ACKNOWLEDGEMENT

The author expresses the immense profundity of gratitude to the research supervisor Dr. K. Rajarajan, Associate Professor of Physics, Rajeswari Vedachalam Government Arts College, Chengalpet-603001, Tamilnadu, India for his inspiring guidance for this investigation.

The author wishes to thank The Director, Research and Development Centre and the Doctoral Committee members of Department of Physics, Bharathiar University, Coimbatore, for their supports and motivation for the successful publications and completion of this work.

The author would like to express her sincere thanks to Thiru. Dr. P. Chinnadurai, The Secretary & Correspondent, Panimalar Engineering College, Chennai-600123, TN, India for his supports and inspiration for the successful completion of the work. The author would like to express her sincere thanks to Thiru. Dr. R. Monmohan, The Dean (S&H) of Panimalar Engineering College, for his supports and inspiration for the successful completion of the work.

The author expresses her thanks to Dr. R. Jayavel, Director, Centre for Nanoscience and Technology, Anna University, Chennai, and Dr. M. Karl Chinnu, Researcher at Centre for Nanoscience and Technology, AU for use of electrochemical studies and research discussions.
The author also wishes to place heartfelt thanks to his co-researchers at Rajeswari Vedachalam Government Arts College, Chengalpet-603001, Tamilnadu, India for their whole hearted cooperation and support.

The author gratefully acknowledges the use of the characterization facilities at SAIF, IIT-Madras; Centre for Nanoscience and Technology, Anna University, Chennai-600025, DIMAT, University of Concepcion, Chile and NTC, University of West Bohemia, Plzen, Czech Republic for the fruitful completion of the research work.

The author wishes to thank her spouse, parents, brothers, sister and son (S. NISHANTH) for their encouragement and support throughout the work.

C. ESTHER JEYANTHI