ACKNOWLEDGEMENT

I express my heartfelt and deep sense of gratitude to Dr. B.K. Sarma, Emeritus Scientist (ICAR), Division of Plant Breeding, ICAR Research Complex for NEH Region, Umiam, Meghalaya for his constant guidance, valuable suggestion, constructive criticism, critical reading of the manuscript and untiring help throughout the course of my investigation.

I am also deeply indebted and grateful to Dr. C.M. Sarma, Professor and Head (Retd.), Department of Botany, Gauhati University, Guwahati, Assam for his valuable guidance, sustained interest and regular encouragement during the course of research work.

It gives me an immense pleasure to avail this unique opportunity to express my deep sense of gratitude to Dr. K.M. Bujbarua, Director, ICAR Research Complex for NEH Region, Umiam, Meghalaya for granting permission to carryout the present research work and providing necessary field and laboratory facilities without which it would have not been possible to pursue this investigation.

I convey the sincere feeling of gratitude to the Head, Department of Botany, Gauhati University, Guwahati for providing me necessary laboratory facilities to complete the present research work.

I am highly thankful to Dr. A. Pattanayak, Dr. J. Mitra, Dr. S. Gupta and Dr. A. Annadurai for their help, critical comments and valuable suggestion during the course of investigation.

My heartfelt thanks must go to Sh. H. Ahmad and Sh. Sikandar Singh, Technical Assistant of the Plant Breeding Division for their help in the field works and the help rendered by other staff members of the Plant Breeding division in conducting field and laboratory work are also acknowledged.

My grateful thanks are also due to my dear cronies Ratnakar, Vandana, Pankaj, Hrishikesh and Malini for their valuable assistance in field and laboratory works.

I express my sincere thanks to my elder brother Sh. Arvind, sister in law Smt. Puspa, younger brother Dharmendra, younger sister Smt. Anita and brother in law Sh. Mani Bhushan for their constant help and encouragement whenever I needed. I would never forget to acknowledge my dearest nephew Master Utkarsh who constantly gave his help during my investigation.

I wish to record my sincere appreciation and special thanks to Dr. D. Kumar and Smt. Neelam Kumar for their sincere help, encouragement, constructive and critical comments during my course of investigation.

Sincere and heartiest thanks are also due to Smt. Tapati Pattanayak for her encouragement and motivation in every steps of the investigation who inspired me to complete my work so early.

No words are sufficient to express my gratitude to my parents for their constant inspiration, support and encouragement during the course of investigation.

Last but not the least, I express my heartfelt sincere thanks to my wife Sabita and my son Sajag for their constant support and patience that helped me to complete my investigation.

Janak Kumar Singh