Acknowledgements

I take the opportunity to express my indebtedness and sincere gratitude to various persons as without their guidance, help and direction this arduous task would not have been accomplished.

First and foremost, I express my heartfelt gratitude to my revered research guide Prof. U. H. Patel, Department of Physics, Sardar Patel University, Vallabh Vidyanagar, for her constant encouragement, affections, guidance and endless support which she provided throughout the research work. I am indeed thankful to her for standing besides me during the toughest days of my life.

My thanks are due to the Head, Department of Physics, Sardar Patel University for extending the necessary infrastructural facilities in the Department to pursue my research work. I would like to extend warm appreciation towards faculty members and non-teaching staff of the Department.

I wish to express my sincere gratitude towards Principal Dr. Basudeb Bakshi, former Principal late Dr. D. A. Raval, Natubhai V. Patel College of Pure and Applied Sciences and the authority of Charutar Vidya Mandal, Vallabh Vidyanagar for giving me necessary permission to pursue the research work.

I would also like to thank all the staff members of University Science and Instrumentation Centre (USIC), Sardar Patel University, V V Nagar for their technical support as well as wholehearted co-operation throughout the work.

My earnest appreciation to Prof.( Miss) B.H. Patel and Dr.(Miss) R. H. Patel for their valuable suggestions, constant involvement, encouragement and moral support throughout the entire work.

Research is never the product of the contribution of a person but one born out of team effort, for many people contribute to making it worthwhile. I am thankful to all my teachers, friends, and students on the campus who helped directly or indirectly in this research work. Many thanks are due to them indeed.

My special thanks go to my friend Mr. Rajesh Modh and labmates Mr. Pinal Patel, Mr. Sahaj Gandhi and Mr. Shailesh Karnavat for helping me by all means, without their help it would have been difficult for me to undertake this task. It gives me an immense pleasure to express my heartiest regards to them.

My colleagues and co-researchers Miss Tanvir Malek, Mr. Chintan Jotaniya, Mr. Rinkesh Barot, Mrs. Shreelatha Nair, Dr. Mukesh Jotani, Mr. Mayank Shah and Mr. Hitesh Patel also deserve special thanks from me for their help and co-operation. I also extend my thanks to Mr. Narendra Chauhan, IPR, Gandhinagar for taking Crystal photographs.

At this juncture, our research group is grateful to late Dr. C. G. Dave for his wholehearted support, who provided us the compounds. I am also grateful to Dr. Dhaval A. Shah and Dr. Hardik Joshipura, the research students of late Dr. C. G.
Dave from Organic Synthesis Laboratory, M. G. Science Institute, Ahmedabad, for providing organic compounds to carry out the research work.

I also extend my thanks to Dr. E. Suresh, CSMCRI, Bhavnagar and Dr. Babu Varghese, RSIC, IIT Madras, Chennai for helping us in collecting intensity data of the crystals.

How can I forget family members for showing tremendous patience and support to fulfill my ambition? My parents, late grandparents, brothers and sister; their loving care and help are gratefully acknowledged. I would like them to know that their generous support is etched in my heart. In addition, my wife Manjula and two kids Feni and Hrishikesh deserve a special note here for their unflagging support and love as well as allowing me to keep away from social routines from time to time during the course of work.

At last I bow to the almighty for the ever blessedness showered upon me.

Shravan sud Ekadashi,  
Samvat 2065  
(Vallabhbhai D. Patel)  
Research Student