
PREFACE

Organoboron compounds have been used extensively in organic chemistry for more than fifty years. Among the different types of organoboron compounds, boronic acids received remarkable attention in organic synthesis. Some of the well known organic reactions such as *Suzuki–Miyaura* cross-coupling reaction, *Chan-Evans-Lam* cross-coupling reaction and *Petasis* reaction involve boronic acids. Moreover, the importance of boronic acids in pharmaceuticals and material science has grown exponentially over the last two decades. Recently, many boron-containing drugs have been approved for various treatments.

Boronic acids have been used as starting materials, reagent, catalyst, template etc., in organic synthesis. Boronic acids are inexpensive, commercially available and less toxic which are easy to handle and store. In this context, the thesis entitled “*Applications of Boronic acids as a Reagent and Starting Material in Organic Synthesis*” will introduce various applications of aryl, alkyl and vinylboronic acids in synthetic organic chemistry. **Chapter 1** will provide a brief history of boronic acids, their classifications, synthesis, and applications in different organic transformations. **Chapter 2** will describe the application of arylboronic acids in the preparation of phenols using green oxidant hydrogen peroxide under catalyst-free condition. **Chapter 3** will provide an overview of *N*-alkylation of sulfoximines with different alkylboronic acids promoted by copper(II) acetate and pyridine. **Chapter 4** will highlight the applications of arylboronic acids as aryl donors for the copper catalyzed *N*-arylation of sulfoximines. **Chapter 5** will present the phenylboronic acid mediated deoxygenation of *tertiary* amine *N*-oxides under mild condition. Finally, the **Chapter 6** will summarize and conclude the total thesis work.