Acknowledgement

This thesis is the result of five and half years of work whereby I have been accompanied and supported by many people. It is a pleasant aspect that I have now the opportunity to express my gratitude for all of them.

It is my great privilege to express my deep gratitude to my research supervisor Dr. G. J. Sanjayan for the guidance, support, timely advices and encouragement during the course of my Ph.D work. He helped me to face many difficulties during the reaction chemistry with his valuable suggestions. He taught me the power of imagination, creation of novel ideas, and requirement of doing quality work.

I owe my gratitude to Dr. Ganesh Pandey, Head of the Organic Chemistry Division, Dr. P. K. Tripathi, Acting chair and Dr. Sourav Pal, Director, for providing the infrastructure to work in this prestigious research institute.

I am grateful to Dr. P. R. Rajamohan for his help in doing the 2D NMR studies which is highly requisite for the completion of my thesis work.

I am deeply indebted to Dr. Vedavati G. Puranik, Dr. Rajesh Gonnade and Mr. Rupesh Gawade for helping me to get the solid state conformation of compounds. They helped me to understand many interesting concepts in crystallography. I thank Dr. A. T. Biju for the guidance, timely advices and support.

I thank Dr. Sourav Pal and Mr. Achintya Kumar Dutta for their judicious help in doing the ab initio molecular modeling studies. I am grateful to Dr. A. Ajayaghosh and Dr. J. D. Sudha (NIIST, Trivandrum) for helping me to do the rheological and morphological studies. I also thank Dr. Sushma G. Sabharwal, Dr. Sanjay T. Chavan (University of Pune) and Dr. Ernest Hamel (NCI, US) for their help in evaluating biological activity of compounds.

I take this opportunity to express my heartfelt gratitude to my teachers Prof. D. D. Dhavale, Prof. R. S. Kusurkar, Prof. M. G. Kulkarni and Prof. S. R. Pokharkar who helped me to learn the basics of Chemistry. They encouraged me with their full support which made me to become ambitious in life. I am deeply indebted to them more than they know.

I would like to thank my senior labmates Pranjal, Panchami, Amol, Sreenivas, Ajay Kale and Aarif for their valuable help and guidance. I also thank
my labmates Pinak, Arup, Ramesh, Gouri, Roshna, Vijaydas, Tukarm, Vijay, Ganesh, Sachin, Sanjeev, R. Suresh, Shivakumar, M. Suresh and Krishnaprasad for their cheerful company, support and made the working atmosphere cheerful.

I thank Jima, Hilda, Amol, Snehal and Shrikant from NMR facility to help me in taking the NMR analyses. My special thanks to friends

My special thanks to my friends Rajesh, Sachin, Mangesh, Rahul, Ajit, Bharat, Pavan, Yuvraj, Amar, Shashank, Amit, Ganesh, Kiran, Vishal, Mayur, Tushar, Pradip, Narendra, Vaibhav and many more who helped to cheer me substantially and in finishing the work satisfactorily.

I feel a deep sense of gratitude to my beloved mother, father, sisters and relatives for their care, affection, support and advices. Without their support, my ambition to pursue my research in NCL can be hardly realized.

I thank CSIR, New Delhi, for financial support.

Finally I would like to thank all those who have contributed to the successful realization of this dissertation as well as expressing my apology that I could not mention personally one by one.

This chain of my gratitude only be completed if I would thank the Almighty My deepest and sincere gratitude for inspiring and guiding this humble being.

Sangram Shivdas Kale