ACKNOWLEDGEMENTS

Firstly I bow my head before the “Almighty Allah” omnipotent creator and sustainer who overwhelmed me with indefinite blessings of strength, courage and confidence and whose benign benediction gave me enough zeal to complete this work successfully.

Undertaking this Ph.D at Aligarh Muslim University, Aligarh has been a truly life-changing experience for me and it would not have been possible to do so without the support and guidance that I received from many people. I would take great delight to express my sincere gratitude to all those who encouraged me to make this cherished dream comes true.

My first debt of heartfelt regards and sincere gratitude goes to my supervisor, Professor Mohammad Anis, former Chairman, Department of Botany, AMU. His persistent nature, keen interest in problem solving, valuable counselling, constructive criticism, forbearance of my mistakes and shortcomings, inspiration, and his great efforts to explain things clearly and simply has made this study indeed a rewarding experience. His critical attitude of conducting the investigations with deep precision will always remain a source of inspiration for me throughout my life. The intellect he shared with me is a treasure worthy of a lifetime. Thank you sir, for your timely and valuable suggestions, guidance and inspiring efforts that has graciously lavished to shape up this piece of work inspite of your busy schedule.

With profound respect, I would like to express my gratitude to Dr. Anwar Shahzad (Assistant professor), Department of Botany, AMU, for his advice, motivation, constructive feedback and suggestions throughout my work.

I would like to say a very big thank you to Professor Firoz Mohammad, Chairman, Department of Botany and Prof. Arif Inam, former Chairman,
Department of Botany, for providing necessary infrastructure, facilities and resources during this research work.

Words fail to express my deep sense of gratitude to Dr. Ankita Varshney (Young Scientist, DST-Fast Track) for her valuable advice in discussion, supervision of thesis and furthermore, using her precious times to read this thesis and give her critical comments about it.

I am also extremely indebted to my lab seniors Ms. Afshan Naaz, Dr. Naseem Ahmad, Dr. Iram Siddique, Dr. Anushi Arjumend Jahan, Dr. Sahina Parveen, Dr. Nigar Fatima, Dr. Shiwali Sharma, Dr. Ruphi Naz and Dr. Shahnaz Perveen for the cooperative environment which they have provided and shared their experiences about the problem issues during the research tenure and buttressing me to perform my work comfortably. Their valuable advice, warm support and inspiring attitude always kept things light and made me smiling in a stimulating and fun-filled atmosphere.

The acknowledgement will never be complete without the special thanks of my lab colleagues specially, Md. Imran Khan, Saad Bin Javed, Taiba Saeed, Arjumend Shaheen, Afsheen Shahid, Anamica Upadhyay, Rakshanda, Naushad Alam, Anees Ahmad, Shiekh Altaf Hussain, Vikas Yadav, Zeeshan Ahmad. Their invaluable friendly assistance during the lab work and beyond has meant more to me than I could ever express.

My dear friends (Altuf, Kh. Burhanuddin, Abdul Kadir, SM Khan, Rahamatullah, Irfan, Azad Alam and Rami Khan) mention here deserves special thanks for their constant support, motivation, help and lifting me during this uphill phase of life.

I convey my special thanks to fellows Dr. S. Arif Wali, Dr. Shashi Bhushan and Mr. Shyam Sundar Sharma (SRF-CSIR) from TERI, New Delhi, India and Dr. Veena Aggarwal (Professor, Delhi University) and Ms. Monika
Heikrujam (SRF-CSIR) for their indispensable help dealing with work on genetic fidelity of TC-raised plants during the research period.

I wish to acknowledge Mr. Yogendra Kumar for his mastery photography.

I take this opportunity to sincerely acknowledge the financial assistance from UGC in the form of Project Fellow in a major research project and award of JRF and SRF from MANF/UGC, Government of India which buttressed me to perform my work comfortably.

I have been blessed with a very loving and supportive family; none of this could have been possible without them. My deepest gratitude goes to my loving father (Haji Md. Abdul Rauf Shah) and mother (Hajibi Nazima) for their faith in me and encouraging me in all my pursuits. I shall forever be thankful to my brothers (Dr. M. Farooque Ahmed and Mr. M. Zulfiquar Ali), my sisters (Mrs. Nasirun and Mrs. Shahida) and bhabi (Mrs. Saheli and Mrs. Sultana) for their care, inexorable love and prayer for me. I owe everything to them.

Furthermore, I take this opportunity to express thank everybody who have been important for helping me in the completion of the work.

[RAhmed
(Md Rafique Ahmed)