ACKNOWLEDGEMENTS

I am forever thankful to the almighty for the blessings he has showered upon me throughout my life, for it is to him that I owe all my happiness today.

This thesis grew out of a series of dialogues with my supervisor Dr. P. S. Ahuja, Director, ICAR-CSTR. His ideas and tremendous support had a major influence on this thesis. His persistent nature, keen interest in problem solving, scientific temperament and focused vision, constructive criticism, forbearance of my mistakes and shortcomings has made this study indeed a rewarding experience. The intellect he shared with me is a treasure worthy of a lifetime.

With profound respect, I would like to thank Dr. Y. Sreenivasulu, Dr. Sanjay Kumar for guiding me through the thesis and for the valuable discussions we had on development and the analysis of transgenics which helped in bringing the thesis to its present form. My thanks to Dr. Vats and Dr. R. D. Singh for their valuable help in the photosynthesis experiments and data analysis respectively. Thanks are also due to Dr. Madha Sharma for persevering through the review of literature.

I would like to take this opportunity to extend my thanks to Dr. Anil Sood, Head Biotech Division, ICAR for providing me adequate facilities to carry out my work here. Thanks are also due to Dr. Venkat T. Reddy and Dr. Paratap Kumar Pati for their guidance on issues which perplexed me during the course of my work. My thanks to my friends and colleagues for the great time I had in our group. I enjoyed the atmosphere, their friendship and support. My thanks to Priyanka, Naveen, Rupali, Devinder, Kiran, Brajesh, Usha, Karan, Himanshu, Prabhakar, Neha, Bindu, Anita, Akshay, Sunil, Bishwinder, Shikha, Anila, Amina and to all the trainees who worked with me during the course of my Ph.D. I would also like to thank Dr. Apasana, for her affection.

I would also like to thank Sanjay Chandra for his valuable help with the histology and microscopy. I am thankful to Mrs. Priti Sanyal for the help in photography of my results. I am also thankful to the help provided to me during the lab work especially to Mr. M. Manoj. I am thankful to Mr. Mukhtiar Singh, librarian, for bringing this thesis to its present shape. The help provided by library and administrative staff is duly acknowledged. This thesis has partly been supported by the DBT project The CSTR SRFship is gratefully acknowledged.

Finally, I am forever indebted to my parents for their undemanding love and for raising me to the person that I am today. I also want to thank my sister Beepal, brother Man Mohan Pratap, brother in law Dr. Kanwal and my sisters in law Dr. Balsi & KamalRoop for their understanding, endless patience and encouragement when it was most required and to my neighbour Sanches and nieces Purna, Kulnaz and Kabhinaz who brought joy and colour to my life. Also I want to thank Amiji for the elderly affection and for the unseen presence and blessings of my mother in law Late Mrs. Suvinder Ahuja.

Words can never express my feelings towards my husband, Jassinder, who has been my strength throughout.