

ACKNOWLEDGEMENTS

Today, as I end this very important chapter in the journey of my life, which has opened up new & unprecedented openings, I sit back to visualize the twists & turns starting from the day one that has made me reach here. There is certainly a lot to share which would go beyond the appropriate scope of this section, but the chapter would definitely not have ended without the efforts & perseverance of a lot of people who were a constant source of inspiration & help.

I am indebted to the contributions & role of my research supervisor, Prof. G. Naresh Kumar, (NK Sir) in giving me the opportunity to be the author for this particular chapter of my life. Words can't be enough to describe his zest & zeal for science. He incorporated in me the attitude to look at science & research which I would never have gained but for him. Every scientific discussion would make me feel more & more motivated towards pursuing research. A special mention must be made here of the patience & support he has provided throughout, without which my survival would have been difficult. His farsightedness & vision has made Molecular Microbial Biochemistry Lab (MMBL) the most healthy place to work independently without any boundaries. Coming to the non-academic side, the daily tea sessions with him were a delight & will always remain among the most cherishable moments in my life. We could discuss anything from movies, sports to personal experiences (any topic in this universe for that matter) with him during our tea sessions. Once again, this thesis & my overall grooming would not have been possible without you, Sir.....Thanks A Lot!!!

Next name that comes to my mind is of Dr. Archana Gayatri (Archanamam) from the Department of Microbiology. I would like to express my deep sense of gratitude towards her. The research advice & solutions that I received from her were unparalleled beyond doubt & they always served to give me a sense of direction during my PhD studies. I will forever admire her for imbibing in me the ability to plan experiments meticulously & take care of the smallest of experimental details. You were the one whom I would foremost rely when research seemed to have lost its hold. She will always continue to be a woman role model for me in the field of science. Apart from the scientific discussions I will always cherish your home parties. They were a delight in itself & the temptation to crave for more will never end. I never felt like a stranger at your home & for this the credit goes to the entire family along with Shrujju & NK Sir.

I would like to express my gratitude to the Biochemistry Family as a whole (which includes all the alumini members & the teachers) whose efforts & hardwork has allowed Department of Biochemistry

to be recognized at the international level which makes it easy for people like me to avail a helping hand beyond the department premises.

I would like to extend my heartfelt thanks to all the teachers at the Department of Biochemistry including Prof. L. J. Parekh, Prof. S. D. Telang, Dr. M. D. Jani, Prof. Rasheedunnisa Begum, Prof. Sarita Gupta, Dr. Pushpa Robin, Dr. C. RatnaPrabha, Dr. Devesh & Dr. Laxmipriya for allowing me to avail their lab facilities & ever ready to help in any hurdles during the course of my research. Thanks are due to Dr. Tara Mehta, Former Head of the Department, for trying to make my stay in the Department most comfortable & helping me adjust to the new work place by providing the necessary basic infrastructure such as library, internet & other research facilities. Dr. G. Naresh Kumar, Present Head of the Department, for ensuring a great environment with healthy competition & teamwork in the department.

A special mention & thanks to Dr. Jayshree Pohnerkar, for her timely efforts to make me understand the intricacies of research & helping me to plan my work & analyse my results in a completely scientific manner & giving me more than one simple & practical alternative solution for my experiments.

I extend my warm & sincere thanks to Dr. S. R. Acharya for all the timely help & concern that u showed towards me during my Ph.D. I learned to take care of instruments & other department facilities from you & it helped me to understand that research includes responsibilities more than just your experiments & most important of all is that you made me realize that negative data is also a result if interpreted positively.

I take this opportunity to thank Haresh Sir, who who first persuaded & got me interested into the study microbiology during my graduation. I would not have been here without his constant support & motivation. Truly, a great mentor.

Thanks are due to the members of the office including Mr. Pethe, Akshitaben, Shaileshbhai, Manishbhai, Rameshbhai (Nare) & all other office staff for their support & help in all the department & faculty official work. Thanks are also due to Bhartiben, for handling the project accounts efficiently & minimising a lot of my project related university hassels. I also thank Milindbhai at the university for speedy execution of some of the university processes which needed to be approved at a short notice. Thanks to Kalpesh & Anilbhai for maintaining the lab cleanliness & keeping it hygienic for microbial work. I would like to specially thank Jeetubhai for meeting any chemical & glassware needs spontaneously.

I deeply acknowledge Department of Science & Technology (DST) & Gujarat State Biotechnology Mission (GSBTM) for providing me with the TRF fellowship to pursue my doctoral work,

MMBL has been an integral part of my life all these years, in fact it could be considered as my second home. It has been a cornerstone in my professional & personal development. Foremost, I would like to thank Dr. Karunakaran (KK), who shared with me a lot of his expertise & research insight. He quickly became for me the role model of a successful researcher in the field. It is difficult to overstate my appreciation & respect for him. The knowledge that I gained from him in a very short span of time could not be substituted by any cost or efforts. Dr. Siddharth Srivastava was a great senior to work with, He imbibed the spirit of teamwork in me. I was privileged to have Vikas Sharma as my senior. Simple thanks cannot suffice to describe his efforts & contributions towards achieving my Ph.D. Dr. Prashant Kunjadia was more than a colleague, a brother who was ever ready to help & understand. Presence of juniors, Dr. Gopit Shah, Aditi Buch & Jisha Elias made the lab cheerful & research full of life. I never realized how time flew away in their presence. Gopit shared the common interest of lab party organizations. Aditi was a complete personality in herself & Jisha's ability to manage & handle more than one responsibility at a time was worth admiring. Special mention needs to be made here of the melodious singing ability of Aditi (Hope I acknowledged your dream, ADB!!!). I would specifically like to thank Aditi for the timely help provided during my thesis writing attempt. Sonalmam & Praveenamam were a delight during vacations with their presence felt as an elderly hand in the lab. Thanks are also due to my grand juniors Jigna (no more a part of MMBL now), Prasant Kumar, Jitendra, Chanchal & Hemanta. I wish them Good Luck for their future endeavors.

It is a pleasure to thank my seniors at the Biochemistry department, Dr. Meena Rai, Dr. Anil Pillai, Dr. Jignesh Pandya, Dr. Subhash Katewa, Dr. Laxmipriya, Dr. Vihav Vasu, Dr. Jyoti Maroo, Dr. Mukta Mohan & Dr. Namita Kumari who were a constant source of inspiration to reach out for goals which they have achieved today & for the concern & ever readiness to help.

It was a pleasure to have research colleagues, Dr. Samir Patel, Dr. Munjal Acharya, Dr. Sayeed Zainul, Dr. Namita, Keyur, Dr. Shajil Madhavan, Hiren, Minal, Maulik, Pradeep, Hemendra, Chirayu,, Prakash, Niraj, Jyotika, Hina whose presence provided a stimulating & fun environment in which to learn & grow. Many thanks are also due to the new entrants, Purva, Swapnali, Iqbal, Nareesh, Mitesh, Anubha, Nidheesh and Mrunal. Wish you all; The Very Best.

My heartfelt thanks goes to the many research colleagues at the Department of Microbiology, Falguni, Manish, Ruchi, Murlu, Kuldeep, Arif, Vipul, Geeta, Sanket, Nandan, Subbu, Ketan & Sumant for making me feel one among them & all the most wanted timely help & support.

I would like to thank the dissertation students who worked with me, Khushali, Sayantane & Sonal. Their presence provided a great helping hand.

I am tempted to individually thank all of my friends which, from my childhood until post-graduation, have joined me in the discovery of what is life about & how to make the best of it. However, because the list might be too long & by fear of leaving someone out, I will simply say thank you very much to you all for being an integral Part of my life.

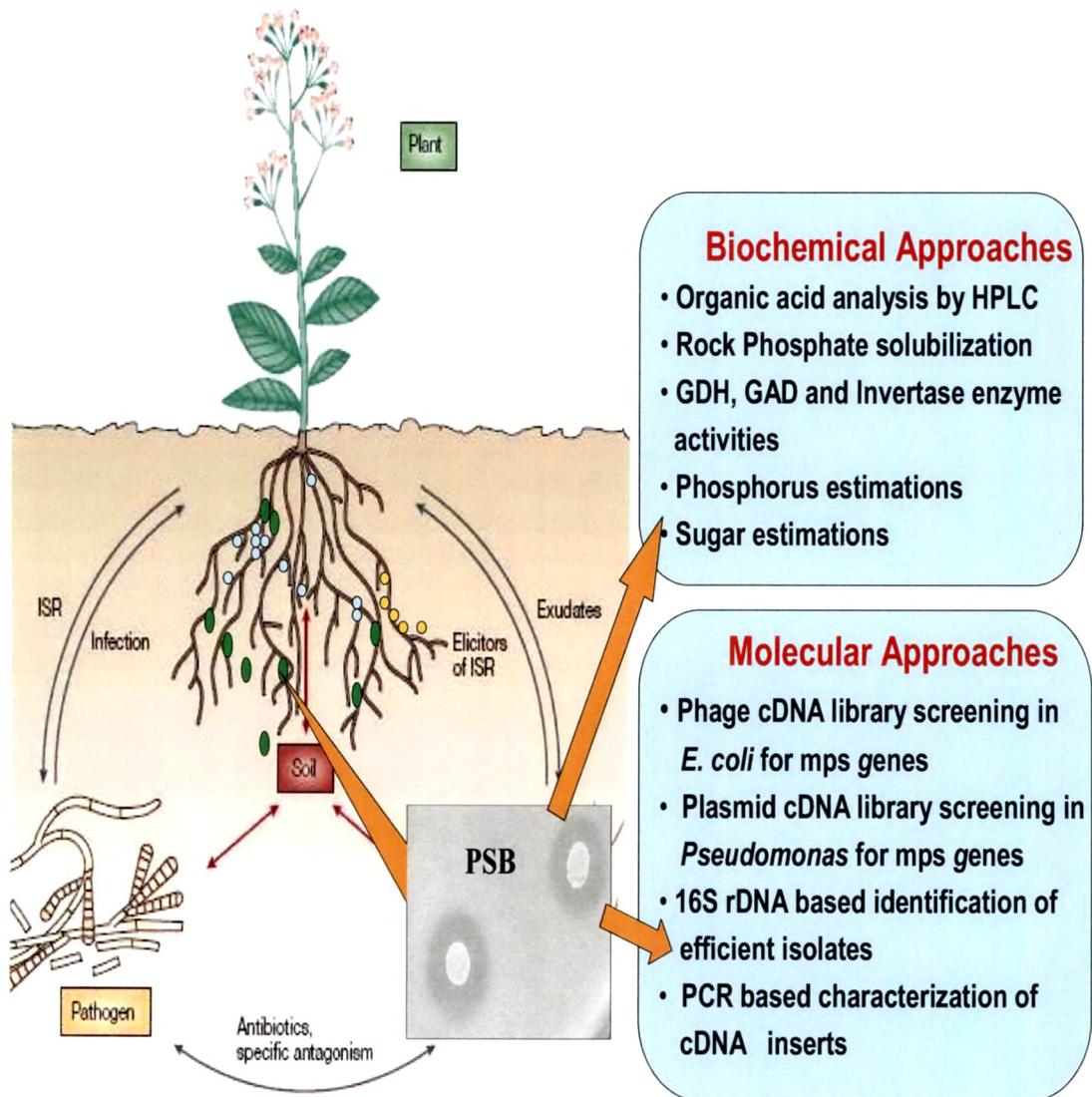
"Some people make the world more special just by being in it." My best friends, Preeti, Surobhi & Nancy fall into that category & need a special mention here for playing that very fulfilling role in my life which could not be substituted by anything in the world. Distances never came in your way when I needed you the most through my difficult times. Thanks a tons for all the emotional support, comraderie, entertainment, & caring you provided all these years.

Finally, I would like to thank everybody whose dedication, prayers, & support had an important role in the successful realization of my thesis, as well as express my apology that I could not mention personally each & every one.

I cannot finish without saying how grateful I am with my family: grandparents, uncles, aunts & cousins, all of whom have given me a loving environment where to develop. Particular thanks, of course, to Krunal, my brother, for being the best listener, understander & advisor. I could not ask for more from a brother. Lastly, & most importantly, I wish to thank my parents, on whose constant encouragement, unconditional faith & love I have relied throughout my time at the department. This task would not have been accomplished without their unflinching courage, support & conviction. To them I dedicate this thesis.

Divya K. Patel

Biochemical and Molecular Approaches for Developing Phosphate Solubilizing Plant Growth Promoting Rhizobacteria (PGPR)



"Science may set limits to knowledge, but should not set limits to imagination"

-Bertrand Russell