Acknowledgments

It gives me immense pleasure to express me sincere thanks and gratitude to all the people who helped me in the completion of this research work.

It was an amazing journey, covered at one of the premier research institutes of our country. I am thankful to Dr. G.C. Mishra and Dr. Shekhar Mande, for providing me this unique opportunity to pursue my research interest. I also thank CSIR and DBT (funding bodies) for providing me all the support and fellowship during my stay at NCCS.

I owe my deepest gratitude to my principal supervisor Dr. Yogesh S Shouche. Sir, I want to thank you for the opportunity to become part of your team and unconditional support rendered to me. Thanks a lot for encouragement to pursue my research interests. I would also like to thank my thesis supervisor Dr. M. S. Patole for valuable guidance, advices throughout the work and finding time for me whenever required. You both are source of endless inspiration for me and it has been true privilege to be supervised by you.

I am grateful to Dr. V.V. Doiphode for providing me the precious samples, without which this study would not have taken this shape. Your vast knowledge of herbal biomedicine or Ayurvedic medicines really helped me in understanding this subject.

I would also like to thank Dr. V.K. Batish and Dr. Sunita Grover, NDRI, for incessant support, guidance and encouragement. Your initiative in developing probiotic research association in India is highly appreciable and I am glad to be part of it. I am also grateful to Dr. D.C Baumgart, chartie hospital (berlin) and Dr. Parimal Lawate, for providing me probiotic yeast strains. I am also obliged to Dr K.K. Bhutani for taking interest in my research work and inviting to NIPER for chemical analysis. I also thank Dr. Shilpa Wagh (Hi-tech labs) and Dr. D.V. Gokhale (NCL) for helping me with some experiments.

This work would not have taken this shape without the help of all the technical and support staff at NCCS. I thank staff at Academic section, Computer section, Stores section, Admin section and Washing section. I am fortunate to work with some of the highly efficient staff at Experimental Animal facility, Proteomics facility, FACS and Confocal facility. Swapnil and Hemangni really helped me with some of the important protocol designing and implementation in Flow cytometry. Ashwini Atre at Confocal facility has an exceptional expertise in microscopy and imaging. Your presence and spontaneous comments were real retreat for me and thanks for extending help in some of my experiments.

Technical expertise of Sarang Satoor at DNA sequencing facility is outstanding and admirable. Thanks for extending your help and support in real time and data analysis packages.
I am obliged to Mandar, Sunil, and Shailendra for taking some time and helping me the some of the voluminous experiments. Help and support from Rashmi was instrumental during my last phases. I am lucky to have her as my trainee, I learned a lot from her expertise. Many thanks to MSc students, Krishna, Varun, Sujit and Akanksha who worked in short term projects related to this research.

My life in Lab 3 was a wonderful experience and fun because of my beloved friends. Sajad, Gupta ji, Pandey ji, Pankaj, Shrikant, Girish, Rahul, Ashraf, Rasesh, Sid anna, Sandeep, Shakti, Avinash, Dheeraj, Rakesh, Vidu were mostly associated with informal and rarely formal discussions. Kaustubh and Snehit really helped me at times when things were needed on priority. Occasional PJ’s from Mandar, Hitendra, Nachiket and Swapnil were real relief in lab. Recently joined highly enthusiastic league of research fellows helped me to gain vigour at times, showmak, mangesh, shrikant bhute, mahendra are among those. Any name missing out of the gang, would be my sheer negligence, but it has been rightly said “Har ek friend jaruri hota hai”.

I am also grateful to my lab seniors Dr Mahesh Dharne, Dr Aijaz Wani, Lokesh Sharma sir, Dr K M Dayananda, Dr Sachin Surve, Dr Gurdeep, Dr Shiva, Dr Bipin who gave critical comments and suggestions which helped a lot in planning and execution.

I thank Dr O P Sharma, Swapnil, Rahul, and Showmak for their critical comments and making this thesis in a better form. Special thanks to Pandey ji for boosting me at some discouraging moments.

My stay at NCCS was a nice experience just because of stimulating and enriching environment. Thanks to Monika and Roli for the support from the other side of fence. NCCS hostel provided welcome breaks during working schedule. Thanks to my room partners Dr. Sarvana and Natesh for being wonderful companion. Thanks to Shweta for all the fun connecting lab to mess. I owe special thanks to Sangeeta for her constructive criticism and support all along.

This thesis would be incomplete without the mention of my family. Thanks Papa and Maa for trusting my capability and giving support all along. Thanks to my brother sudhanshu, for never ending encouragement and belief. I thank my relatives for being supportive all along.

Himanshu