

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to all the people who have helped me in carrying out this research work. Foremost, I am extremely obliged to my research guide, **Prof. Ashutosh V. Bedekar**, for introducing me to this exciting as well as challenging field of small non-planar molecules and molecular recognition. I had the privilege to work under his guidance during my M.Sc. dissertation which paved a path for me to take up research as my career of choice and passion. I consider it as a great opportunity to be able to perform my Ph.D. work under his guidance and in the company of a talented team of researchers. I am fortunate to have an advisor who gave me the freedom to explore and at the same time provide valuable guidance to recover when my steps faltered. His observations and comments helped me to establish the overall direction of the research and to move forward with investigation in depth. His patience, encouragement and immense knowledge were the key motivations throughout my Ph.D. He is a person with positive outlook, which has always uplifted my interest to do new things in research. He has always found the time to propose consistently excellent improvements. He has not only been a great mentor but also a friend, from whom I have learnt the vital skill of disciplined critical thinking.

I am grateful to **Prof. (Dr.) Anjali Patel**, Offg. Head, Department of Chemistry, for allowing me to use the infrastructural facilities. I am also grateful to the former Head, **Prof. N. D. Kulkarni** for her support during the initial phase of my work.

The financial support obtained in the form of a JRF (UGC project) followed by CSIR-SRF fellowship from the Council of Scientific and Industrial Research (CSIR) New Delhi is gratefully acknowledged.

I am also thankful to all teachers of our department for being a guiding lamp and playing a crucial role in framing my approach towards science and life in general. I express my sincere gratitude to **Prof. S. R. Shah** and **Dr. Sujit Baran Kumar** for their co-operation and constant guidance in NMR analysis and single crystal X-ray analysis respectively without which this work would not have been possible. I would like to thank **Prof. V. K. Singh** (formerly associated with IIT-Bombay) for fruitful discussions and **Prof. Pradeep Sharma** (IIT-Bombay) for help with some HRMS analysis. I would like to extend my sincere gratitude towards **Mr. Jayaraman Kannappan**, Apicore Pharmaceuticals Ltd. for providing certain chemicals during the course of my research work. I am also thankful to **Dr. S. P. Sahoo** (formerly at Sun Pharma Advanced Research Centre Vadodara) for helping

me with VT NMR analysis. I also thank **Novozymes South Asia Pvt. Ltd.**, Bangalore for the sample of Novozyme-435.

I would like to specially thank **Dr. Hemant Mande** for his unconditional and timely help with Single crystal X-ray analysis for various crystals involved in this work. I would specially like to express gratitude to all the instrument operators of the department for their timely help during the course of this work. I would specially like to thank **Mr. Gourav Upadhyay** for NMR analysis, **Ms. Blessy Rajan** for mass analysis and **Dr. Krupa Patel & Mrs. Priyanka Salunke** for their help with UV-Vis Spectroscopy. I also extend my gratitude to **Mr. Hiten Raval**, **Mr. Chirag Savani** and **Ms. Mayuri Shaiwale** for their help in carrying out Single crystal X-ray analysis.

It is my pleasure to acknowledge my seniors **Dr. Harish R. Talele**, **Dr. Akeel Saiyed**, **Dr. Anju Chaudhary**, **Dr. Nilesh Jain**, **Dr. Krupa Patel**, **Dr. M. Shyam Sundar**, **Dr. Aditya Khanvilkar** and **Mr. Gourav Upadhyay** for their co-operation, suggestions and friendly association during my Ph.D. work. My sincere thanks to my colleagues **Ms. Blessy Rajan**, **Mr. Hiten Raval**, **Ms. Esha Bhalodi** and **Mr. Himanshu Parmar** for providing a joyful environment. It is a pleasure to thank **Ms. Jyoti Mishra** and **Ms. Suman Kuwar** with whom I have collaborated on their dissertation work.

I would like to thank my department friends specially **Dr. Aditya Khanvilkar**, **Dr. Heta Patel**, **Dr. Viraj Bhanvadia** and **Mrs. Neelam Gupta** for making my journey during this research work, memorable. I would specially like to thank my friends **Mayur**, **Madhur**, **Nipun**, **Ankita**, **Jankee**, **Divya** and **Abhilash** for the warmth and support I received from them.

I would like to extend my sincere acknowledgment to the office staff of the department, especially **Mr. K. J. Rane** and **Mrs. Revathi Ganesh** for their help in regard to all official activities related directly or indirectly to my work.

Most importantly, none of this would have been possible without the love and patience of my family. I express my special gratitude to my parents **Ajay Kumar Gupta & Preangu Gupta**, and my sister **Richa Gupta**, for their unconditional love, blessings and endless support throughout my life. I am also grateful to my grandfather **Brij Bhushan Gupta** who has always been a strong pillar of support throughout my life. Above all, I owe it all to Almighty God for granting me health and strength to undertake this research task and enabling me to its completion.

Riddhi Gupta