**Acknowledgment**

This acknowledgment is not merely a catalogue of names but an expression of a deep sense of gratitude to all those who have contributed in this thesis and have been my supporters for years. This is an impossible task to thank many people who have helped to design, implement, apply, criticize, sponsor and evangelize this work. I am going to try anyway and if your name is not listed rest assured that my gratitude is not less than for those listed below.

First of all I will thank Almighty God for giving me strength, courage and making me capable to reach at this place in my life. God is always been so kind to me.

I would like to express my sincere gratitude to my guide Prof. S. R. Dave, Head, Department of Microbiology, Gujarat University, Ahmedabad, without whose able guidance I could not have achieve this. His comprehensive knowledge and devotion for his subject has taught me an entirely different way of analyzing things. I am indebted to him for his expert guidance, constant inspiration and encouragement. He was always there to listen and to discuss the results, solve problems and suggest newer options patiently and cheerfully.

Words can never express my gratitude for Dr. Srinivas Murthy, Scientist, Biogas research center, Sadra, he has always been my supporter, took interest in my work and gave valuable suggestions. Inspite of his busy schedule he found time to check my thesis, for which I will always be thankful.

A special thanks to my present mentor Prof. G. S. Khatri, Biomolecular medicine laboratory, Indian Institute of Advanced Research, Gandhinagar, for helping me to complete this thesis. He had confidence in me when I doubted myself and brought out the good ideas in me. More importantly, he thought me how to work hard, play hard and how to ski to reduce stress. Without his inspiration and encouragement I could not have finished this thesis. I am also thankful to Mr. Ashwini Puri, CEO, IIAR, Gandhinagar, for making things easy for me and giving me freedom to complete this thesis.

I am also thankful to Prof. Meenu Saraf, Department of Microbiology, Gujarat University, for her concern and cooperation in my work.
I am thankful to Dr. Devayani Tipre, Lecturer, Department of Microbiology, Gujarat University, for her valuable suggestions and cooperation.

I thank non-teaching staff members of the department, Diptiben, Parikhbahi, Khandubhai and Dharamsinghbhai for their kind co-operation during my course of work in department.

I am thankful to Department of Biotechnology, Government of India, New Delhi, for the project grant and the fellowship.

I would like to acknowledge Prof. A. K. Tripathi, Professor, School of Biotechnology, Banaras Hindu University, Varanasi and his student Mr. Vyom Parasar for helping in ribotyping of my cultures. I am equally thankful to Dr. Yogesh Shouche for doing 16S rDNA sequencing of few of my cultures.

I also thank Dr. Avijit Roy and Mr. Mehul Rajgor, Bangalore Genei, Bangalore, for their kind assistance in construction of phylogenetic tree.

I am very grateful to my seniors Dr. Ranjan Pradhan, Dr. Nasreen bano Amanul, Dr. Harsha Soni and Mr. Tejas Shah, who created quite a knowledgeable atmosphere and working with them has always been a pleasure.

I cannot forget to thank my colleagues at department Ms. Neelam Tank, Ms. Viral Shukla, Mr. Paresh Patel, Ms. Rashmi Singh, Mr. Mitesh Patel, Ms. Parveen Ansari and Ms. Riddhi Dave, who made the department a wonderful workplace and home for the last five years of my stay.

I wish to thank all past and present M.Phil and M.Sc. students for creating a friendly environment. A special thank to Harsha, Hetal, Hiral, Isha, Darshana, Dhvani, Sonal, Vishwa, Renuka, Bhargav, Maitry and Dipali.

My sincere thank to Mr. Yasin Mansuri, Lecturer, Department of Microbiology, Talod science college, for taking out time to review my thesis and to give his sincere opinion.

A great deal of motivation and strength came from my colleagues at Indian Institute of Advanced Research, I am thankful to Dr. Rouchiaka Singh, Ms. Avni Divatia, and
Ms. Rachna Pandey for their help and support. I specially thank Avni, as she helped me in all possible way.

No words can express my heartfelt gratitude towards my friends. I am thankful to Mr. Abhilash Nair, Mr. Bir Singh Chaudhary, Ms. Jalanjali Joshi, Ms. Nandani Thakker, Ms. Chitra Shukla, Mr. Pinakin Dhandhukia, Ms. Neelam Parmar, Ms. Falgunie Vyas, Mrs. Grishma Shah, Mr. Mehul Solanki and Mr. Thyagarajan for their kind support and help its difficult to find friends like them.

I am also greatly indebted to many teachers in the past: Mrs. Neela Upadhyay Mr. Piyush Pandya, Mr. Udayan Bhatt, Dr. Bhupesh Yagnik and Mr. H. S Sharma for getting me interested in Microbiology. Dr. Shreyas Bhatt and Dr. Gaurav Shah for introducing me to the field of research.

There are no words to thank my family, my parents Mr. Harendranath Gupta and Mrs. Asha Gupta for giving me life in the first place and for unconditional support and encouragement to pursue my interests. My sister Ms. Dolly Gupta, for listening to my complaints, frustrations and for believing in me. They have been the constant source of motivation and inspiration. They have been my pillar of strength in all circumstances. It is only due to their patience and persistence that I achieved this goal in my life. I truly believe that had it not been for full flagged support and help from my family, I couldn’t have completed this difficult and enormous task.

Last and the least I wish to thank my well wishers, friends and all those who have helped me directly and indirectly in my work.

My sincere thanks to all of them,

Ahmedabad

November 2007