ACKNOWLEDGEMENT

I have been able to finish my dissertation with the help and support of several people. I would like to express my sincere thanks to all of them.

First of all, I would like to express my deepest gratitude to my research guide and supervisor Dr. B. MUTHUKUMARAN, M.Sc., Ph.D., Assistant Professor, PG & Research Department of Chemistry, Presidency College, Chennai – 600 005. His enthusiastic encouragement and thoughtful advice was a guiding light for my research from the beginning and to the end. Throughout my research work, he has constantly given me advice with good insight.

It is my great pleasure to thank our beloved Principal Dr. T. Pramananda Perumal, M.Sc., M.Phil., Ph.D., Presidency College (Autonomous), Chennai – 600 005, for providing me an opportunity to pursue the research in this historically prestigious college in India.

I am deeply grateful to Dr. B. S. Santhi, Associate Professor & Controller of Examinations, Presidency College (Autonomous), Chennai – 600 005 for helping me throughout this challenging and rewarding experience.

I am indebted to Dr. K. Parameswari, Head of the Department of Chemistry, Presidency College (Autonomous), Chennai – 600 005, for providing me the laboratories for pursuing the research in our department of chemistry.

I express my special gratitude to the Doctoral Committee members Dr. D. Roop Singh, Principal, Arignar Anna Govt. Arts College, Villupuram, and Dr. R. Girija, Assistant Professor, PG & Research Department of Chemistry, Queen Mary’s College, Chennai – 600 005.
I am expressing my very profound gratitude to thank Dr. M. Mohamed Ibrahim, Principal, Muthurangam Govt. Arts College, Vellore, for his consistent help and support throughout my venture.

I am very grateful to thank Dr. Sezhian, IIT Madras, Dr. P. M. Satya Sai, DGM, KNRPC, NRB, BARC Professor, HBNI, Kalpakkam, Dr. N. Kalaiselvi, Scientist, Central Electrochemical Research Institute, Karaikudi, Dr. Parasuraman Jaisankar, Senior Principal Scientist, Indian Institute of Chemical Biology, Kolkata, Dr. P. Sesha Talpa Sai, Professor & Head, Department of Chemical Engineering, Indian Institute of Technology Madras, Dr. M. R. Sridharan, Senior Principal Scientist, Chemical Engineering Division, CSIR-Central Leather Research Institute, Dr. P. Shanmugam, Principal Scientist, Department of Environmental Technology, Central Leather Research Institute, Dr. Meeta Rakesh, Associate Professor, Department of Chemistry, Guru nanah khalsa college, Mumbai, Dr. Shankar R. Thopate, Associate professor, Department of Chemistry, P.G. School for Biological Studies, Ahmednagar College, Ahmednagar, Dr. S. Nagarajan, Associate Professor, Department of Chemistry, School of Basic and Applied Sciences, Central University of Tamilnadu, Dr. A. Pandurangan, Associate Professor, Anna University, Chennai, Dr. D. Sangeetha, Associate Professor, Anna University, Chennai, Dr. K. Ravichandran, Associate Professor, University of Madras, Mrs. S. Kiruthika, Assistant Professor, Department of Chemical Engineering, SRM University, Kattankulathur, Chennai, Dr. J. Madhavan, Associate Professor, Loyola College, Chennai, and Dr. Sudagar Jothi, IIT Madras, for permitting me to utilize their sophisticated laboratories throughout my venture.

I would like to thank all the faculty members of PG & Research Department of Chemistry, Presidency College (Autonomous), Chennai – 600 005 for their moral support and valuable inputs.
I would also like to thank all the supportive staff members of PG & Research Department of Chemistry, Presidency College (Autonomous), Chennai – 600 005 for providing me with all the necessary facilities for the research.

The author is grateful to fellow research scholars A. Arun, M. Gowdhamamoorthi, K. Ponmani, K. Vijayaramalingam, M. Elumalai, M. Priya, S. Durga, S. Thilaga and V. Selvarani, for their numerous conversations, questions and help.

I would also like to thank L. Pournan, Anna University, Chennai, for his scientific advice, knowledge, discussions and suggestions.

I would like to give a special thanks to the administrative and technical staff members of the University of Madras, for giving me the opportunity to register my Ph.D degree and tremendous help throughout this venture.

I am very grateful to all my well-wishers and friends I have met along the way and have contributed to the development of my research.

Finally I am very much indebted to my family for their invaluable blessings, endless support, unconditional love and care, and to them I dedicate this Ph.D thesis.

Above all, I thank my Almighty God who has been giving me everything to accomplish this thesis: Patience, health, wisdom, and blessing.

S. M. NAYEEMUNISA