Acknowledgments

I sincerely acknowledge my heartfelt gratitude to former director Dr.B.N.Singh, and Dr.S.G.Sharma, present Director of CRRI for giving me this privilege to carry out my research work in this premier research institute of international repute.

It's my immense pleasure to express my sincere and deep gratitude to former Head of the Crop Improvement Division, Dr.S.N.Ratho, and Dr.G.J.N.Rao, present Head of Crop Improvement Division for providing Laboratory as well as field facilities to carry out my research work.

I am extremely grateful to my guide Dr. G.J.N.Rao, the highly revered, respected, dedicated Principal Scientist and Head of Crop Improvement Division, CRRI. My diction falls short off to express my ardent reverence, obligation and deepest sense of gratitude for his elegant style of guidance, prudent advises, constant encouragement, constructive criticism and inexhaustible help during the entire period of my investigation and preparation of this manuscript.

I am deeply obliged and immensely indebted to Prof. K.Veluthambi, Head of school of Plant Biotechnology, Madurai Kamaraj University, Madurai, for his kind permission to use various Agrobacterial strains and do sub cloning of proteinase inhibitor gene, used in my thesis work.

It's my immense pleasure to express my sincere and deep gratitude to Dr. Swapan Kumar Datta, presently the Professor in Botany, University of Calcutta, formerly Plant Biotechnologist at Division of Plant Breeding, genetics and Biochemistry, International Rice Research Institute, for his help to carry out molecular analysis of transgenic materials and encouragement.

It is my proud privilege to express my heartfelt greatfulness to Dr.K.S.Behra, Principal Scientist in the Department of Entomology, Central Rice Research Institute for his help during the bioassay analysis and encouragement.

I am thankful to all the scientist of Crop Improvement Division for their affectionate dealings, help and cooperation throughout my dissertation work studies in the department.

I do express my gratitude to Swain babu and Manima for their valuable technical assistance help during this dissertation work.

The scholarship assistance of Rockefeller foundation, USA, Indian Council for Agricultural Research India, and International Rice Research Institute, Philippines during the study of this dissertation work was greatly acknowledged.

I render my heartiest appreciation for Dr. Niranjan Baisakh bhai (my senior) and all the members of my laboratory, friends Rajshekar, Jagadeesh, Kishore, Prasad, Ravi Kiran, Tej Kumar, Arindam, Nalin, Dali, Sirisha,Debasis without whose goodwill's, constant encouragement, help and cooperation during my dissertation work.

Supreme blessings and eternal benedictions of my parents and tender love and affection of my sister, brothers and sister-in-laws have enabled me to achieve success not only in completing my thesis work but also in all arenas of my life. Their timely solace has built in me a divine strength.

(Variketa Ramana Rao Mangu)