ACKNOWLEDGEMENT

Working as a Ph.D. student in JNU was an enjoyable and challenging experience. It was just like climbing a high peak, step by step, accompanied with happiness, excitement, fun, hardship, frustration, encouragement and belief. Now, as I stand at the threshold of completing my doctoral work, I take this special moment to express my sincere appreciation and praise for those who have contributed substantially in making this thesis to take its present shape.

At the very onset, I would like to express my deep and sincere gratitude to my supervisor, Prof. Alok Bhattacharya. His wide knowledge and his logical way of thinking have been of great help for me. He showed me different ways to approach a research problem. I am thankful to him for his constant guidance and having faith in my abilities. His inspiring and encouraging way to guide me to a deeper understanding of knowledge work and his invaluable comments during the whole work with this project is highly appreciated.

I am very much grateful to Prof. Sudha Bhattacharya, School of Environmental Sciences, JNU for her detailed, constructive and insightful comments, and for her important laboratory support throughout this work. Her special care and affection for everyone associated with her has touched and inspired me. Sir and Mam have been very affectionate towards all the students as whenever Sir and Mam go to any destination, they always bring something for all the students in lab. Also their initiative in organizing lab trips for enjoyable refreshments for all of us is admirable. All the trips with Sir, Mam and labmates have been wonderful experience.

I am also thankful to Dr. S.S. Gourinath for his useful instructions and affability.

I wish to thank Prof. Dipankar Chatterji from IISc to allow me to use his mass spectrometry facility. I also thank Satish who carried out all the mass spectrometry experiments as well analysis.

A special thank to Jayshree mam’, the most approachable person in the School of Life Sciences. Her ubiquitousness, sympathetic helping, encouragement and advice are worth remembering.

I also thank the present Dean, Prof. Neera Bhalw Sarin, and all the previous deans for providing excellent facilities in the School. I also appreciate the help and support provided by the faculty members of the School of Life Sciences.

I would like to thank Prof. Vani Brahmi, she has been another source of inspiration for me. Her conceptual thinking and supportive nature are worth praising. I would like to thank Dr. Gauri Kapoor, as she is an example of indefatigably commendable dedication for work, anger or agitation never touched her even if she is upset or working round the clock for her patients.

I am indebted to my teachers, especially Dr. Urmi, Gagan Sir, Archana Mam and Sunita Mam for making me enthusiastic about the science and research.

I would like to acknowledge SLS office staff for their assistance. Special thanks to Meenu mam for her helpful, friendly and caring attitude.

I thank all the CIIF and CCIF members of SLS, especially Dr. Alexander, Dr. Sharma, Mr. Khan, Mr. Mishra, Mr. Rajinder and the staff of CIIF, SLS for their immense help and co-operation. I also thank, Balwant and Aslam for their cooperation.

I would like to thank Confocal facility of AIRF-JNU without which my publication could not be so impactful to be published in Nature Communication. I duly acknowledge Neetu di, Vahal and Charu di for working patiently with me.
I would also like to acknowledge Animal Facility of JNU. Pandey ji and Raju ji deserves special mention as they cooperated with me whenever I needed their help during my work.

Fellowship from CSIR is duly acknowledged.

I wish to thank to Dr. Swati Truari and Dr. Lakshmi for providing moral support and encouragement. I would like to specially mention Dr Varsha Sharma for being there, when things were not working, she was always there with a smiling face. She always encouraged me to accept challenges confidently.

I thank Jeewan, Manoj ji, Sataj ji and Sumer Singh ji for their technical assistance with a personal touch. I cannot even think of completing my Ph.D work with such ease without assistance from these people.

I would like to acknowledge our brain-storming weekly lab meeting which have helped in critical evaluation of our scientific work along with interaction. Also tea sessions with all labmates at gopalan were really enjoyable moments spent together.

Organizing Biospark with my batch mates Poppy and Ravi was a memorable event, with lots of fun and learning. I would specially like to thank Sir for his help in organizing Biospark 2008.

Spandan always comes like a relief from hectic labwork when all people in SLS come together and enjoy. Performing in Spandan with my friends for all five years were really memories to be cherished forever.

Foods at Library Canteen and Mamu canteen are greatly acknowledged. Mamu canteen deserves special thanks for serving me even at odd hours.

I would like to thank to my senior lab-mates Alka di, Prabhat da, Abhijeet da, Shweta di, Rekha di, Sunil, Gagan, Naren, Ruchi di, Shiteshu and Vijay without whose generous guidance, essential instructions and constant encouragement, during the initial phase of my Ph.D, this thesis would have been very difficult to pursue.

I cordially thank my present lab-mates in SLS and SES; Saima, Hafiz, Shahid, Jitender, Abhishek, Vandana, Ankita, Sandeep, Mridula, Arpita, Ravi, Nishant, Anil, Reena, Nirmal, Ashwani and Mrigya for cooperation, coordination and support. The enjoyable work ambience created in lab had diminished the tight lab work.

I am extremely fortunate to have worked with a wonderful team of colleagues. I am grateful to Naren as he taught me during my initial days in lab. Working with him was really a learning experience. He taught me to critically analyze data before going ahead. Learning with Naren has really given me faith in saying "slow and steady wins the race". His meticulous and perfectionist type of working has given me some good habits which were really helpful in my work, I am really thankful to him and wish him all the success in life.

Ruchi di’s optimistic attitude and enthusiasm for learning new things were really admirable. Thanks di for being there.

I would like to specially mention Shiteshu, my senior since M.Sc. All the constructive criticism by him was really helpful in analyzing my data. All the cat fights with him shall always be remembered. I wish him a very successful and bright future.

Talking with my juniors Shahid, Hafiz, Abhishek, Sandeep and Jitendra (SES) was real stress buster. They all made lab atmosphere good enough to make my hardships easier. I thank all of them for listening to me during my good and bad times.
Mridula deserves a special mention as she cooperated with me during last phase of my work and did much needed running around. She has been a wonderful friend and listener to me. I wish her a very bright future ahead.

I would like to thank Som (the lawyer), especially for all the food and jokes he cooked for me. All dinners given by Som were really enjoyable.

I would like to convey my heartfelt thanks to Jawaharlal Nehru University, for providing me the ideal environment to grow as a person. I wish to thank my friends Ranjana, Sudatta, Amrita, Tanaya, Srobonti, Anusree, Mithun and Smita for the love and care they have given me. The fun time spent in Room No. 40 of Ganga Hostel will be cherished throughout life. I am especially grateful to Sudatta for giving me much needed company to get up at five in the morning so that I could learn swimming. Dinners in Room 40 were really happy time.

Swadhin, Deepak, Naren, Ranjana, Monika, Ekta, Swati, Rishma, Poppy, and Ashima have made my initial JNU days filled with so much fun.

I would like to thank all of my seniors in JNU: Siddharth Sir, Ansuman Sir, Gopal Bhai, Ajaya Bhai, Nandini di, Rana Sir, Himanshu Sir, Ritu di, Versha di, Sailesh Sir, Manoj Sir, Ravi Sir, Rahul Sir, Sudhanshu Sir, Sanghu di, Divendu Sir, Prasad Sir, Sushma di, Manju di, Shivesh, Gokul, Goutam Sir, Ganesh Sir, Mahender ji for their socialization with me, together experiencing the life in the School of Life Sciences.

My friends from AIIMS are very special to me. I wish to thank Meenakshi, Dr. Manish and Akhilesh for their friendship and support especially during my hard times. I explored all eating places in and around JNU with them only and it was a very good time spent with them. I wish them all the success in life.

The summer project and M.Sc. students have taught me a lot of things like, “to be patient”. Working with them and for them had always been a learning experience. I thank Chang, Gautam, Rohit, Kriti, Laxmi, Mahua, Isha and wish them a bright future.

I would like to give special mention to Sandhya my friend from ACBR. She has been a great friend all these years. She has always listened to me with great patience and also given useful suggestions at times. We shared lots of good and bad things all these years. I wish God bless her with very successful future.

I would like to thank my friends from my undergraduate years in ANDC College, Sreeja, Anu, Meenakshi, Karan, Varun, Varun (motu), Rajeev, Sapna, Padma, Tanusree and Vineet. I cherish all our memories of biomedical Sciences and hope that we will be able to stay in touch despite the large distances between us.

Words are certainly incapable and expressionless in expressing my indebtedness to my parents, I am grateful to my parents for their love and understanding that has encouraged me to pursue my Ph.D. research. Their firm and kind hearted personality has affected me to be steadfast and never bend to any difficulty. They always let me know that they are proud of me, which motivates me to work harder and do my best. Mom, you are always there when I need you and fulfill my every wish. Rashmi, thanks for being such a wonderful, supportive and caring sister. Your presence in my life makes me feel special. My little cousins Swati, Nishant, Vicky, Charu, Richa, Chand, Juhi, Sagar, Chintu, Shivani, Shilpa, Priya, Gudiyaa, Tushaar, Jatin, Paras, Neha have always given me love and affection. I feel fortunate enough to be born and brought up in a happy family of mutual love and affection. Every bit of my success I owed it to them.

Somlata