Acknowledgement

This thesis dissertation marks the end of a long and eventful journey for which there are many people that I would like to acknowledge for their help, support, and guidance. I could not have done what I was able to do without them. The moments are rare when one gets the opportunity to look back and thank all those people who have directly or indirectly helped at the time of need to make ones work a success. I, today, grab this opportunity to gratefully thank them all.

First of all I Thank God and my spiritual GURU, HDH Pramukh Swami Maharaj, for giving me strength, intelligence and patience to conduct this study. No one can do any thing without the will of His Almighty.

I thank my Guide, Prof. (Mrs) Meenu Saraf. I will never forget her willingness to take a chance with me. Her infectious enthusiasm and unlimited zeal have been major driving forces through my graduate experience. Her words of encouragement, quiet urgings and careful reading of all of my writing will never be forgotten. Thank you for the extreme patience! ...actually, I even found “tremendous” her few “getting red-in-the-face mad” at me! What can I say when people care! She is one of the rarest advisors that students dream they will find.

I would like to thank Prof. S. R. Dave, Head, department of Microbiology, for his constant support and guidance whenever I got stuck up with the results. In spite of his busy schedule whole day through, he guided me and was there in the department whenever I needed him.

I would like to thank Dr. B. V. Patel and Dr. Devayani Tipre for being so much helpful at the hour of need.

My special thanks to Mr. Bharatbhai Trivedi and Mrs. Deeptiben Shah for maintaining our academic schedule and reminding us of official things to be done without which it would have been difficult to finish the official formalities. Deeptiben was more than a Lab-assistant, in fact I can say, she was a friend with whom we shared all our problems and worries when there was no one to talk to.

My special thanks to Mr. R. K. Parikh, Store Keeper, Department of Microbiology. He was always ready to help us by providing us with needed chemical available in the store or to place an immediate order for required chemicals.

I grab this opportunity to thank out non teaching staff Mr. Khandubhai Rathod, Mr. Dharamsinhbhai Solanki and Vinodbhai. My special thanks to Dharamsingbhai without whose help it would have been impossible to conduct field and pot trials. He really have worked hard for field maintaining and plant keeping, working and arranging for things needed for the field and pots. He shared all his knowledge about plants and gardening with me.
My seniors Tejas Shah and Ms. Kajal Gupta hold a special place in my heart. It was really a learning experience to work with them. My special thanks to Ms. Kajal Gupta, my immediate senior, friend and colleague, who at all stages showed me the best solutions for the hindrances coming up in my way to success. She was a great colleague to work with and has helped me in each and every step of my research work with her suggestions, discussions, opinions and positive criticism. At times she has even gone out of her way to help me in my work.

Certain relationships can't be expressed in words. My relations with my colleagues Viral, Paresh and Parveen have been quite lively throughout the research work and we share our problems and worries and tried to solve each others problems as far as possible. I can't forget to thank my immediate junior Mr. Dushyant Sharma, who took a keen interest in my work and helped me in conducting trials with my isolates.

I would like to thank my juniors Dhara Patel, Chaitanya Jha and Urja Pandya who took care of my pot studies during my absence at the department. They whole heartedly deserve a greatest appreciation without which this acknowledgement will not be considered complete. Thanks are also due to Mitesh, Dipali, Maitry, Riddhi, Bhargav, Faud and Faisal for keeping the working ambience lively.

My thanks to Prof. Mrs. S K. Menon helping me in analysis of siderophore and quantitative estimation of the fluorescence and allowing me to work in her laboratory. She has taken great pains in conducting FTIR analysis of the siderophore crystals.

I thank Prof. U. C. Pande, Director, University School of Sciences, for allowing me to use the laboratory and instruments at the chemistry department.

I can't forget here to thank research fellows Uma, Vrajesh, Chandramauli, Pranav, Ravi, Gaurang and Sudhir, from Chemistry Department who besides their busy schedule helped me in using UV spectrometer, flourispectrometer and FTIR as well as with special chemicals whenever I needed.

I grab the opportunity to thank the Head, Gujarat Laboratories for allowing us to conduct AAS for estimating Nickel and Sodium from plants and soil.

Heartfelt thanks to Dr Charles Trevor, University of Waterloo, Canada for conducting 16srDNA of my isolates and their identification. I also thank The Head, Absolute filter tech for conducting 16S rDNA of the PGPR and helping us in identification of the PGPR.

I also want to thank Dr. Bernard Glick, Head, Department of Biosciences, University of Waterloo, Canada for his guidance through emails and his continuous sending of his own research papers which really helped a lot in this study.

I would like to thank Dr. Herbert Budziewkiez, Department of organic chemistry, Germany, for extracting and purifying siderophores of one of the isolates and characterizing them through ESIMS. It is because of his expert guidance that we have been able to analyse the complicated structure of siderophores produced.
I also thank and appreciate here the help extended by Dr. (Mrs) Anjana Desai and all her research scholars at M. S. University, Baroda, for their guidance in siderophore estimation.

My special thanks to UGC major research project for financially aiding this work, without which it would have been difficult to conduct so many analyses and trials during this work.

I have no words to describe the efforts of my family in law. Indeed I consider myself very lucky to have such a supportive and helpful family. I lovingly thank my mother-in-law, Brother-in-law and Sister-in-law for enduring my constant absence in the family during my visits to Ahmedabad from Mumbai. How can I forget Krupali, my niece, my friend and my source of entertainment during busy and sometimes boring schedule of work! In spite of her very young age, she have at times tried to help me in typing my work by reading and even typing the manuscript whenever I got tired.

How can I forget my husband Deepak at this moment of lifetime achievement! No words of thanks or appreciation can ever show my gratitude toward him for putting up with the late hours with me, spoiled events and festivals and yet cheering me up during this last and tough period of my life. He has been a constant source of strength and power in all circumstances. He always encouraged me to work hard and it is only due to his patience and persistence that I could achieve this dream in my life. Thanks Deepak for being in my life.

Finally I thank my parents, Mr. Dipakkumar Tank and Mrs. Jayagauri Tank, my sister Kavita, my brother Janak and his wife, Rupal, for giving me time and facilities to do this work right from the very beginning of this project. A thank to my parents who always found a way to make me feel good even if it was so hard for them to “let me go”. But that is what parents are for, right? They managed to pull through and did whatever they could do best. Their love and kindness fill up my heart. I sincerely feel proud of being a part of this family. Any words of thanks will reduce the sacrifices they have given for me.

Lastly thanks to all those who have helped me in all small and big possible manners no matter where and when. Thank you all.

(Neelam Tank)