

ACKNOWLEDGEMENT

Completion of this research work was only possible with the support and collaboration of several people. It gives me immense pleasure to acknowledge all those who contributed to the conclusion of my research.

First and foremost I offer my sincerest gratitude to my research supervisor, Professor 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. His able guidance and constant support inspired me to work hard and put more efforts in my research and study. His constant involvement, keen knowledge and interest in the subject proved to be a major contribution to this work. I successfully overcame many difficulties and learned a lot under his supervision. I am heartily thankful to him for his constant encouragement and invaluable guidance.

I am thankful to Professor Anjali Patel, Head, Department of Chemistry, for allowing me to use the infrastructure and motivation during my research work. I am also thankful to Professor N. D. Kulkarni, former Head, Department of chemistry for her support during initial phase of my research work.

The financial support obtained in the form of fellowship from the Council of Scientific and Industrial Research (CSIR), New Delhi is gratefully acknowledged.

I am also thankful to the faculties of our department for their valuable guidance whenever needed. I express my thanks to Professor S. R. Shah for allowing me to use NMR instrument and his support. I would also like to thank Dr. Sujit Baran Kumar and Dr. Amar Ballabh for their constant support in single X-ray analysis.

I would like to extend my sincere gratitude towards Dr. Jayaraman Kannappan, Apicore Pharmaceuticals Ltd. for helping with various chemicals during the course of my research work. I am also thankful to Dr. S. P. Sahoo for helping me with DSC and NMR analysis.

I would like to thank in a special way to Dr. Hemant M. Mande for the constant and unconditional support for Single crystal X-ray analysis for my research. I acknowledge him for his constant support, advice and help whenever needed. I am also thankful to Dr. Firasat Hussain, University of Delhi for helping in crystal refinement.

I am grateful to Dr. Amitava Das, CSMCRI, Bhavnagar and his student Dr. Arunava Maity for their help in measuring quantum yield.

I would like to extend my sincere acknowledgement to the office staff of chemistry department, especially Mr. K. J. Rane and Mrs. Revathi Ganesh. I am grateful for their help in regards to all official activities related directly or indirectly to my work. I would like to thank all the non teaching staff of the department for extending basic help for my research.

I am fortunate in having my senior Dr. Harish Talele who set-up the ground for helicene chemistry in our lab. Special thanks for his help in HRMS analysis. I would like to thank my lab colleagues Dr. Akeel Saiyed, Dr. Anju Chaudhary, Dr. Nilesh Jain, Dr. Krupa Patel, Dr. Shyam Sundar, Dr. Aditya Khanvilkar, Ms. Riddhi Gupta, Ms. Blessy Rajan, Mr. Parvinder Singh, Mr. Hiten Raval, Mr. Ketan Maru, Ms. Esha Bhalodi, Mr. Himanshu, Mr. Atul and all departmental friends specially Rahul and Mayuri for their help.

I would like to thank Dr. Nilesh Jain who helped me a lot during my early days of research. I am grateful to him for his valuable suggestions and for all the fun we have had in the lab.

I would like to thank Dr. Reena Soni for her help and constant encouragement.

I would like to thank Dr. Shyam Sundar for his help in HRMS analysis, Dr. Krupa Patel for her help with UV-Vis and Fluorescence Spectroscopy, Dr. Aditya, Mr. Hiten and Mr. Chirag for X-ray analysis, Ms. Riddhi Gupta for IR analysis. I would like to thank all the instrument operators from the department for their timely help to complete this work.

It is a pleasure to thank Dhruvi Pithadia and Ronak Maradiya with whom I have collaborated on their dissertation work.

I am grateful to Ms. 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. I am extremely indebted to my parents Smt. Rekha Upadhyay and Shri Mukesh Upadhyay, who have always been by my side through all ups and downs of my life and have constantly encouraged and supported me during the diverse time. It is hard to express my thanks for them in words. Today I feel that my parent's hard work and dreams have been realised. I shall humbly thank my wife Bhagyashree for supporting my decision to pursue the Ph.D. and accepting all its consequences. I would like to thank my daughter Neerja who spread happiness in my life.

I would like to express my gratitude to all those whom I may have failed to mention above, but nonetheless have contributed to my research studies in one way or the other. 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.

Mr. Gourav M. Upadhyay