ACNOWLEDGEMENTS

It is my great privilege to express my sincere gratitude to erudite and revered guide Prof. R.K. Kohli, Department of Botany, Panjab University, Chandigarh for providing me the opportunity to work under his kind supervision. His immaculate guidance, variable suggestions, constructive criticism, outstanding knowledge of the subject, enthusiasm, ever helping nature and sparing time for me out of his extremely busy schedule at times even odd hours enabled me to complete this investigation.

I feel lacking in words to express my profound sense of obeisance to my guide Dr. D.R. Batish, Reader, Department of Botany, Panjab University, Chandigarh. She was always available with inviting smile to guide me through many pitfalls in the field of research. Her judicial and valuable guidance, encouraging attitude, keen interest, constructive criticism, caring affections and dedication during the course of investigation was commendable. I owe to her for her deep involvement.

I am, further, deeply indebted to my guide Dr. D.B. Sexana, Principal Scientist, Division of Agricultural Chemicals, Indian Agricultural Research Institute (IARI), New Delhi, for providing me necessary help and showing the right direction for achieving the objectives of the research.

I am extremely obliged to Prof. M.L. Sharma, Chairman, Department of Botany, Panjab University, Chandigarh for providing me all the necessary research facilities.

It is my pleasure to acknowledge thanks to Dr. Harminder Pal Singh, Lecturer, Academic Staff College, Panjab University, Chandigarh for his kind help, warm support, useful suggestions and constructive criticism, which he has extended always to me with alacrity during the course of investigation.

My special word of thanks to Dr. R.P. Yadav, Senior Scientist, Mr. A.K. Nittan, Technical Assistant and Mr. Rakesh, Lab Attendant Central Soil and Water Conservation Research and Training Institute of ICAR, Chandigarh for providing facilities for analysis of soil samples.

There are not appropriate words to express all appreciations and feelings towards friends, especially Param, Nidhi, Kavita, Lavanya, Gurpreet, Shikha, Charanjit, Reeta, Archana, Najmu and well wishers whose never ending and constant encouragement and help have supported me all along these years. Help rendered by Kulbir Pathania is thankfully acknowledged for typing this manuscript for little discrepancies.

Of all, I owe immensely to my worthy parents who have always a pillar of strength and source of constant affection and inspiration throughout my academic pursuits. I am also grateful to my loving brother, Jaipal and sisters for their cheerful and ever willing help that kept my moral high. No words can ever express my heartfelt feelings towards them.

Last but not the least, the words at my command are inadequate to express my indebtedness to my in-laws, especially my fiancée Hardeep, for their affectionate blessings and caring ways.

JASVIR KAUR PANDHER