ACKNOWLEDGEMENTS

First of all I bow my head in reverence to the Almighty Allah, the most omnipotent, omnipresent, benevolent and merciful for having blessed with the strength and courage to accomplish this task.

Indeed the words to my command are not adequate either in form or in spirit to convey my depth of feelings of gratitude to my supervisor's Prof. M.P. Sharma, Department of Botany, Jamia Hamdard, New Delhi and Dr. Vipin Hallan, Scientist E II, Floriculture division, Institute of Himalayan Bioresource Technology (IHBT, CSIR), Palampur for suggesting the problem, valuable guidance, incessant encouragement, constructive criticism, expedient advise and affection during the course of study and preparation of this manuscript.

I take deep pleasure in acknowledging late Dr. A.A. Zaidi, Head, Floriculture Division Institute of Himalayan Bioresource Technology (IHBT, CSIR) Palampur for his excellent guidance and for having made available all the facilities during the course of my study. With the help of his guidance, good wishes and blessings I stand today here where I espied to be. May Allah bless his soul!

I express my deep sense of gratitude with highest veneration to Dr. P.S Ahuja Honorable Director IHBT Palampur for giving me the opportunity to work in such a prestigious institute of India.

Words are not enough to thank and express my gratitude towards Dr. Raja Ram Verma whose timely help, support and immensely valuable suggestions help me a lot in the accomplishment of the daunting task.

I deem it a privilege to express my gratitude to all the faculty members of my department, especially my teachers, Prof. Muhammad Iqbal, Prof. Javed Ahmad, Dr. T.O. Siddiqi, Dr. Mahmooduzzafar, Dr. Shahid Umer, Dr. Abdul Mujeeb and Dr. Altaf Ahmad for their much needed support and help all through my stay in the department.

My hearty thanks to technical staff and lab attendants including Mr. Imran, Mr. Zakir, Mr. Idrees, Mr. Abdul Kareem, Mr. Wahid, Mr. Saleem, Mr. Noor Muhammad for their helpful and cooperative attitude during the period of work.

I am very much thankful to Sh. Mukhtiar Singh and Prashanta Kumar Behera, IHBT Library, Mrs. Fatima and Mr. Shameem, Science Faculty Library, Jamia Hamdard for providing me library facilities during the preparation of the manuscript of the present thesis work.

Thanks are due to Dr. Vinayak S. Madnalwar, Mr. Mahesh S, and Mr. Digvijay Singh Naruka for expert technical assistances in raising antisera and sequencing.
I am thankful to all scientific, technical and administrative staff of IHBT for their encouraging attitude and academic support during my research work.

I acknowledge with cordial thanks for the help and cooperation of Mr. Jagdeep, Mr. Ranjeet, Mr. Munshi and Mr. Karam Chand.

It is not possible to express my gratitude to my Lab mates Sunny, Yashika, Rahul, Anuradha, Puja, Reenu, Arpna, Prachi, Surendra, Aaditya and Vijya Laxmi in few words. It is their love, encouragements, moral support and hard work that improve the quality of this work and made this tough task easier for me.

The special thanks to my dear friends Zahid, Khalid, Pravez, Prabhaker, Gurjeet, Samar, Mansoor, Zahid Bhai, Sumit, Imran, Faheema, Mobeen, Mahboob, Ather, Khurshid, Shadab, Firoz, Qayoom, Sadig, Asfaq, Ruqaya, Seema, Talat, Riyaz, Tariq, Shoket, Anand and Shakoor for always believing in me and encouraging me, also for sharing their unconditional friendship and time throughout my studies.

I am also thankful to my seniors especially Dr. Nasir, Dr. Arshi, Dr. Kafeel, Dr. Shakeel, Dr. Irshrat, Dr. Mather, Dr. Saleem, Dr. Tyagi, Dr. Lakhrim, Dr. Tanuja, Dr. Vania, Dr. Yogesh, D. Illah, Dr. Badar, Dr. Mukhtar, Dr. Junaid, Dr. Zohra and Dr. Musharoof for their scientific thoughts and encouragements time to time.

The strength behind me during the course of this project has been my beloved Nani, Late Nana, Ammi, Abba, Khaala, Khaalu, beloved Sisters and Brothers, dear Bajee and Dulha Bhai, my wife, in laws and my all family members.

I am very much thankful to FSC, DBT and UGC (MANF) for financial support during my research work.

Last but not least, I wish to offer my thanks to all those names which could not be included but will always be fondly remembered.

Md Salik Noorani Khan