

Preface

The saying goes like this “If you dream for something, the whole world will conspire to make it happen”. The proverb exactly corroborates the journey of my research. During the tenure of my research, several people of different hierarchy have contributed in shaping the thesis, which needs to be mentioned and acknowledged.

I joined the Molecular Genetics Laboratory, Department of Botany, University of North Bengal in the spring of 2008 and got enrolled as a Ph.D. student under the supervision of Dr. Arnab Sen, Professor, Department of Botany, University of North Bengal. His excellent guidance with an oasis of exceptional research ideas inspired and motivated me to perform better throughout my research. This thesis would not have been complete without his financial assistance and valuable input. I sincerely express my deep gratitude and thank him.

I am deeply indebted to Dr. Louis Tisa, Professor of Microbiology & Genetics, University of New Hampshire, Durham whose collaboration helped me in achieving a major milestone in my

research. The whole genome sequencing would not have been possible without him

My special thanks to Prof. B. N. Chakraborty for being kind enough to lend me his laboratory for a piece of work and to Prof. A. P. Das, Department of Botany, University of North Bengal, for guiding me in the taxonomical part.

I am thankful to the Head of the Department, including all the teachers and staff of the Department of Botany for their unequivocal support throughout.

I acknowledge my colleague and friend Mrs Tamnayee Mishra, my junior fellow researchers Shri Manas Ranjan Saha, Shri Ayan Roy, Shri Arnab Chakraborty, Mrs Mousami Saha, Miss Sanghati Bhattacharya, Mrs. Saroja Chhetri for creating a healthy working environment and making the journey of my research refreshing and worth cherishing. Special thanks to Indrani Sarkar, Pallab Kar and Reha Labar for rendering the utmost help when I was in need. My heartfelt thanks to Dr.

Bharat Chandra Basistha, Dr. Debadin Bose, Dr. Malay Bhattacharya, Dr. Arvind Kumar Goyal and Dr. Subarna Thakur for their useful suggestions at different level of my research. It will be unfair if I don't acknowledge Shri Krishanu Ghosh, Hirupam Ghosh, Data operator, BIF facility and Shri Basudev Singha our lab-attendant for their wholehearted help.

I would like to take this opportunity to express my sincere thanks to my dear friend Dr Saubashya Sur for his continuous concern and encouragement in completing my thesis.

Special acknowledgement to Dr. Kiran Sunar, who guided and helped selflessly in some part of my work.

I am very much indebted to my friends Swapna, Rajni, Kenji, Srijana, Anu, Stutee, Suvu, Srishti for their concern and support when required.

My sincere acknowledgement to the Head Master of my school Shri. Saphal Thapa who has been kind enough to grant me leave whenever in need. I also thank my colleagues Mrs. Arati Mukhia, Bidhya Sharma, Indira Thapa, Monisha Hingmang, Satyata Pradhan, Suvarna Rana, Punam Sir and other staff members for their cooperation especially in the last phase of my thesis

submission.

No achievements can be accomplished without the support of family. Here, I would like to owe my deepest gratitude, love and respect to my parents, my father Shri Mani Kumar Rai and mother Smt Meena Rai whose constant motivation and encouragement has been a guiding force for me. A mere thanks will not be enough for whatever they have done for me.

I am very much indebted to my father in law Shri Pratishodh Bantawa and mother in law Smt Ratna Rai, youngest uncle in law Shri Sushil Bantawa and aunt in law Smt. Lila Rai for their constant love and encouragement.

The support of my brother Riwaz and sister in law Pritisha has truly helped me a lot. My sister in laws Srijana and Punya has always been more than my sister helping in every way possible. Here, I have to mention the contribution of my aunt in law 'Maili phupu' who stays with us and looks after every nooks and corners of our life without whose sacrifices I could not have come to this point of my life.

During the journey of my research, the one person who has stood by me throughout is my man, my better half

Dr Pranay Bantawa. He motivated and guided me in every way possible, sharing all my responsibility with equal ease, so that I could achieve my goal. I would not have come to this verge of completion had he not been with me. The entire credit goes to him and his sacrifices and I owe my success to him.

I would like to thank my little bundle of joy, my son Master Suryansh Bantawa. This has been a very tough phase of my life as being a working mother and simultaneously pursuing the research work was a herculean task for me. But he made it all easy. At this tiny age, he has been so understanding throughout. Every fatigueness used to fade away as I returned home by just having a glance of him. A sense of guilt was always there for not being able to spend time with him but in a deeper sense he was the actual source of strength for me throughout pushing

me till the threshold level to attain my goal as soon as possible, to be with him. Finally, the day has come.

Last, but not the least, my Almighty Shri, Satpalji Maharaj, my spiritual guru has always been with me deep inside. The tenacity with which I could work was due to my firm belief on him. His practical preachings has helped me to be strong enough to face every challenges and be consistent in my work no matter what. Thank you Maharajji for everything.

Lastly, I am grateful to many other persons who has helped me in some way or the other, but whose names has not been figured out here for their help and support in successfully completing my thesis.

Ritu Rai
[Ritu Rai]