I offer my prayers before God Almighty for giving me the opportunity to undertake this research programme and for the blessings showered upon me.

I express my immense gratitude and indebtedness to my supervising teachers, Dr. E. Purushothaman, Professor, Department of Chemistry, University of Calicut, Kerala and Dr. G. Unnikrishnan, Assistant Professor, Polymer Science and Technology Laboratory, Department of Science and Humanities, National Institute of Technology, Calicut (NITC), Kerala for suggesting the topic of my research work, for their cordial and inspiring guidance and, the constant encouragement offered to me without which I could not have completed this work. I am also grateful to Prof. (Dr.) Sabu Thomas, School of Chemical Sciences, Mahatma Gandhi University, Kottayam for his valuable suggestions.

I extend my sincere thanks to Prof. (Dr.) K. Krishnankutty, Head of the Department of Chemistry, University of Calicut, Kerala for providing me with the facilities and co-operation during the course of this work. I take this opportunity to thank the former Heads of the Department of Chemistry, University of Calicut, Prof. (Dr.) K. K. Aravindakshan, and Prof. (Dr.) M. P. Kannan for their inordinate enthusiasm and support during this programme.

I have great pleasure to express my sincere gratitude to Dr. G. R. C. Reddy, Director, NITC, Kerala, India. Thanks are also due to the former Directors of NITC Prof. (Dr.) M. P. Chandrasekharan and Prof. (Dr.) S. S. Gokhale for providing me with the facilities to carry out the work.
I convey my gratitude to Prof. (Dr.) P. Meenakshikutty, former Head, DSH, NITC, Dr. Lisa Sreejith and Dr. Soney Varghese, Lecturers, DSH, NITC, for their support and encouragement given to me.

I am highly thankful to Dr. Z. A. Zoya, Principal, Government Engineering College, Calicut, Kerala and to the former Principals, Dr. K. V. Narayanan, and Prof. Rani Thomas for their co-operation.

I am extremely grateful to my Professors Dr. S. Madhavan Kutty Nair and Dr. Geetha Parameswaran, former Professors of Department of Chemistry, and Prof. (Dr.) V. S. Krishnan Nair, Department of Zoology, University of Calicut, Kerala, for their advice and encouragement given to me during this programme. I also offer my heartfelt thanks to Prof. A. Parvathy, former Head, Department of Chemistry, Government Arts and Science College, Calicut, Prof. C. P. Valsala, former Principal, Government College, Pattambi, and Dr. Oman. P. Perumpully, Head, Applied Science Department, Government Engineering College, Calicut for their sincere and inspiring support extended to me through out my work.

I am thankful to my colleagues, friends and all well wishers for the keen interest they have shown in this work. I am also thankful to Mr. Hassan Mubbin, and Mr. M. Jayachandran, for their valuable assistance.

I express my thanks to Ms. M. Louly, Deputy Director, Mr. Arjunan Pillai, JSO, and other members of Common Facility Service Centre, Manjeri, Kerala for providing me with their facilities and help.

My work could not have been completed without the help of my co-researchers, Dr. A. Sujith, Dr. C. K. Radhakrishnan, Dr. A. P. Haseena, Dr. Priya Dasan,
Ms. Prajitha Kumari, Mr. B. Ganesh, Ms. Shyla George, Mr. Habeeb Rahiman, Mr. P. A. Sreekumar, Mr. K. C. Manoj, Mr. P. Aneesh and Mr. Suraj Varma, NITC, Kerala, and Mr. C. Rajesh, and Mr. K. Pramod, Department of Chemistry, University of Calicut, Kerala.

I remember with gratitude the laboratory staff of Applied Science Department, GEC, Calicut and DSH, NITC, Kerala.

I am also thankful to Mr. V. K. Harish Kumar for the skill and labour expended in the preparation of this thesis.

Finally, the moral support and constant encouragement extended to me by my husband Mr. Sreedharan and my children Sreekanth, Sreenath, Sreeraj and Sithara are also acknowledged with love and affection.

University of Calicut

05 - 05 -2007