Acknowledgement
ACKNOWLEDGEMENT

Pursuing a Ph.D. project is a both painful and enjoyable experience. It’s just like climbing a high peak, step by step, accompanied with bitterness, hardship, frustration, encouragement and trust and with so many people’s kind help. When I found myself at the top enjoying the beautiful scenery, I understand that it was, in fact teamwork that got me there. Though it will not be enough to express my gratitude in words to all those people who helped me, I would still like to give my many, many thanks to all these people.

I realize that, I would not have made it this far without the influence of my mentor. I deem it a great pleasure to place on record my deep sense of gratitude and indebtedness to my research supervisor, Prof. Dr. M. Rajasekara Pandian, Assistant Professor, Department of Zoology, Arignar Anna Government Arts College, Namakkal, for his guidance, help and motivation. Apart from the subject of my research, I learnt a lot from him, which I am sure, will be useful in different stages of my life. His perpetual energy and enthusiasm in research had motivated all his advisees, including me. In addition, he was always accessible and willing to help his students with their research. As a result, research life became smooth and rewarding for me. Without his support I would not be the professional I am today. He showed me different ways to approach a research problem and the need to be persistent to accomplish any goal. I sincerely thank you sir, for all you have done for me Phil, personally and professionally. You have believed in me, guided me, moulded me and modelled for me how to be an outstanding teacher, researcher and person.

Dr. M. Sundararajan, Dean, Biological Sciences, Muthayammal College of Arts and Science, Rasipuram deserves acknowledgement for his unwavering support throughout all these years. He is always available to cheer me up and help me in any sort of writing part. His editing suggestions and precise sense of language contributed to the final copy.

Let me also say ‘thank you’ to the Principal of Muthayammal College of Arts and Science, Rasipuram Prof. Dr. C. Narayanan, to have confidence in me and
encouraging me to complete my thesis work as soon as possible. I admire his persistent and meticulous attitude in helping me, despite his hectic schedule in the college. Furthermore, I would like to thank Dr. M. Selvan, Head, Department of Biotechnology, Muthayammal College of Arts and Science for supporting my research and teaching activities at the same College.

The generous support from Muthayammal Educational trust is greatly appreciated. I am amazed by the confidence from the trustees. Without their support, my ambition can hardly be realized. I would like to acknowledge especially the Mr. K.P. Ramaswamy, The secretory, Mr. R. Muthuvel, Academic Directer of Muthayammal College of Arts and Science, Rasipuram for conceding me permission to utilize facilities in their college and helpful comments at different stages of my work.

Many thanks to Prof. Dr. N. Jeyakumar, Former Head, Department of Microbiology, Kamaraj College, Thoothukudi. He enabled me to bypass the more persistent obstacles to thesis completion. Also thanks to him for his assistance and willingness to discuss ideas at their initial stage. His insights on microbiological area are second to none. Besides, he sets an example of a world-class researcher for his rigor and passion on research. The associated experience broadened my perspective on the practical aspects in the area which I have selected.

Dr. Vijayalakshmi, Cytologist, Chennai is another important person who rendered support for a part of histology and I would like to acknowledge timely help from her side. I also thank the wonderful staff in the Biotechnology Department as well as in other departments of Muthayammal college of Arts and science, Rasipuram for always being so helpful and friendly. People here are genuinely nice and want to help you out and I’m glad to have interacted with many. If I have forgotten anyone, I apologize.

My one year stint with my friends and colleagues Dr. M. Padhmanaban and Mr. J. Victor Antony Santiago at Muthayammal college of Arts and science made me a better programmer. They had confidence in me when I doubted myself, and brought
out the good ideas in me. (More importantly, they taught me how to work hard and how to ski to reduce stress!). They inspired my efforts despite the enormous pressures we were facing together. Thanks both of You.

I take this opportunity with much pleasure to thank all the people who have helped me through the course of my journey towards producing this thesis. I am grateful to come across several life-long friends at work. Thanks Mr. M. Suresh Kumar, Mr. P. Selva Maleeshwaran, Mr. A. Sundharesan, Miss. E. Brindha, Dr. P. Vanitha Pappa, Dr. Lilly Rajasekharan pandian, for your support and help when ever needed.

All my lab buddies at the Department of Biotechnology Laboratory, Muthayammal college of Arts and science made it a convivial place to work. In particular, I would like to thank Mr. Senthil and Mr. Govindha raj for their friendship and help in the past seven years. They had inspired me in research and life through our interactions during the long hours in the lab. Thanks.

I am indebted to my parents, for giving me life in the first place, for educating me with aspects from both arts and sciences, for unconditional support and encouragement to pursue my interests, even when the interests went beyond boundaries of language, field, economy and geography. My dad had provided me with all sorts of blessings, so that I was able to complete my research work. I am very grateful to my mother. Her understanding and love encouraged me to work hard and to continue pursuing a Ph.D project away from home. Her firm and kind-hearted personality has affected me to be steadfast and never bend to difficulty. She always lets me know that she is proud of me, which motivates me to work harder and do my best.

I am greatly indebted to my devoted husband, my best friend, soul-mate, Mr. A. Jeyasekharan and my sons Master J. Babu and Master J. Barath. They form the backbone and origin of my happiness. Their love and support without any complaint or regret has enabled me to complete this Ph.D project. Being both a father and mother while I was away was not an easy thing for my husband. He took every
responsibility and suffered all the bitterness to take care of my sons and my family. My sons had to endure too many hours and days without me, especially when they needed their most. They have tolerated the intrusion on their lives caused by my absence. I owe my every achievement to three of them.

Last, but by no means least, thanks be to God for my life through all tests in the past few years. You have made my life more bountiful. May your name be exalted, honoured and glorified.

For any errors or inadequacies that may remain in this work, of course, the responsibility is entirely my own.

A. Usha Raja Nanthini