Acknowledgements

Though only my name appears on the cover of this dissertation, many others have contributed to its production. I therefore take this opportunity to thank all those people who have made this thesis possible and because of whom my PhD experience has been one that I will cherish for the rest of my life.

My hearty thanks to my advisor, Dr. C. V. Ramana. I have been extremely fortunate to have an advisor who not only educated me in Chemistry but also taught me discipline and shown unique ways to achieve my goals. This has helped me overcome many obstacles along the path to my PhD. His humanity and scientific curiosity were a constant source of inspiration. I shall never forget his enthusiasm for team work and strong work ethic. I am grateful to have been part of his group where I learned the tricks of carbohydrate chemistry as well as of life.

I also thank the former Heads of the OCS, Prof. K. N. Ganesh, the OCT, Dr. M. K. Gurjar and the Head Organic Chemistry Division, and the Director of NCL for providing infrastructural facilities. I gratefully acknowledge the valuable suggestions and timely help of Dr. Ganesh Pandey, Dr. Mohapatra, Dr. S.P. Chavan, Dr. Srinivas Hotla, Dr. Thulsiram, Dr. Dethe, Dr. Borate, Dr. R. A. Joshi, Dr. (Mrs.) R. R. Joshi and Dr. P. K. Tripathi Dr. D. S. Reddy, Dr. Vanka Kumar. Suggestions offered during assessments and other presentations, by scientists namely, Dr. S.P. Chavan, Prof. D. D. Dhavale and Prof. M. G. Kulkarni, are also gratefully acknowledged.

I am thankful to my teachers at school, college and University for their inspirational teaching, honorable ethics and firm discipline. I am highly thankful to Dhavale sir, Shinde madam, Lokhande sir, Nikalje sir, Waghmode sir, and Kulkarni sir for their sincere efforts and patience in guiding me during my stay at the Chemistry Department University of Pune.

I would like to thank, Dr. V. B. Gaikwad, Dr. R. B. Toche, Dr. M. N. Jachak, Padwal sir, Shinde sir and Labhade sir for their constant inspiration and help rendered throughout my graduation in KTHM College Nashik.

I sincerely thank Mrs. Raphel, Mrs. Kulkarni and all OCD office staff for their cooperation. Help from the spectroscopy, analytical and mass group is gratefully acknowledged. I sincerely thank Dr. Rajmohan, Mrs. Santhakumari, Dr. M. G. Kulkarni and Mr Sandeep (IISER Pune) for their unhesitant support and assistance. My special thanks to the entire NMR faculty.

I gratefully acknowledge the training and support extended by my senior colleagues Dr Sabita, Dr. Anand, Ankush, Dr. Sharad, Dr. Kulbhushan, Dr. Giri, Dr. Pandey, Dr. Pitambar, Dr. Rahul, Dr. Sachin, Dr. N. Raghupathi, Dr. Mondal, Dr. Roxy, Dr. Indu, Dr. Anuj, Dr. Pradeep, Dr. Raghman, Dr. Rita, Dr. Sahoo, Dr. Vikhe and Senthil, who taught me various techniques and encouraged me at several point of time during the tenure as a PhD student. I would like to thank all my colleagues for always maintaining cheerful and healthy working environment inside as well as outside the Lab. I thank Yadagiri, Shyam, Vilas, Srishar, Yogesh (goru), Suneele, Chandrababu, Ketan, Jitu, Pareesh, Atul, Ravindra, Narendra, Srinivas, Ajay, Dinesh, Anuradha, Anand, Babu, Mahesh(P), Vivek, Mahesh(S), and Pathan with whom I shared my most precious moments during my PhD.
I would like to acknowledge my Senior Colleague from Pune University for their helping hands and brotherly affection Dr. Vishwas, Prof. Vija Kasture, Dr. Raju, Dr. Nilesh, Dr. Pankaj, Vinalik, and Swati throughout my tenure in Pune. I would also like to thank my colleague from Pune University: Venky, Amit, Sangram, Roshna, Rima, Amardeep, Reshme, Sagar, Pravin, Ramesh, Sachin, and Ganesh.

I also consider myself blessed in that I got to spend a major chunk of my time at NCL with Anand, Ankush, Pankaj, Abhishek, Ashwini, Elaine, Anna, Varsha and Ravindra. They have always been and will continue to be an inspiration to me. We were of one mind in many things and therefore shared a special relationship. I am at a loss for words to describe them and it should suffice to say that I am simply blessed to have them ever by my side. I’ve spent the best of times with them. They have always been patient with me and form an indispensable part of my life. The care and emotional support of these people has been tremendous and they have been a family to me away from home.

I am forever grateful to NCL and the friendly and cooperative environment where several persons provided unhesitant help and support to me. To this end I acknowledge my senior colleague Dr. Manmath, Dr. Aba, Dr. Suleman, Dr. Ramesh, Dr. Sane, Dr. Pushpesh, Dr. Prasad, Dr. Satish, Dr. Lait, Dr. Bharat, Priyanka, Pankaj, and Deepak also my colleague Debasis Pati, Sumantra, Srinivas, Kaur, Sumantho (G), Krishanu, Prakash, Modal, Ravi, Tukaram, Vijay, Sachin, Ganesh, Prashant, and many more. Also my stay at GJ Hostel was pleasant and peaceful where many of my fellow residents like Bhavdya, Chand, Majid, Chinmay, Kjran, Milind, Dhanya, Amol, Shravan, and Abhijeet became my longtime friends.

I am also pleased to thank my roommates Rahul Jha, and Mrutyunjay Tiwari for always maintaining an enthusiastic environment in the room.

I express my profound gratitude to Principal Dr. A. P. Patil and my Senior Colleague Borse sir, Kale sir, and Date sir from ASC College Ozar(mig), Nashik for their encouragement and support while doing my work.

My family is always source of inspiration and great moral support for me in perceiving my education, it is impossible to express my sense of gratitude for my family, Akka(mother), Pappa and Mavshi in mere words. Whatever I am and whatever I will be in future is because of their enormous blessings, hard work, commitments to my ambitions, and their selfless sacrifices. It was their single minded pursuit of the cause of my education that gave me the strength and will continue to guide my future. Although this eulogy is insufficient, I preserve an everlasting gratitude for them. Words fail short to thank my brothers Anil, Nitin, and Sachin who educate me and made me strong, Tayade Family for their never ending encouragement and support. I wish to thank Swati, my wife, for her love, affection and support extended to me during last two years. She has brought a great deal of happiness and positive change to my life and I really grateful to have little Cute Princess (daughter) who is full of happiness, Joy and Curiosity, she brought everlasting cheerfulness in my life.

I am also thankful to CSIR, New Delhi for the financial assistance in the form of fellowship. At last but not the least, I thank whole heartedly, the omnipotent God, the illimitable superior spirit, for the strength and determination to put my chin up when faced with hardships in life.

Mangesh