efficient and scalable protocol to successfully achieve the 6,7-dihydrobenzofuran-4(5H)-ones. **Chapter 5** Describes a completely eco-friendly and straightforward protocol for the biologically important synthesis of trisubstituted thiazole derivatives by the reaction of easily available starting materials barbituric acid, acetophenone and aryl thioamides in the presence FeCl₃.6H₂O and O₂(Air) in DMF solvent.