ACKNOWLEDGEMENT

I would like to sincerely thank everybody who has, in one way or the other, contributed in the successful completion of my thesis. I wouldn’t be doing justice by merely naming everybody who helped me but at the same time it will be too difficult for me to express my sincere thanks in the form of words, I will nonetheless try to make a sincere effort ...

I wish to express my heartfelt gratitude towards my research supervisor Dr. A. Sudalai, whose knowledge and vast experience has inspired me at every stage of my tenure and helped me to achieve this target. His suggestions, criticisms and constant encouragement helped me immensely to grow as a chemist. His constant effort to instill us with several most essential habits, like weekly seminars and group meetings, weekly reports and daily planning, made me confident to start an independent scientific career. I could not have imagined having a better advisor and mentor for my doctoral study. Although this encomium is insufficient, I preserve an everlasting gratitude for him. My sincere regards and reverence are for him, forever. I believe the better way of thanking him would be through my future contribution to the scientific community.

I thank Dr. B. D. Kulkarni and Dr. V. V. Ranade, Deputy Director and Head, CE-PD division, for their help and support. My special thanks to Dr. S. Gurunath for his constant encouragement and moral support. I also thank Dr. S. A. R. Mulla and Dr. J. Nithyanandhan for their valuable suggestion and personal care. It’s my privilege to thank the Director, NCL for giving me this opportunity and providing all necessary infrastructure and facilities. I specially thank CSIR, New Delhi for the JRF and SRF fellowship.

I thank NMR group, elemental analysis group and Dr. Rahul Banerjee for their help in obtaining the analytical data. I thank the library staff, chemical stores & purchase staff and glass blowing section staff of NCL for their cooperation. I also thank the Student academic section in NCL and PG section of Pune University for their help. I specially thank Professors. Kusurkar and M.G. Kulkarni for helpful discussions related to this work. I thank PD office staff Mr. Bhosale, Mr. Kakade and Mr. Suresh for their cooperation.

I am immensely thankful to my seniors Dr. Emmanuel, Dr. Arun, Dr. Pandu, Dr. Tanveer, Dr. Santhosh, Dr. Varun and Dr. Shyla for useful training in the initial
phase of my career. It’s my pleasure to thank all my lab mates Pratibha, Dayanand, Senthil, Dattatraya, Venkat, Brij, Rambabu, Soumen, Sunita, Ravindra, Anil, Komal, Pragati, Rohit, Arjun, Shubhangi, Pranita, Rupali, Ashwini, Prabagar and Kaleswaran for providing me a cheerful atmosphere in the lab and in every aspect throughout this research. Especially, indeed I am very thankful to Dr. Santhosh, Komal and Venkat for their healthy discussions and useful suggestions which helped me to improve myself in each stage of my research career. I also thank Senthil for providing care, kind attention and suggestions for me and my thesis.

I would like to thank my PG teachers Prof. H. S. P. Rao, Dr. N. D. Reddy, Dr. G. Vasuki and Dr. R. Ramanathan for their inspirational teaching, useful advices and for igniting the spark of research in me. I wish to thank all my UG and PG classmates, seniors and juniors for their motivation and support.

This work would not have been possible without the support of my friends, Venu and Dhamu. They have always been there for me, when I needed help with my research and when I needed moral support. They were instrumental in helping me get past all the self-doubting that inevitably crops up in the course of a Ph.D. and for my upliftment. You both were there for me in my good and bad times. I thank and admire their commitment to excellence, sincere desire to make a difference and boundless energy. I thank Vasudevan, Janakiram, Venkat and Trinadh for always coming up with very interesting chemistry for discussions, which always took us to another world. I thank and appreciate their brilliant minds, courage to live on the cutting edge and generous spirit. With much appreciation, I would like to admire all of my friends in NCL for their kind support during my difficult times and it is just not possible to acknowledge all of them in few words for their timely and invaluable help throughout my life. My deepest gratitude to the families of Dr. Raman, Venu, Dr. Rajender, Vilas, Dr. Ramesh, Dr. Kosgi, Dr. Bhogesh, Suresh for their love and care. I am indebted to my senior colleagues and friends Dr. Swaroop, Dr. Prasanna, Dr. Vidadala, Dr. Ramanujan, Yadagiri, Sr. Narasimha, Narasimha (coach), Ajay, Manoj, Kiran patil, Suneel, Chandrababu, Srinu, Bala, Rami, Rambabu, Lenin, Arul, Chaithanya Krishna, Nagendra, Narendra, Laxmi Prasad, Bhaskar, Srinivas, Shrikant, Innaiah, Dr. Sudhakar, Santi, Hanuman, Ashok, Satish, Kumar Raja, Seetaram, Prabhakar, Tejas, Pooja, Nishita for their support and care. I would specially like to thank Venu, Komal, Ashwini, Nishita, Tejas, Pooja, Coach and Trinadh for making my stay at NCL a memorable one and always reminding me that there is life beyond chemistry.
I am gifted with an “ALL FOR ONE AND ONE FOR ALL” family, the love and affection showered by my grandparents and parents on me is magnanimous. I thank my grandfather Anumalasetty Sreeman Narayana (late) for teaching me how to stay steady in the midst of the tornado-like frenzy situation and for providing me with values and work habits that have reshaped me, in simple words you are a true gentleman.

My parents, my best friends, the core of my being, Forever I am grateful to you. Being a parent must be one of the most difficult responsibilities any person could ever have. Being an outstanding parent must be an even bigger challenge. I would like you to know that I appreciate everything you’ve done for me. Thank you even more for raising me right, for teaching me right from wrong, for leading by example and providing a caring loving home. Without your unending support I never would have made it through this process or any of the tough times in my life. You have made countless sacrifices for me, and have provided me with steady guidance and encouragement. Thank you, Mom and Dad.

I always love my brother Lakshmi Narayana and his family for their constant encouragement. I thank him for giving me wings to fly and allowing the spark in me to glow, yes this thesis is dedicated to you.

I also thank my uncles and aunts for their moral support, tremendous patience, sacrifice and encouragement during my long period of studies. Especially to Radha bhabhai for being a source of inspiration and words of wisdom, to Praveen bhabhai for being there when I couldn’t see the light at the end of the tunnel and Anu pinni for being my best friend and moral support. I am indeed very thankful to all my relatives for their love, care and support. I find no words to express my feelings for my dear brother Sudeep for his enormous love, and affection, you have always made me admire you. I thank and wish my little sisters Pravallika, Thanushree, Pragya and brother Danvir. In fact, I am very lucky to have cute angel Sashreek in my life, you people have made my life beautiful than it was.

I wish to thank the great scientific community whose achievements are constant source of inspiration for me.

Above all, I thank God Almighty for His enormous blessings.

Though, many have not been mentioned, none is forgotten.

Chaithanya Kiran, I. N.