

ACKNOWLEDGEMENT

The realization of this work was only possible due to collaboration of several people, to which I desire to express my gratefulness. First and foremost I offer my sincerest gratitude to my research supervisor, Professor (Dr.) Ashutosh V. Bedekar, who supported me throughout my research. He with his extensive knowledge of chiral chemistry through numerous discussions significantly altered many of the arguments put forth in the thesis.

I will fall short of words, if I had to describe the efforts put in by my research guide Dr. Ashutosh V. Bedekar Sir. A person with a futuristic vision, he never left my hand even for single moment during the entire course of my research work. I shall always be grateful to him since he accepted me as a research student, at a time when I was frantically searching for an able guide, even months after I had passed my NET JRF. He helped me to evolve as a researcher with an independent thinking. He has always insisted in being punctual, sincere and hardworking. He also stresses on sharing of strengths, which is the key to the formation of a good working atmosphere. He has always applauded and encouraged the results in my work and has always instilled great faith in me. He encouraged and insisted on giving routine presentations which has greatly decreased the stage fear which I used to have earlier, and has helped me to evolve as a more confident individual. I am very much thankful to him for putting me in the track of this research. I owe my deepest gratitude to my thesis supervisor, for his constant and invaluable guidance during my Ph. D work.

I am thankful to Professor (Dr.) N. D. Kulkarni, Head, Department of Chemistry, for allowing me to use the infrastructural facilities and motivation during my research work. I am also thankful to Professor (Dr.) B. V. Kamath, former Head, Department of chemistry for his support during initial phase of my research work.

I owe gratitude to Prof. N.W. Fadnawis, IICT Hyderabad for their support for HPLC analysis during initial stages of my research and his guidance. I am grateful to Prof. N. Surya Prakash IISc, Bangalore for explaining the different aspects of NMR.

I am also thankful to Dr. Sibaprasad Sahoo, Mr. Nisarg Desai, Mr. Saumik Dhara and Ms. Khushbu Bandwala (Sun Pharma Advance Research Centre, Vadodara) for recording some ^1H NMR, CD spectra and microanalysis. I also thank Dr. Sahoo for helpful discussions and suggestions.

Many faculty members of the Department have been very kind to extend their help at various phases of this research, whenever I approached them, and I do hereby acknowledge all of them. I express my thanks to Professor S.R. Shah for allowing me to use NMR instrument and his support. I also thank Dr. P.B. Samnani for HPLC analysis, and Dr. Amar Ballabh, Dr. Sujit Kumar Baran for single crystal analysis. I am also thankful to Prof. P.S. Ghalsasi, Dr. V.K. Singh, Dr. H.P. Soni, Dr. Arun Patel and all teaching staff for their valuable suggestions and support.

I would like to extend my sincere acknowledgment to the office staff of chemistry department, especially Mr. K. J. Rane, Ravti Ganesh, Mr. Niand Mehta, Vasant bhai, Dinesh bhai, Kalpesh bhai and Sumit bhai. I am also thankful to Bhavsar bhai. I convey special acknowledgement for their help in regards to all official activities related directly or indirectly to my work.

I am thankful to Prof. P. T. Deota, Head, Dept. of Applied chemistry for his help in my research.

It is worth to thank Mr. Jayaraman Kannappan, Apicore pharmaceuticals Ltd. for providing HPLC analysis and his help during entire period of my research. I thank Navin fluorine International limited for their generous gift of Fluorinated compounds. I am also thankful to Dr. Jitendra Verdia (Amoli Organic), Dr. R.R. Soni (Adventus Pharma), Dr. V. Kumar (Omgene Bioscience) and Dr. Trushar Bagul (Comb Discovery) for their support and encouragement.

We thank Novozyme, Bangalore and Advance enzyme, Mumbai for the generous gift of immobilized enzyme.

I am fortunate in having my senior Dr. Harish Talele who acted as mentor during my early days of research. I thank my fellow lab mates Dr. Akeel, Dr. Anju, Krupa, Shyam, Aditya, Riddhi, Blessy, Parvinder and all departmental friends specially Kushan, Puran, Sanjay, Nishant, Umesh, Harnish, Rinky, Ruchita, Rudra, Rama, Rahul B., Priyanka, Vishvnath, Aditya P., Dushyant, Nisha, Shardul, Jigar, Kanu, Ankita, Mehul, Kiran, Harsha, Ishani, Mohini and Dr. Rina Soni for their help and co-operation.

I would also like to thank Gourav Upadhyay for the helpful discussions and for all the fun we have had in the last two years.

It is a pleasure to thank Monali Mandal and Ravi Patel with whom I have collaborated on their dissertation work. I am also thankful to Vinay, Viraj and Heta for their help and support.

I would like to thank in a special way to Hemant M. Mande for the constant and unconditional support for Single crystal X-ray analysis for my research. Our (Hemant and myself) companionship, understanding and humour brightened my life outside the research. I acknowledge him for his constant support, advice and help whenever needed and also for being an everlasting friend.

I am indebted to my friend Sachin R. Chaudhary for his help in NMR analysis. I would also like to thank members of NMR team Dr. Arpita Desai, Amrit, Jigar, Rahul and Aarti for their constant support.

My sincere thanks are extended to my friends Umesh Chaudhary, Deepak Singh Siddharth, Ravi, Ajay, Nasir, Sumit and Chetna.

I am grateful to Blessy Rajan for spending her time on proof reading of my thesis.

These acknowledgments would not be complete without thanking my family for their constant support and care. Today I feel that my parent's hard work and dreams have been realised. I thank my father in law Anil Dosi, brother in-law Abhishek and Jatin. I shall humbly thank my wife Khushboo for supporting my decision to pursue the Ph.D. and accepting all its consequences. Without her encouragement it would have been impossible for me to finish this work. I consider myself the luckiest in the world to have such a supportive family, standing behind me with their love and support.

I am deeply thankful to my brother Sanjay and his wife Aaradhna for their unconditional support, love and encouragement. I am also thankful to my brother in law Mr. Jinendra shah, my sister Jyoti, Aarsh and Tanisha for their affection and constant support.

Finally, I would like to thank my daughter Aanshi and nephew Dhruvin who spread happiness in my life. Above all, I owe it all to Almighty God for granting me the wisdom, health and strength to undertake this research task and enabling me to its completion.

Nilesh Jain