ACKNOWLEDGEMENTS

With quite sincere and humble attitude, I bow before “Almighty Allah” who blessed me with peace of mind and courage to accomplish this humble piece of work.

With deep sense, veneration and obligation from the core of my heart, I wish to thank my Supervisor Dr. K. Ambasankar, Principal scientist & Scientist In charge Nutrition Genetics and Biotechnology division (NGBD), Central Institute of Brackishwater Aquaculture (CIBA), Chennai, for his patience, attentive guidance, keen interest, valuable time and mentoring skills, thereby providing me a free and pleasant atmosphere to work against all odd situations. I fall short of words to express the greatness of my esteemed supervisor.

I express my deep and sincere gratitude to Dr. (Mrs.) P. Ezhil Praveena, Scientist, Aquatic Animal Health and Environmental Division (AAHED) CIBA, Chennai. I thank him wholeheartedly for all his friendly, whole hearted, constant and unfailing encouragement, valuable suggestions, positive appreciation, the trust and confidence she had in me.

I wish to express my warmest and heartfelt gratitude to Dr. J. Syama Dayal, Principal Scientist, NGBD, CIBA, Chennai. I thank him for his, valuable suggestions during the entire course of this study.

I thank Dr. S. Syed Ahamed Ali, Principal Scientist and Head (Rtd,) NGBD, CIBA, for his constant moral support and words of encouragement.

My sincere and profound sense of gratitude is extended to Dr. K. K. Vijayan, Director, CIBA and Dr. A. G. Ponniah, Director, (Rtd,) CIBA, Chennai for granting me permission to do Ph.D., at this institute. I am deeply indebted to him for his valuable guidance rendered amidst his busy schedule during the entire course of this study.
It is my proud privilege to express my sense of thankfulness to and **Dr. S.V. Alavandi**, Principal scientist and Head, AAHED, CIBA, Chennai for providing me all the necessary technical facilities during my work.

My grateful acknowledgments are due to my doctoral committee member **Dr. A. Jawahar Ali**, Reader, P.G and Research Department of Zoology, The New College, Chennai for his valuable suggestions and constant encouragement.

I express my heartfelt thanks to **Dr. S. M. Pillai**, Principal Scientist (Rtd,) Crustacean culture division (CCD) and **Dr. P. Ravichandran**, Principal Scientist and Head, (Rtd.) Prioritization Monitoring Evaluation Unit for his active involvement for the successful completion of this work and proper guidance in all the University correspondence.

I am grateful to **Dr. K. P. Kumaraguru Vasagam**, Senior Scientist, NGBD, CIBA and **Dr. J. Ashok Kumar**, Scientist, Social Science Division, CIBA for their help, support and wishes during my study.

I express my sincere gratitude to **Dr. C. Gopal**, Principal Scientist & Head - CCD, **Dr. C. P. Balasubramaniam**, Principal Scientist, CCD, **Dr. G. Gopikrishna**, Principal Scientist & Head, NGBD, **Dr. (Mrs.) P. Nila Rekha**, Principal Scientist, CCD, & **Dr. (Mrs.) T. Bhuvaneshwari**, Scientist AAHED for their kind suggestions.

It is my duty to acknowledge the kind help rendered by **Mr. S. Stanline**, Technical Officer, Feed mill, Muttukadu Experimental Station.

I have to accumulate suitable words in expressing my gratitude and thanks to **Dr. J. Joseph Sahayarajan**, **Mr. R. Thyagarajan**, **Mr. M. S. Kumar**, **Mr. S. Nagarajan** and **Mr. R. Elangovan** CIBA, for their kind help during the period of my research work.
I am very much thankful to my colleague and friend Mr. S. Nandakumar, Nutritionist, growwell, A.P for his co-operation and help during the period of my research work.

I thank Mr. N. Balachandran and Mr. K. Ramachandran research scholars of Nutrition group, CIBA for their support during the tenure of my research.

I use this opportunity to thank the supporting staffs of nutrition group, CIBA Mr. M. Dhanapal, Mr. K. V. Delli Rao and Mr. M. Manohar, for their valuable assistance.

It is my duty to thank Mr. D. M. Ramesh babu and Mr. S. Rajamanickam for their kind advice during the period of my research work.

I am very much thankful to Mr. Udhayakumar, Mr. Vignesh, Mr. S. Sathyanarayanan, Mr. K. Babu, Mr. Srinivasan and Mr. Kumaran for their help in conducting the experiment in wet laboratory in Muttuakkadu experimental station during the period of my research work.

I would like to express my deep sense of gratitude to my friends Dr. N. Dinesh kumar, Mr. R. Barathy, Mr. V. Gopi, Dr. (Ms). M. Madhavi, Dr. P. Samapath Kumar and Dr. A. Janakiraman for their kind help and advice during the period of my research work.

I express my sincere thanks to Dr. M. Asrar Sharief, Dr. M. Mohamed Ismail (Rtd), Dr. A.K. Sultan Mohideen, Dr. M. Ibrahim Naveed, Dr. M. Saquib Naveed, Dr. A. Hyder Ali, Dr. M. Jamal Mohamed, Dr. Abdus Saboor, Dr. M. Abdul Khader, Mr. M. Saiyad Mustafa and Mr. N. Md. Azmathullah Professors, P.G and Research Department of Zoology, The New College, Chennai for their valuable suggestions and constant encouragement.

I have no words to express heartfelt gratitude to my beloved parents my father Mr. A. Syed Sajjad Ali mother Mrs. S. Aliya Banu who dedicated their
entire life for my success and are the tower of strength and source of inspiration for me.

I whole heartedly thank my family members Mrs. S. Arefa Banu, Mr. M. Abdul khader, Mr. A. Syed Gaffar Ali, Mrs. G. Rehana Sultana, Mr. S. Syed Kaleem, Mr. S. Syed Aleem, Mr. P. Esub Ali Khan, Mrs. E. Surya Banu, Mr. S. Dastaghir Ahamed, Mrs. S. Atiya Banu and Mrs. M. Feroz Begum. They always supported and encouraged me, so I can’t forget to recollect the kind of support which they have been provided throughout my educational career.

I thank whole-heartedly everyone who has contributed in one way or the other towards the successful conduct of this research.

Above all I am grateful to Indian Council of Agricultural Research (ICAR), New Delhi, for financial assistance under Outreach Activity –III, entitled “Outreach Activity on Fish Feeds –I”.

S.Syed Raffic Ali