ACKNOWLEDGEMENT

"सोहें ह्रंश वरे भेन बोधिहे"  

The above verse from Guru Granth Sahib Ji signifies the glory of God by stating that only God is the one who has the power to convert worthless into worthy. It is the faith and belief that has helped me overcome every obstacle that life has brought in front of me. Before I commence my acknowledgements, I would like to bow my head in the feet of God Almighty and thank Him for making this chapter of my life exceptionally memorable, exciting and blessed. The vocabulary will fall short of words if I had to express my gratitude towards God, but still I would take privilege to state “Thank you God for Everything.”

An ostentatious use of words would not be sufficient to express my immense sense of gratitude and indebtedness to my honored teacher and supervisor Prof. (Dr.) Neelam Verma, Professor, Department of Biotechnology, Punjabi University, Patiala, who has the attitude and the substance of a genius. She continually and convincingly conveyed a spirit of adventure in regard to research and an enthusiasm in regard to teaching. I solemnly feel that without her expert supervision, perceptive guidance, keen personal interest and priceless suggestions, I could not have completed this research project. Her clarity of vision, kind co-operation and constant encouragement inspired me work more meticulously and proficiently.

I'm equally grateful to my Co-Supervisor, Dr. Kuldeep Kumar, Department of Biotechnology, Multani Mal Modi College, Patiala, for his learned guidance, persistent help, constructive criticism and most importantly moral support during various phases of the study. His innovative ideas and necessary advices enabled me to put in more hard work and complete my work to the best of my ability.
My special thanks to Prof. Parveen P Balgir and Dr. R. S. Singh who headed the department during the tenure of my work and for helping me from time to time with laboratory facilities.

I owe my thankfulness to all the respected teachers of my department for their genuine support and appreciation throughout this work.

Sincere friends are needed at all junctures in life for bearing tension and exhaustion optimistically and gladly. I owe a special word of love and gratitude towards my friends Dr. Kuldeep Kumar, Deepak Kapoor, Deepika Sharma, Mansimran Kaur and many others for their moral support, pliant ideas and spontaneous co-operation for the betterment of my work.

My heartfelt thanks are due to Dr. Puneet Kumar and Dr. Namita Jindal for their never ending help and moral boost up throughout the completion of my work.

All my labmates are entitled to my deepest sense of appreciation for their timely support. Thank you so much Sachin, Hardeep, Neetu, Namita, Jyoti, Monika, Ashish, Gagandeep and Navpreet for your kind help.

I would like to extend my thanks to all the non-teaching and laboratory staff for their active cooperation and untiring help provided to me.

No words acknowledge the selfless sacrifices, uninterrupted and ever encouraging support I have received from my family. The most special indebtedness goes to my parents who made me what I am and always lifted my spirits and boosted my morale every time I felt low. They have taught me that success is the product of hard work, devotion, learning from failure, diligence and precision. I would like to mention that without the incessant love, steady support and numerous blessings bestowed upon me by my family members, it would have been really hard for me to complete my work.
I would also take the opportunity to mention here the requisite strength, warmth and care I got from my wife Swati during the completion of the research.

I can’t conclude my acknowledgment without expressing my heartfelt thanks to Sunil Verma for bringing this manuscript in its actual form.

All may not be mentioned here but none is forgotten.

(Mandeep Kataria)