ACKNOWLEDGEMENT

It is an enchanting privilege for me to convey my gratitude and sincerest thanks to my supervisor Dr. Kumaresh Ghosh, Associate Professor of chemistry, University of Kalyani, from the core of my heart at this auspicious moment for his valuable guidance, helpful deliberations, constant encouragement and close attention throughout the course of my Ph.D. work and for providing laboratory facilities which enabled me to achieve this height in my research field.

I am grateful to Dr. Roland Frohlich, Organisch-Chemisches Institute, Universitat Munster Correnstraße 40, D-48149 Munster, Germany, for providing X-ray structures of some interesting compounds. I am also thankful to Prof. A. P. Chattopadhyay of this department for his cooperation throughout my Ph.D work.

I am also grateful to Prof. Anisur Rahman Khuda-Bukhsh, Department of Zoology, University of Kalyani for providing biological facilities and Dr. Subhratanu Bhattacharya, Department of Physics, University of Kalyani for some of the collaborative work.

I like to address my special thanks to Prof. Bishwajit Ganguly, Computation and Simulation Unit (Analytical Discipline and Centralized Instrument Facility), CSIR-Central Salt and Marine Chemicals Research Institute, Bhavnagar, Gujarat, 364002, India and Prof. Ioannis D. Petsalakis, Theoretical and Physical Chemistry Institute, The National Hellenic Research Foundation, 48 Vassileos Constantinou Avenue, Athens 11635, Greece for giving their site to the theoretical aspects of some of my work.

I am thankful to all the teachers and non-teaching staffs of this Department for their kind co-operation. I feel proud to acknowledge Mr. D. Maity and Mr. P. Sur of this department. I am also thankful to Chem Biotek Research International Pvt. Ltd., Calcutta for spectral and elemental analyses of a number of compounds mentioned in this thesis.

I am also grateful to Prof. Amarendra Patra of Department of Chemistry, Calcutta University for providing some NMR spectral facilities and also for his valuable suggestions in part of my research work.

I feel fortunate to thank my lab colleagues Dr. Goutam Masanta, Dr. Suman Adhikari, Dr. Tanushre Sen, Dr. Avik Ranjan Sarkar, Dr. Indrajit saha, Dr. Tanmay Sarkar, Mr. Debojyoti Tarafder, Sk. Sarfarj Ali, Mr. Santanu Panja, Mr. Anupam
Majumdar, Mr. Atanu Panja, Mr. Subhendu Mondal and Dr. Debabrata Sen for their heartiest co-operation and also for maintaining a harmonious atmosphere in the laboratory.

My special thanks goes to all the research scholars of my department and to Dr. Asmita Samadder, Mr. Soumen Joardar, Dr. Sushil Kr. Mondal, Dr. Sanjoy Kr. Ghosh and Dr. Shubhasish Mondal for their extreme cooperation in the beginning of my Ph.D. work. I made many friends along the way who made my stay enjoyable and I wish to mention the names Mr. Bidyut Baran Mahato, Mr. Rajesh Pradhan, Mr. Ramkrishna Dhauria, Mr. Sankar Prasad Parua, Mr. Sumanta Chandra, Dr. Rajat Saha for their support and encouragement.

I like to thank all the boarders of Research Scholars Hall for everything.

I sincerely thank CSIR, Ministry of Human Resource and Development, Government of India, New Delhi, for providing research fellowship. I also acknowledge DST, New Delhi, India for financial support in running DST project in our laboratory. I thank DST, Government of India for providing facilities in our department under DST FIST program.

At last but not the least, I take this opportunity to express my profound regards to my parents specially my father whose constant blessing made this hard journey possible for me without him this could not be possible and my uncle Mr. Bhabesh Kr. Kar, Mr. Tapan Satpathy and aunty Mrs. Sabita Satpathy have shared the joys and sorrows during my Ph.D. period and who gave me the courage and continuous inspiration to stride into the realm of higher studies.

Kalyani
Dated, ........................................, 2013. (Debasis Kar)