ACKNOWLEDGEMENT

It has been a great moment to place on record the sense of gratitude and support from bottom of my heart towards my Research Guide Dr. (Mrs.) Shubhada Thengane, Plant Tissue Culture Division, National Chemical Laboratory, Pune. Her crystal clear guidance, decision making power, enthusiasm and support for any inventive and quality work made this task easy and enjoyable. She didn’t leave any stone unturned for this work to be completed.

My sincere thanks Dr. Puran Singh Rawat (DARL, Pithoragarh) and Dr. Narendra Kumar (Directorate of Life Sciences, DRDO, Delhi for encouraging me to initiate this work and constant support and motivation. I am thankful to Dr. Sivaram, Director and Dr. B.D. Kulkarni Dy. Director NCL, Pune for permitting me to register and perform the part of work here with world-class facilities.

I am thankful to Dr. B. M. Khan (Head, PTC Div. NCL) and Dr. S. K. Rawal (Former Head, PTC Div.) for their timely help and guidance. Guidance and academic support by Prof. Dr. R. J. Thangane is also thankfully acknowledged hereby.

It's a time to offer gratitude to Late Dr. S. G. Patil, Dr. S. L. Shinde, Dr. B. C. Behera (ARI, Pune) for their valuable suggestions, untired efforts and standing by me in every task and situation. I am also thankful to Dr. D. K. Kulkarni and Mrs. V.A. Parashrami for their timely support.

It has been an appropriate time to thank all my colleagues and lab mates in DARL, Shree Gaurishankar Verma, Shree Deendayal Thakur, Dr. Hemantkumar Pandey, Govind, Deepak and others who made my stay one of the most memorable and very admirable event in my life. I would like to place on record help and cooperation for DNA extraction facility by Dr. S. M. Gupta, DIBER, Haldwani and Dr. S. L. Laware, Head Dept. of Biotechnology, Fergusson College, Pune.
I am very much thankful to Dr. Ravindra Patil, ARI and Dr. M. V. Kulkarni (University of Pune) for checking my thesis and help during the delicate phase of life and research. Valuable suggestion over thesis and support by them is also acknowledged.

I would like specially thanks to my dear friends Mahesh, Girish, Raju, Bhuban, Rakesh, Vrushali, Dr. Nitasha, Dr. Kiran and Bharti for their restless efforts to come to a proper end during the work. Help and support from my colleagues Swapna, Varsha, Shweta, Reeta, Kanchan is hereby also acknowledged. My sincere thanks to Dr. M. M. Jana, Dr. D. C. Agrawal, Mr. A. B. Dhage, Mr. R Suryaprasad and all the staff of Plant Tissue Culture Division.

It is difficult to imagine writing a thesis without the full support and understanding of the family. I express my heartfelt gratitude to my parents Mr. N.A Pinjari and Mrs. Raziya Pinjari and in laws Mr. B.S. Yadav and Mrs. Mithilesh Yadav for their constant support and encouragement.

I express my warmest feelings for the understanding, courage, patience and for believing by my wife Nutan during completion of my thesis without which it would have been a dream only.

Finally, I thank all my teachers, friends and well wishers, whose names may not have mentioned here, but whose good wishes and support have enabled me to complete this work.