PREFACE

Amides are one of the most fundamental functional groups omnipresent in chemistry, biology, and materials science. Their widespread presence in Nature (e. g. in proteins, peptides, alkaloids, hormones and innumerous natural products) makes them essential structures to be explored. They are proven to be potential drugs such as paracetamol (analgesic), penicillin G (antibiotic), isoniazid (antituberculous agent), moreover, 25% of existing drugs and 33% of new drug candidates contain amide framework in their structures. Fertilizers like urea, herbicides such as alachlor and nylon which is an important polymer, are amides..

In this context, the thesis entitled **"Synthesis and Application of *N*-Activated Amides in different Organic Transformations"** has focused on the development of methodologies involving *N*-activated amides as starting materials for various organic transformations. **Chapter 1** will provide a general introduction to amides and their biological and synthetic importance. **Chapter 2** will introduce diversification of α–ketoamides via transamidation reactions with alkyl and benzyl amines at room temperature. **Chapter 3** will elaborate the synthesis of *N*-Aryl *α*–ketoamides, *α*–ketoesters, *α*–ketothioesters and their applications in quinoxalinone preparation. **Chapter 4** will describe the synthesis of acyl hydrazides from amides and hydrazine hydrate under metal free conditions at room temperature. **Chapter 5**, will present the synthesis of 1,3-dicarbonyl compounds using *N*-Cbz amides as an acyl source under transition metal-free conditions at room temperature. Finally, the **Chapter 6** will summarize and conclude the total thesis work.