Acknowledgement

This is an opportunity to express my gratitude towards people who were very helpful for the completion of Ph D. It was a novel and unforgettable experience.

I am thankful to research guide Dr. Badiger for his guidance and thesis. I am thankful to Dr. Lele, Dr. Wadgaonkar, Dr. Bhat and Prof. Christophe Chassenieux for their guidance.

I am grateful to the Director National Chemical Laboratory for allowing me to work for Ph. D in National Chemical Laboratory and appreciation. I am grateful to Council of Scientific and Industrial Research for awarding me senior research fellowship. I am also grateful to EGIDE sandwich thesis fellowship. I am also grateful to Dr. B. D. Kulkarni and Dr. Ranade for allowing me to work in NCL.

I am grateful to Dr. K. N. Ganesh, Dr. Maybhate, Dr. Likhite and Dr. Deshpande for their guidance during M Sc project which was a first introduction to research.

I would like to thank Anitha, Deepti and Pooja (project students). I would like to thank my friends Gauri, Ajay, Lalita and Sakshi. I thank my M Sc classmates, Harshada, Unmani, Rashmi, Poorva and Shubhada.

I would like to thank Rakesh, Hameed, Pujari, Swapnajali, Snehlata, Anjana, Madhuri, Aditya, Srinivas, Samruddhi, Divya, Venugopal E., Girish, Vivek, Rajeshwari, Mohan, Sony, Chandrashekhar, Kanitkar, Grace, Rasika, Harsha, Amit, Ramesh, Hemant, Pallavi, Hari and Sarika.

I would like to thank my M Sc teachers, Kaulgud, Mahamulkar, Bhatawdekar, Mane, Kondedeshmukh, Pol, Pardeshi and the library staff Mrs. Deshpande, Mr. Gade. I would like to specifically mention Gadre (B. Sc.), Mahamulkar, Bhatawdekar, Kondedeshmukh and Mane sir.

I would like to thank entire staff of stores, purchase, glass blowing, engineering section, library, administration, accounts, IP group, CMC, central NMR facility, medical centre. I am thankful to Dr. Ponrathnam, Dr. Rajan, Dr. Rajmohanan, Dr. Ajith, Dr. Ravikumar, Dr. Chavan, Dr. Jog, Dr. Kharul, Dr. Guruswamy, Dr. Varma, Kokane, Sangeeta Hambir, Neelima Bulakh, Mr. Thakar. I am
thankful to Mr. Radhakrishnan, Mr. P D. Sidheshwar for their help. I would like to thank Mr. U. V. Dhavale, Mr. Bharatiji, Mr. Yadav.

The word thank you is not enough to express my emotions towards my family for their colossal support throughout my Ph D. I thank them for teaching me to be ground to earth during the success and perseverance during failure. I am indebted to my sister Gauri as a source of inspiration and support during the tough time on work front. I would like to thank Mr. U. J. Mahurkar and Mr. J. G. Mahurkar for their help and support. My family has taught me to be independent personally and my lab mates have taught me to be independent professionally so I thank both for making me the way I am today.