

## *Acknowledgement*

*It is my first and foremost duty to express my sincere thanks and deep sense of indebtedness to my guide Dr. U. H. Patel Professor and Head, Department of Physics who has guided me and taken interest in my research work. Her scholarly guidance and inspiring suggestions have helped me in carrying out the present work. Words are inadequate to express my deep sense of gratitude to her for invaluable guidance which makes this thesis possible.*

*I extend thanks to Dr. U. H. Patel Head, Department of Physics, Sardar Patel University for providing me with the infrastructure facilities and requisite materials and resource throughout my research tenure. I am thankful to DST and UGC, New Delhi, India for providing KAPPA APEX-II CCD-4 diffractometer under DST-FIST facility and Schrodinger software under UGC-DSA facility, at Department of Physics, Sardar Patel University, Vallabh Vidyanagar, Gujarat, India. Further, I express my deep gratitude and concern for the teaching and nonteaching staff members of the Department of Physics for their kind cooperation. I also thank to University Grant Commission, New Delhi for providing financial assistance through Research Fellowship Scheme for Meritorious Students; Grant No. F.7-158/2007(BSR) to carry out this research work.*

*I would like to thank all the staff members of University Science and Instrumentation Centre (USIC) and UGC section, Sardar Patel University, for their support throughout the work. I also extend my thankfulness to Dr. A R. Jani, SICART, V. V. Nagar for spectroscopic analysis facilities and Dr. E. Suresh, CSMCRI, Bhavnagar for helping me in collecting intensity data of two crystals. I am thankful to Microcare Laboratory, Surat for analysis of antimicrobial activity. I am also grateful to Dr. Deepak Chopra (Assistant Professor, IISER, Bhopal) for his helping hand in PIXEL calculation.*

*My earnest thanks to Prof. (Miss) B.H. Patel and Dr. (Miss) R. H. Patel for their constant support throughout the entire work. I express my heartfelt thanks to my seniors Dr. R. D. Modh, & Dr. B. D. Patel for their useful suggestions during research work and also to my labmates Sanjay, Rinkeshbhai, Tanvirdidi, Shreelathadidi, Ketan, Rahul, Bhavin, Khushbu, Kaushik and Sachin for their ready helping hands during my research work. My acknowledgement will never be complete without the special mention of*

*Sahajbhai for his support and help throughout my research work. It gives me an immense pleasure to express my heartiest regards to him.*

*It's my fortune to gratefully acknowledge the support of my friends, Miraal, Sneha, Brinda, Meera and Shahnavaz. Our association goes a long way for lifetime and they have been with me ever since then as a friend and a companion and lot more. They are always beside me during the happy and hard moments to push me and motivate me. I cannot forget the unconditional support of the family of Rajani Joshi specially Deepa aunty, for taking care of my son in my absentia during research work.*

*Finally, I acknowledge the people who mean a lot to me, my parents, Mr. Dashrathbhai Patel and Mrs. Harshida Patel, for showing faith in me and giving me liberty to choose what I desired. I salute you all for the selfless love, care, pain and sacrifice you did to shape my life. I would never be able to pay back the love and affection showered upon me by my parents. Also, I express my thanks to my brothers Kevin and Umeshbhai for their support. My heartfelt regard goes to my parents in law, Mr. Dasharathbhai Patel and Mrs. Taraben Patel, for their love, moral support and valuable prayers. I also would like to thank Mr. Chintan Patel, Mrs Sonal Patel and the most loving niece and nephew (Trushti, Pranati, Devarsh and Devansh) for the laughter gifted to me with their cuteness. I consider myself the luckiest in the world to have such a lovely and caring family, standing beside me and dedicate this thesis to them.*

*I owe thanks to a very special person, my friend and loving husband, Mr. Chirag Patel, for his continued and unfailing love, support and understanding during my pursuit of Ph.D. degree that made the completion of thesis possible. You are always around at times I thought that it is impossible to continue, you helped me to keep things in perspective. I greatly value his contribution and deeply appreciate his belief in me. I appreciate my little boy Devam, for abiding my ignorance and the patience he showed during my thesis writing. Words would never say how grateful I am to both of you.*

*At last, I thank the Almighty for blessings showered upon me and giving me the strength and patience to work through all these years.*

*—Kinjal D. Patel*