ACKNOWLEDGEMENT

Working on the Ph.D. has been a wonderful and often overwhelming experience. It is hard to say whether it has been grappling with the topic itself which has been the real learning experience, or grappling with how to write papers and proposals, give talks, work in a group, stay up until the birds start singing, and stay focused.

In any case, I would not have been able to complete this journey without the aid and support of many different people over the past several years. I am indebted to these people for making the time working on my Ph.D. an unforgettable experience.

Thank God for the wisdom and perseverance that he has been bestowed upon me during this research, and indeed, throughout my life: "I can do everything through Him who gives me strength."

First and foremost, I would like to express my deepest sense of gratitude to my supervisor Dr. D.K. Upreti, Chief Scientist and Head, Lichenology Laboratory, Plant Biodiversity and Conservation Biology Division, CSIR-National Botanical Research Institute, for accepting to be my supervisor and for providing me continuous encouragement and support during my Ph.D. study and research. I will always be indebted to him for introducing me to the scientific community. I also thank him for his untiring guidance, invaluable advice, constructive criticism and scientific discussions throughout the period of this work. I could not have imagined having a better advisor and mentor for my Ph.D. study.

I am grateful to Prof. T.N. Dhole, Professor and Head, Department of Microbiology, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow for his invaluable guidance and support and for providing me the research facilities in his department. I will always be thankful for his encouragement, motivating discussions, indispensable suggestions and insightful comments both in my work and in this thesis.

I would also like to thank to Dr. C.S. Nautiyal, Director, CSIR-National Botanical Research Institute (CSIR), for providing necessary facilities to carry out my research work.
I express my sincere thanks to Dr. Sanjeeva Nayaka, Scientist, National Botanical Research Institute (CSIR), for his selfless involvement and support whenever I needed.

I would like to thank Dr. Jaswant Singh, Dr. R.M.L. Avadh University, Faizabad for providing me possible help and support.

I would like to thank Dr. K.N. Prasad, Professor, Department of Microbiology, for his valuable guidance.

I also owe thanks to my seniors Dr. Sanket Shukla, Dr. Aparna Shukla, Dr. Rishi Singh and Mrs. Bhavana Singh, SGPGI and senior residents from SGPGI Dr. Richa and Dr. Shakti and for their kind and timely help.

I would like to express my deepest thanks to Mr. Dinesh Tiwari, Senior technical officer from SGPGI, who was a great help and provided me with valuable technical guidance. Your technical excellence and tremendous grasp of experimental issues had a great impact on me. I would also like to thank the technical staff from SGPGI Mr. S.K. Singh, Mr. Vijay, Mr. Hemant, Mrs. Santwana, and Mr. Yadav for the technical and official support.

I owe my thanks to my seniors Dr. Rajesh Bajpai, Dr. Urvashi Dubey, Dr. Santosh Joshi, Dr. Shobha Rawat, Dr. Satya, Dr. Himanshu, Ms Roshni Khare, Satish Sir, Gaurav Sir from NBRI for their stimulating discussions and valuable advices.

I would also like to thanks my labmates Aparna Dwivedi, Preeti, Shagun from NBRI and Mr. Avinash, Nagendra, Asmita, Alouckik, Nivedita, Priya Dhole, Dharamveer and Swati from SGPGI, who provided me their company and help whenever needed.

I would like to thank my Mother-in-law Mrs. Geeta Bali Srivastava for always believing in me, for providing moral support in my tough times and for giving her continuous love and supports in my decisions. It was her love, care and patience which inspired me to carry on.

I would like to thank my parents Mr. Dinesh Chandra and Mrs. Meena, for giving birth to me at the first place, for instilling in me confidence and a drive for pursuing my Ph.D. and supporting me spiritually throughout my life.
I would like to thank my sister-in-law Dr. Akansha, my sister Khushbu and my brother Puneet for their infinite support throughout everything. A special word of thanks to my younger brother Akarsh in particular for helping me in computational ideas.

My greatest appreciation goes to my husband Dr. Apurva Srivastava, he was always a great support in all my struggles and frustrations in my new life. Cheers to him for being a great reliable person to whom I could always talk about my problems and excitements. Thanks for questioning me about my ideas, helping me think rationally and even for hearing my problems. He believed in me even when I didn’t believed in me. For that I am eternally grateful. Without his support, I could not have made it here. He made my dream come true. I am so fortunate to have a Husband like him.

In particular last but not the least, the patience and understanding shown by my dearest son Krrish and my daughter Aadya during my research period is greatly appreciated.

I would like to dedicate this thesis to the memory of my father-in-law Dr. Jagdish Kumar, who is a constant source of inspiration. I hope he would have been proud!

(Priya Srivastava)