BISMILLAH-IR-RAHMAN-IR-RAHEEM

Allah is the Light of the heavens and the earth. The parable of His Light is as if there were a Niche And within it a Lamp: The Lamp enclosed in glass; The glass as it were a brilliant star: Lit from a blessed tree, an Olive, Neither of the East nor of the West, Whose oil is well-nigh luminous, Though fire scarce touched it: Light upon Light! Allah do guide whom He will to His light: Allah do set forth parables for men: And Allah do know all things. (Lit is such a light) in houses,Which Allah have permitted to be raised to honour; For the celebration, in them, of his name: In them is He glorified in the mornings And in the evenings, (again and again). (Surah 24 Al Nur Verse 35 & 36)

With the Glorious Name of Allah S.W.T., the Ultimate Source of Instant Beneficence and Eternal mercy Who encompasses the entire Universe, nourishing and taking care of all things for what they are meant to be, just as a Mother's womb nourishes the embryo to completion without any returns. My head bows in humble gratitude towards Allah S.W.T, Cherisher, lord of the universe and all that exists, for guiding us to conceptualise, develop and complete the programme. Prayers and peace be upon His Prophet Mohammed (PBUH), the last messenger for all humankind.

I acknowledge appreciation, the inspiration, encouragement, cooperation, valuable time and guidance given to me by my Supervisor Dr. Mahmooduzzafar. I feel short of words to express my profound gratitude and personal regards for him. I want to thank him for all the hope he has put on me.

Thereafter, I am deeply indebted and grateful to Prof. Azra N Kamili my Co-Supervisor for her understanding, encouragement, and invaluable help in collecting, compiling, revising and giving final touch to this work. I take deep pleasure I acknowledging for her immense support throughout my research work. It is because of her inquisitive attitude that I find my vision even more broadened. Her dynamic innovative nature, constant support, encouragement and behavior helped me I completing this volume.
I wish to express my warm and sincere thanks to Dr. A Mujib my Co-Supervisor for his constant encouragement, overwhelming suggestions, invaluable guidance, keen interest and pleasure discussion throughout the study.

I wish to express my deep gratitude to all my teachers Prof. Mohammadm Iqbal, Prof. Javed Ahmad, Prof. M.P Sharma, Dr. T.O Siddiqi, Dr. Shahid Umar, Dr. Altaf Ahmed and Dr. Uppendera Dhar. I am highly thankful to all of them for their support.

I am truly grateful to my beloved Mummy and Papa, for their everlasting inspiration and giving me all the opportunities in the world to explore my potentials and pursue my dreams. I feel short of vocabulary to express my heartfelt gratitude to them. I will never forget their patience and help. My only sister (Mrs Sameena), my brother (Mr. Shafayat), are pivots of my life. Again My deepest gratitude goes to my brother and sister for their unflagging love and support throughout my life. It is their prayers which have brought my efforts to this stage. Their sincere flow of love has accompanied me all the way in my long struggle and has pulled me through many hurdles.

Mere words are not enough to express my feeling of indebtedness, from the bottom of my heart towards my fiance (Mr. Tafazul Ali) who have always been a source of unlimited strength and happiness to me. I thank him for his support, care and advices which made me go on in my tough time. He always provides me moral support. It was his inspiration and prayers which has always been a driving force behind my efforts.

I must emphasis contribution of my Brother In Law (Mr. Shabir Ali) who always helped me, encouraged and inspired me a lot. My feelings for him is beyond expression.

My special words of thanks goes to my cousins Syed Iqra, Asif Bhaya, Syed Wajid, Syed Fahad for their love and cooperation during the course of this study.

Also not forgetting my In Laws (Mummy ji, Papa ji, Sunny Bhaya, Sabrine Bhabi and little Shahan) for their immense support, love and care and who indirectly contributed in this research, their kindness means a lot to me. Thank you very much.

My earnest and special thanks goes to Mr. Javid Ahmad Parray one of my real friends. I wish to express my sincere appreciations to Technical Staff (CORD) namely Mr. Javeed Ahmad Javeed, Ms. Sumira Tyub and Ms. Rubiya.
I want to thank Dr. Khurshid Ahmad and Shakeel ur Rehman of IIIM Sanatnagar Srinagar who helped me a lot regarding my research.

I also want to thank Mr. Shoib and Mr. Taseem of Department of Biotechnology for their valuable help during my research work.

A big thank you to my long-time friends Ishrat, Suraya, Jaisa, Syed Mubashira, Saba, Nuzhat, Ubaida. They keep supporting me from behind, giving me the courage and guts to finish up this research.

I am particularly thankful to Sumira Jan, Ruchi, Rashmi from Jamia Hamdard; my hostel friends of Kashmir University namely Shabnum, Rayeesa, Saba and Saima Munshi and, my lab mates at CORD Seemi lohani and Rumisa Qadri for their help and their generosity is well appreciated.

I am highly thankful for the help provided by the Librarians of Kashmir University (Allama Iqbal Library), INSDOC and IARI-Pusa New Delhi.

I appreciate help and assistance rendered by lab attendents of CORD Mr Asif, Mr Hilal and Mr Habibullah.

Many people contributed to this work, either directly or indirectly. Thanking every one by name would take many pages. Therefore, for the people I did not mentioned in this acknowledgment, from my heart THANK YOU.

Lastly, I pray to Almighty to show me the right path and give me success in the worlds, here and hereafter (Aameen).

For any errors or inadequacies that may remain in this work, of course, the responsibility is entirely my own.

REHANA HAMID