ACKNOWLEDGEMENTS

The process of doing Ph.D. is a long and tedious one. Interaction and help from people surrounding me has made this long journey enjoyable and interesting. I would like to take this opportunity to thank all of them.

The first person who comes to my mind immediately is my Supervisor, Prof. Kasturi Datta. Her presence has always been a constant source of encouragement. She has always given me a free hand in carrying out my experiments, as result of which I have been able understand various aspects of doing research. It has been due to her that I have been able to get a fairly good exposure to all kinds of techniques used in cell and molecular biology today.

I would like to express my sincere and heartfelt gratitude to Dr. S. K. Goswami, my Co-supervisor. His guidance and contribution during tissue culture and subsequently the preparation of the write-up of this thesis has been invaluable.

I owe my sincere thanks to Prof. D.K. Banerjee, the present Dean and his predecessors, Prof. J. Subba Rao, Prof. V. Rajamani and Prof. P.S. Ramakrishnan for providing me the various facilities of School of Environmental Sciences (SES) for the past seven years. I would also like thank the present and past Deans of School of Life Sciences (SLS), FNU for letting me use the Central Instrumentation facility.

Dr. Sudha Bhattacharya (SES, FNU), Dr. D. P. Sarkar (Delhi University South Campus) and Dr. D. M. Salunke (National Institute of Immunology, New Delhi) deserve a special mention here. I am extremely grateful to them for not only allowing me to use facilities of their laboratories but also for guiding me from time to time. I am thankful to Dr. Ashok Khar and Mr. Mubarak Ali (CCMB, Hyderabad) for providing us all the required cell lines. I am grateful to Dr. K. Mutyappa (Indian Institute of Sciences, Bangalore) and Dr. Asboke Mukherjee (Institute of Pathology, New Delhi) for giving me permission to use the Confocal microscope facility in their respective laboratories. Here, I would like to thank Dr.
Sarala (Indian Institute of Sciences, Bangalore) and Dr. Saurabh Verma (Institute of Pathology, New Delhi) for sparing their precious time for capturing images of my samples on the Confocal microscope.

When one starts doing Ph.D., initial guidance regarding functioning of the laboratory essentially comes from the seniors. My heartfelt thanks are due, to Tushar, Mastan, Archana and Rajeev. They have been the people who have not only taught me how to work in a laboratory set up but also guided me in analyzing my data as and when required. While seniors taught me various techniques, juniors helped improve them. Here, Aniruddha and Mittu deserve a special mention. Aniruddha with his “Jaali” and interesting ways always made improvisation of existing protocols a pleasure. These moments will always remain treasured memories of my Ph.D. days. Mittu always shared with me new and precise protocols, reagents etc. that she discovered. Horadi though joined our lab in the later years of my Ph.D. her help in personal as well as professional matters has been invaluable. Jaideep has been good colleague and friend whose invaluable help (especially during the preparation of this manuscript) made it easier to deal with various problems. Jhaji, Anup, Sarad, Anupama, Vinod, Sonu Madam and Vivek also made it a pleasant experience to work in the lab. The picture of “Lab 103 SES” will be incomplete without Hari, Devi Singhji and Rawatji. Hari’s help in typing and maintaining papers was invaluable. Devi Singhji and Rawatji have been extremely nice and helpful in cleaning and maintaining the laboratory, without whose cooperation doing any work would have been almost impossible. Jui, Roshni, Kasturi, Mahua and Anamika, who came as summer trainees, need a special mention here for their help and association.

I am very grateful to Dr. Tyagi and Mr. Pandey of the Animal House who helped me in handling and maintaining animals used for experimental purpose.

I would like to express my heartfelt gratitude to Mr. R.N. Sabri (ESI) for making most of the photographs in this thesis and those sent for publications. In this connection, I would like to mention the help rendered by Vijay of Venus Studio, JNU for patiently developing my
scientific photographs. Mr. B. D. Sharma and Venkat also deserve special thanks for helping with scanning images and helping with other instruments in the Central Instrumentation facility of SES.

It is not only faculty and staff who always help. Ph.D. would be impossible, if interaction with students and research workers from other laboratories was not there. Indrani, Satisb and Paramita of “Lab 111, SES” have always helped me selflessly, for which I am very grateful. I am also thankful to all other members of this laboratory, namely DS, Suman, Jaishree madam, Azamji, Anindya, Rachna, Ranjana, Soma, Nivedita, Diya, Abbijeeet, Alka and Shweta. Ruchika & Siddharth of Delhi University South Campus, have given me invaluable help in fluorescence microscopy. Sindhu, Bindu, Manveen, Neelakantham, Gagan and Meenakshi of SES, JNU; Nidhi and Saurabh of Center for Biotechnology, JNU have also been very helpful.

Paramita, ‘Para’ as we call her, Ronnie, Bala, Urjit and Madhavan who have been my colleagues at JNU, have been a source of constant and supportive friendship. They have always been there whenever I needed them. Their friendship has made my stay at JNU a memorable one. Somdutta, Arindam, Shwaitank, Vaishali and Priyanka have been my friends since my M. Sc. days who have always been supportive. Mobantaaji and Saroiji cannot be forgotten for their timely and selfless help. Mobantaaji especially was there for always lending me his ears and guiding me when I was going through difficult times during my Ph.D. Though he is a geologist his open mindedness with respect to science always made me look at problems with a new angle.

Thanking or expressing my gratitude to my parents, Krishna and my music teacher (Patti mami) would belittle them. Without their constant encouragement, patience and driving force doing anything in life (leave alone Ph.D.) would have been impossible.
I am grateful to all my teachers right from School (Kendriya Vidyalaya, Sector-4, R. K. Puram, N. Delhi), B.Sc. (Sri Venkateswara College, Delhi University) and M. Sc. (Department of Botany, Delhi University) for making me whatever I am today. I am especially grateful to Mrs. R. R. Agnihotri, Saint Madam as we used call her (of Kendriya Vidyalaya, Sector 4, N. Delhi) who first recognized my potential and pulled me from the bottom the class to the top. She laid the foundation for my interest in Science and Research. Prof. R. C. Sacchbar and Prof. C. R. Babu of Botany Department, Delhi University, further strengthened this foundation. I shall forever remain indebted to them.

Last but not the least I would like thank JNU-UGC for providing scholarship which enabled me to do my Ph.D.

* Meenaksbi