Acknowledgement

A true hallmark of teacher is his ability to distinguish between a necessary and an unnecessary hypothesis. It is his quality which makes him capable of molding a raw and incoherent student of science into a coherent and highly pragmatic researcher. My humble gratitude to my teacher and guide **Prof. S. R. Dave**, Head, Department of Microbiology and Biotechnology, School of sciences, Gujarat university, without whose valuable guidance, I could have never achieved this. I feel lucky to be his student. His wide knowledge and logical way of thinking has been of great value for me. His understanding, encouraging and personal guidance have provided basis for the present thesis.

I am really grateful that **Dr. Noopur Goyal** had been my batch in charge when I entered my second B. Sc. This relationship started with my unending questions and her patient and not so patient answers. It has been an honor to be her student. She has taught me, both consciously and unconsciously, how good experimental microbiology is done. I appreciate all her contributions of time and ideas, to make my Ph.D. experience productive and stimulating. The joy and enthusiasm she has for research was contagious and even during tough times of Ph.D. pursuit; it enabled me to push forward without the option of quitting. I am also thankful for the excellent example she has provided as a successful microbiologist and lecturer. Without her inspiration and motivation, I could neither be a researcher nor a lecturer.

Words can never express my gratitude towards office bearers of **Sarva Vidyalaya Kelavani Mandal (SVKM), Kadi** who always supported the entire staff for productive research work. A great deal of encouragement and support came from **Dr. Ajay Gor**, principal of my college. He remained constantly concerned about my academic proceedings. My sincere thanks to him for providing me the opportunity and his permission to carry out my research work using departmental facilities of Pramukh Swami Science and H. D. Patel Arts College, Kadi.

I am deeply grateful to my teachers, **Dr. S. A. Bhatt, Dr. Nishith Dharaiya, Dr. Rajesh Patel**, (Department of Life Sciences, Patan) **Dr. Rupal Patwa and Dr. Mayank Mehta**, (Shri P H G Muni. Arts and Science College) for their support and encouragement throughout my work. A special thanks to **Dr. Mrugesh Shukla** and **Ms S. P. Pandya** from M.G. Science Institute, Ahmedabad for their kind support.

I am grateful to **Dr. Devayani Tipre**, (Department of Microbiology and Biotechnology, Gujarat University) who always helped me with her valuable suggestions.
I cannot forget to thank my other Ph.D. colleagues. A special thanks to Bhargav Patel for the technical support particularly during sequence submission. I am also thankful to Riddhi Dave, Rashmi Rajput, Dipali Shukla, Faisal Ansari and Parveen Munshi who helped me during my work.

During this work I have collaborated with many colleagues from Department of Biotechnology, Kadi for whom I have great regards, and I wish to extend my thanks to all those who have helped and supported me. My colleagues Dr. Kamlesh Shah, Mr. Ram Suthar, Ms Anjali Padhiyar and Dr. Harsha Soni have been supportive, considerate and helped me in every way. My warm thanks to all of them. It is a pleasure to express my gratitude to non teaching staff members of my department, Mr. Mayurbhai, Ms Nimishamam, Mr Hashmukhbhai and Mr. Ashokbhai. Being laboratory assistant, Mayurbhai always helped me by not only reminding my experimental work but also in preparing the manuscript.

My special thanks to Mr. C. V. Patel, Head of Chemistry Department, Kadi for his kind assistance and suggestions which proved valuable for my work.

I am thankful to Mr. O. P. Goyal from Rainbow paper industry for providing me paper pulp.

It is very difficult to express gratitude towards one’s own. No words can express my heartfelt gratitude to Mihir, my husband who has always been on my side with constant inspiration; without whose love and support, it was not possible for me to complete my research work.

My Parents, especially my father have been true strength of pillar for me and it is with their blessings and immense support, that I could complete my work. My unreserved thanks go to Dimpal, Sagar, Priyanka and Ankit who were ever ready to help. I grab this opportunity to express my gratitude towards my in laws who not only supported me during my work but also made me determined to complete it.

A special thanks to Aayushi who acted as a very enthusiastic trouble shooter during preparation of the manuscript. I am thankful to Ravi Mehta for his help in printing and binding of manuscript.

How can I forget Shreya, my lovely daughter, whom I sometimes ignored to finish my work on time. It was her play time which was sacrificed for my thesis and yet she was more worried about me; constantly reminding to complete my homework or else I shall be punished next day. I thank God for blessing me with such an understanding daughter.

Last but not least I thank my well wishers, friends and all those who have helped me directly or indirectly in completing my work.

Ms. Minal Trivedi