



## ACKNOWLEDGEMENTS

Praise is to Almighty God for all his blessing that he gave me patience and made me possible to complete this thesis. I was delighted to get the support of different people. I cannot list all but I would like to mention some of them.

With a deep sense of gratitude, I would like to express sincere thanks to my mentor and guide **Prof. B. B. Chattoo**, Department of Microbiology and Biotechnology centre, M. S. University, Baroda, India. His wide knowledge and logical way of thinking have been of great value for me. His understanding, encouraging and personal guidance have provided a good basis for the present thesis. I also thank him for providing me with excellent lab facilities for carrying on my work.

I am sincerely thankful to the **teachers** from Dept. of Microbiology and Biotechnology centre, whose blessings have always been there. Being a non teaching staff member myself, I always got encouragement from them for research along with my official work.

I am thankful to The M.S. University of Baroda, for permission given to me for such work during extra hours of my official work.

Most part of my research was different from that of other members in the lab, but I have learned a lot through interaction and conversations from **Dr. Devesh Suthar, Dr. Sanjay Jha and Kaminee Ranka**. I thank them for rewarding discussions, warm friendship and their patience.

My thanks are also to former lab members **Dr. Rajesh patkar, Dr. Subhankar, Dr. Tulika, Dr. Archana and Dr. Bishun** for their endless encouragement and friendship.

I am indebted to the present and the former members of **Dr. Chattoo's lab (Dr. Malali, Dr. Venu, Dr. Sachin, Mrs. Anagha, Sanjay Bhawe, Ajay, Chandra Prakash, Hashim, Suhail, Varsha, Sushma, Vikas, Gaurav, Shalabh, Pinal, Akhil, and Divya)** and the **Research Scholars** from Dept. of Microbiology and Biotechnology centre for their help, motivation, and cherishable friendship.

My special gratitude to my colleague **Mr. J. K. Nair** for the endless encouragement and kind help at all stages of my work.

I also thank my colleagues **Mr. Varghese, Mr. Nitesh, Mr. Shirish, Mr. Bharat, Mr. Sajjansharan, Mr. Niramal, Mrs Thomas, Mrs. Aparna, Mr. Pravin, Mr. Khatri, Mr. Girish, Mr. Ramesh, Mr. Mukesh and others.** As, I have always got help and encouragement from them, for research work along with my official work.

I would like to thank **Dr. Haresh Kaheria and Dr. Vasu Thakkar,** Sardar Patel University, Anand, India for BIOLOG and HPTLC analysis, and discussions, respectively. I would like to thank **Dr. Yuji Nagata,** Department of Environmental Life Sciences, Graduate School of Life Sciences, Tohoku University, Japan for providing the  $\lambda$ in plasmids.

My sincere thanks to **Dr. P.C. Mankodi and Dr. K. Vachhrajani,** Department of Zoology, M.S. University of Baroda, for encouraging and motivating me during my studies.

This work could not have been completed without the support, patience and encouragement of my family members, **my Mother, Father, Sister, Jijaji, Sanket, Khyati** and finally my wife **Saroj** and little daughter **Korvaki,** without whose patience and love, this endeavor would have been impossible.

**Harsukh G. Tank**