**Acknowledgements**

It is my pleasure to express my sincere thanks and deep sense of gratitude to my supervisor, Prof. Kabir-ud-Din, for his patient guidance, continued interest and encouragement and support throughout this work. I am indebted to him for being tolerant of my personal shortcomings and professional limitations, for always helping me to remove my doubts and difficulties through many illuminating conversations and all the inspiration, I required, to take this work to completion. In fact to work with him was a most pleasurable, enriching and memorable experience of my life and I take this opportunity to pay my sincere thanks and best regards to him.

Sincere thanks are extended to the Chairman, Department of Chemistry, for providing necessary research facilities.

I extend my sincere thanks to Dr. Sanjeev Kumar, Dr. Zameer Khan, Dr. M. Z. A. Rafiquee, Dr. M. Akram, and Dr. Andleeb Z. Naqvi for their kind support.

Loving thanks and best wishes to my laboratory colleagues and seniors Dr. S. M. Shakeel Iqubal, Dr. Daksha Sharma, Dr. Waseefa Fatma, Dr. Sajid Ali, Mrs. Umme Salma Siddiqui, Dr. Deepa Sharma, Nuzhat Gull, Sayem Alam, Neelam Hazoor Zaidi, Mohd. Altaf, Naved Azam, Suraiya, Mohd. Dabi Ali Al-Ahmadi and Riyaz Mohd. for providing me enthusiastic environment during the progress of this work.
I feel obliged to Dr. Ziya Ahmad Khan for his valuable suggestions, comments and encouragement throughout this work which have helped me in improving the quality of this work, and with whom, in many conversations and discussions, I learned a good deal of chemistry too.

I am thankful to all of my friends Mohd. Tariq, Masoom Raza Siddiqui, Md. Wamique, Haider, Tabrez Anwar for their day-to-day help and valuable suggestions.

I express my deep thanks to my loving brothers (Tabrez and Tarique) caring sister (Arshia) for the adjustment they made during my studies.

Finally, I would not be who I am without my family and indeed I would not be at all without my parents. Words cannot express my indebtedness to my parents who, through their love and affection, their wishes and prayers, have given me the inspiration to do the work of my choice—I cannot thank you enough for the support (emotional and financial) and love that you have given without question over years.

(Tanweer Ahmad)