Acknowledgements

I approached my guide Prof. I.S. Bright Singh seeking an opportunity to carry out Post graduate project work and a year later for my research leading to Ph.D. He was keen at giving me a chance to work with his guidance as a doctoral scholar registered at School of Environmental Studies, CUSAT, Cochin. I realized that I was fortunate enough to work with one of the eminent supervisors and I am thankful to him for having the trust in me to work independently and yet was always there with me to make sure that I was on the right track. He was always supportive and provided the encouragement I needed to succeed in those tasks which I felt was difficult to accomplish. His scientific aptitude and hardworking nature was truly infectious. The long discussions we had greatly influenced the development of my scientific aptitude. I sincerely thank him for everything and for considering me for UGC fellowship during the course of this work.

I am registered at School of Environmental Studies as a fulltime scholar with administrative support. I therefore thank the Dean, Faculty of Environmental Studies, for facilitating the PhD registration and their help and support. The entire work was carried out at the National Centre for Aquatic Animal Health at Lakeside campus of the University. The Centre gave me excellent facilities and I am extremely thankful for everything. Financial support was provided by Cochin University of Science and Technology, Cochin and UGC project (F: 32-589/2006 (SR)), Govt. of India, New Delhi for which they are gratefully acknowledged.

I thank Cochin University of Science and Technology for providing excellent library, internet and in the later part, valuable on-line access to journals and databases. The libraries of School of Environmental Studies and Marine Biology have attracted me with its excellent collections of books related to Molecular Biology and Immunology.

Dr. A. Mohandas, Emeritus Professor, has been a guiding light throughout this period. Even after retirement he continues to take a keen interest in all academic activities. His criticisms and insights during our discussions did not just limit to academics, were always valuable and will be remembered forever. He was always
supportive and lent an ear to my contention. He is not just a guide, mentor and teacher, but also a great friend not just to me but to all students.

Dr. Rosamma Philip, Sr. Lecturer, Department of Marine Biology, Microbiology and Biochemistry, was always there for us with her encouragement. She willingly provided insightful comments and suggestions from time to time. And she has obliged every time whenever I have approached her with numerous requests and clarifying doubts. She wholeheartedly allowed me to use the Bionumerics software which she got access for a month. I was relieved on hearing that she was going to be one of the examiners for my Ph.D qualifying exam and I enjoyed the viva-voice she conducted.

I thank Dr. Gopalakrishnan, Scientist NBFGR-Cochin Unit, for being very supportive and helpful during the work with genetic marker- RAPD. He was very much willing to share with us the PopGene software and giving me the reprints on RAPD. His students Lejo and Sajeela helped me with data entry and processing the data in the software.

Dr. K. K. Vijayan, Head, Pathology Division, CMFRI is thanked for all the support, advice and collaborations he rendered as the subject expert of my work. His comments and opinions were extremely useful for us.

I thank Dr. Balasundaram and his students Anupama, Sreejith and Remya for teaching and giving me the software used for performing Numerical Taxonomy of the isolates (NTSYS). This software was a vital part of the work without which the work would not have a strong foundation.

I thank Iyer Sir who encouraged me telling that the statistical tools taken by me were apt for analysis and for giving a valid conclusion for each.

I thank all the teachers in School of Environmental Studies, Dr. Suguna Yesodharan, Dr. Yesodharan, Dr. Ammini Joseph, Dr. Harindranathan, Dr. S. Rajathy, Dr. S. Achary and Mr. Anand for their concern throughout this period. The administrative staff of School of Environmental Studies is wholeheartedly thanked for their support.
I thank my teachers Dr. Gladys, Dr. Mini, Dr. Meera, Reema Miss, Philip Sir, James Sir, Samson Sir, Domnic Sir, John Joseph Sir and Raju Sir who taught me for graduation and post-graduation and for having seeing in me the quest for research and encouraged me.

I thank the culture collection centers of Chandigarh (IMTECH), BCCM/LMG (Belgium) for giving me the type strains of vibrios which helped me in identifying and grouping the wild isolates. Also I thank the West Coast Hatchery for giving me the post-larvae for performing the pathogenicity studies.

I am thankful to Dr. N.S. Jayaprakash and Dr. S. Somnath Pai for having given me the isolates they have maintained and also for their valuable suggestions. I was fortunate to have enjoyed the debates and discussion on various topics with Dr. Pai, Dr. Anas and Dr. Jasmin. I always admired the way Dr. Anas puts the theoretical knowledge into practical use and for introducing ‘Endnote’ which made reference management really easy. I thank Dr. Valsamma, Dr. Preetha, Dr. Sajeevan, Dr. Sreedharan, Dr. Rejish, Dr. Seena, Deepesh, Dr. Manju, Gigi, Sunish, Dr. Sudheer, Dr. Sabu and Ranjit for their guidance and assistance. I thank Priyaja and Vrinda for constantly helping me by providing suggestions in molecular biology work and in providing me the reagents required in aliquots for the work. I thank Prem who was of a great help to me in maintaining cell lines, carrying out cytotoxicity and adherence work, and helped me in all ways possible and is a great support to me. I also thank Surekha, Divya, Sunitha, Haseeb, Rosemary, Riya, Ammu, Jayesh, and Deepa for their help and support in all the ways they could do for me. Also I wish them good luck for their Ph.D work. I thank Blessy, Surya, Anish, Biju, Jaison, Savin, Amja, Praveen, Charles, Vijay, Archana and Sanu for their friendship and help from time to time. Special thanks to Kusumam chechi and Parisa for promptly providing clean glassware most of the time at short notice and Mr. Soman for providing the bills and managing the funds. I would like to thank Manjusha, Swapna, Simi, Sreedevi and Serin for their supportive and help in my work, I wish good luck to Asha, Christo, Sanyo, Jisha and Remya who have recently joined the centre for research and for their company which I could enjoy for only a short span.
I thank Linu who helped me a lot in computer works and in his company we had practiced bioinformatics tools. He, Arka and Sourav showered brotherly love to me and I enjoyed a lot with them. Mathews helped me with pathogenicity works and I thank him for working with me without rest for hours together. I have enjoyed the company of Sreelakshmi, Aparna, Esha, Aparajitha, Angel, Ancy and Mantosh and I wish them all the best for their future.

To my cherished friends Vipin, Vibin, Madhu, Rajesh, Abhiman, Vinay, Lakshmi, Divya, Vini, Sapna, Sherin, Priya, Ajith, Sarath, Girish, Rajesh, Ranjit, Krishnakumar, Joe and Sreekanth, I express my heartfelt gratitude for being with me always. Dr.Madhu is a real motivator, encouraging me and imparting me with the developments and research in cancer biology. I thank Madhu, Girish and Rajesh for sending me the references which I couldn’t get access and was inevitably required by me.

I have no words to thank my dad and sister (Vidya) who were constantly with me to cherish the dream of my mother who is no longer with us and I dedicate this work to you my dear mom. Their positive strength always helped me move forward and overcoming the difficult tasks. Last but not the least I thank my husband Dr.Vimal and his family for their wholehearted and unflinching support for finishing my thesis work which was very essential. Also I am thankful to all my relatives and neighbors for their moral support and encouragement.

B.Sreelakshmi