

Acknowledgement

I wish to express my deep sense of gratitude and indebtedness to my beloved and learned teacher Dr. Siddalingeshwara K.G, Senior Lecturer, Department of Microbiology, Padmashree Institute of Information Science, Bangalore for all his unflinching support, encouragement, valuable guidance and constructive criticism throughout the preparation and presentation of this work. I could not have imagined having a better guide and mentor for my Ph.D study.

I am grateful to the Director, Research and Development Centre, Bharathiar University, Coimbatore for his encouragement, moral support and providing the necessary facilities and infrastructure to carry out this work.

I also express my special thanks to Dr. Pramod T, Asst. Professor, Department of Microbiology, Oxford College, Bangalore, for his valuable suggestions, advice and timely help.

I also extend my sincere thanks to Mr. Suresh T.N, Director, Padmashree Institute of Information Sciences, Bangalore and Dr. Vishwanatha, Asst. Professor, Department of Microbiology, Maharani's College, Bangalore for their encouragement and valuable suggestions.

I would also like to thank Dr.Girish, Dr.Sandesh Kamath & Mr.Srinivas from Biogenics, Hubli for their cooperation and help. A special thanks to Bhat Biotech Pvt. Ltd. Bangalore for providing necessary research facilities.

I am extremely indebted to my fellow research scholars Mr. Saroj, Mr. Kartick, Mr. Sunil and Mr. Naveen for their timely help and co-operation.

Further, I wish my gratitude to Smt. Rohini Siddalingeshwara and her kid Master Siddalingesh (Manu) for their kind affection throughout my research work.

Words are short to express my deep sense of gratitude towards my friends and well-wishers (too many to list here but you know who you are!) Mr. Kaiser, Mr. Fidda Ahmad, Mr. Tariq Ahmad Shah, Mr. Shakeel Ahmad Shah, Mr. Nisar Ahmad Shah, Dr. Bashir Ahmad Shah, Mrs. Ragini, Ms. Prashanthi , Ms. Pooja, Mr. Raouf, Mr. Wasim, Mr. Shabir, Mr. Tariq, Mr. Arshid, Mr. Mahmood, Mr. Aadil, Mr. Muzaffer, Mr.Himayoo, Mr. Sajad and Ms. Tasleema for their encouragement, stimulating advice, timely help and moral support. Besides this, I am thankful to several other people who have knowingly and unknowingly helped me in the successful completion of my Ph.D. work.

I would also like to extend my warm and sincere thanks to my beloved grandparents Late Gh. Ahmad Dar, Late Faiza, Mr. Siraj-u-Din Shah, beloved mama Mr. Fayaz Ahmad Dar, beloved massi Mrs. Dilshada, mami Mrs. Jawahira, massu Mr. Abdul Hai, Mr. Tajamul Syed, Mr. Shameem Ahmad, Mrs. Yasmeen, Mrs. Mehmooda and my sweet sisters Nusrat Fayaz, Munazah and Sufaya for their love, generous care and moral support throughout my research. I am also grateful to my brothers Mr. Inam-ul-Haq, Mr. Tariq Ahmad Dar, Abrar, Dr. Rayees and Mr. Khalid Nisar.

Above all, words are insufficient to express my heartfelt gratitude to my beloved parents Mr. Mushtaq Ahmad Shah and Mrs. Mahajabeena, my beloved brother Mr. Muzamil Mushtaq, my sweet and dearest sisters Mrs. Aarifat Mushtaq and Mrs. Aabida Mushtaq for being a constant source of inspiration, motivation and unequivocal support throughout, as always, for which my mere expression of thanks likewise does not suffice.

Special thanks to Mr. LakshmiKanth & Mrs. Vani from Srishti International for technical support, Printing and Binding of my thesis.

-Syed Mohsin Mushtaq