Acknowledgements

“Amrit Naam Parmeshwar tera jo simre so jive”
At the very onset, I bow my head before the Almighty GOD who bestowed me with the serenity to accept the things I cannot change, courage to change the things what I can and wisdom to know the differences. He has empowered me with the vision of perception and endurance to bring this piece of task to realization.
All the great or little achievements speak of a silent and yet predominant forces at their back and no one can ensure fulfillment of one’s aim in isolation. I take this opportunity to reserve special words of gratitude and thanks for all the help rendered during this venture.
I express my profound sense of reverence to my supervisor and promoter Professor Rajni Kant, for his constant guidance, support, motivation and untiring help during the course of my PhD. This work would not have been possible without his support and guidance. Under his guidance I successfully overcame many difficulties and learned a lot. I am very much grateful for the knowledge he has imparted for the improvement of this work. His invaluable help of constructive comments and suggestions throughout the experimental and thesis works have contributed to the success of this research.
My sincere thanks are due to Professor Vivek Gupta, Head of the Dept. of Physics, University of Jammu, Jammu, for his rendered help, advice, support and providing the research facilities during the research period. My acknowledgement also goes to all the technicians and office staffs of department for their co-operation.
My sincere thanks are due to Professor M.B. Deshmukh, Department of Chemistry, Shivaji University, Kolhapur, India; Professor Amar Ballabh, Department of Chemistry, Faculty of Science, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat,
India; Professor B. K. Sarojini, Department of Chemistry, PA College of Engineering, Nadupadavu 574 153, D. K, Mangalore, India, for providing the samples. I would also like to thank Mrs. Gurvinder Kour and Mrs. Sonia Sharma for being good friends and constant support. My sincere thanks are due to Dr. Kamini Kapoor and Dr. Sumati Anthal for their support and invaluable advice. I am also thankful to Mr. Devinder Sharma, Dr. Kuldeep Singh, Mrs. Ratika Sharma, Mr. Ahsan Elahi, Mrs. Preetika Sharma, Mr. Suresh and Ms. Sakshi for being a great company. I am very grateful to be part of this fabulous group. My special thanks to Dr. Ramesh Sachdeva. I would also like to extend huge, warm thanks to my roommate Ms. Anu Sharma.

Words fail me to express my love to my parents, S. Manmohan Singh and Mrs. Ranjit Kour, who have always loved me unconditionally and whose good examples have taught me to work hard for the things that I aspire to achieve. I owe everything to them. The constant love and support of my brother Zoravar is sincerely acknowledged. My family with their untiring encouragement is the real pillars of my confidence. I would also like to acknowledge my Bde Papa, Bdi Mummy, aunty and cousins for their care and support. These last words of acknowledgment I have saved for my fiancé S. Chand Singh, who has been a constant source of support and encouragement during the challenges of my life. I am truly blessed for having you in my life.

Dalbir Kour