Acknowledgement

I bow my head in gratefulness to the Gracious, Compassionate, Merciful, the greatest Almighty Allah, the source of my inspiration and the lighthouse of my life who helped me to successfully complete Ph. D. programme with great zeal and zest and then to my parents who taught me the first alphabet of knowledge.

I feel greatly honored to express my deep sense of gratitude and appreciation to my supervisor Prof. Azra N. Kamili, for suggesting me the work of vital interest. Her dynamic supervision, zealous co-operation, impressing personality, devotion to duty, encouraging behavior and necessary research facilities provided during the course of my studies, I must confess that without her constant Endeavour in guiding me in completion of this work, it could not have been completed successfully.

I wish to express my deep sense of gratitude and appreciation to my co-supervisor Prof. Dalip K. Kakru, for his enthusiastic and productive guidance, kind supervision, continued encouragement, generous assistance, timely cooperation, valuable suggestions, constructive criticism during the course of present study and by providing not only the research facilities but also lot of moral support during my research work. I also express my profound gratitude to Dr. Bashir Ahmad Ganai, Department of Biochemistry, University of Kashmir, for his devotion to my work and untiring help from first to the last all through the course of study.

I am equally grateful to Prof. A. R. Yousuf (former Dean, Academic Affairs), Prof. A. K. Pandit (CORD/Environmental Science) and Prof. G.A. Bhat (CORD/Environmental Science) for their moral support, useful suggestions and continuous encouragement all through the course of study.

I feel also indebted to faculty members of the department, especially Dr. Ruqeya Nazir (Assistant Professor, Microbiology), Department of Environmental Science, University of Kashmir; and Dr. Riyaz Ahmed (Associate Professor, Microbiology) Sheri-Kashmir institute of medical Sciences, Soura, Srinagar.

I am highly thankful to the Mrs. Bilquis Qadri (Scientific Officer), Mrs. Anjum Banday (Librarian), Miss Sumira Tyub (Sr. Technical Assistant),
Miss Rubiya Dar (Sr. Technical Assistant), and Mr. Javaid A. Javaid (Jr. Technical Assistant) of the Department of Environmental Science, University of Kashmir for their co-operation in the experimental phase of my study and whole hearted support.

The successful completion of the research programme was possible only because of the active cooperation of my friends and colleagues. I feel out of words to express my gratitude to Scholars of CORD, in general, and Microbiology Laboratory, in particular, namely Mr. Suhaib A. Bandh, Ms. Humera Nissa, Ms. Sana Shafi, Ms. Nowsheen Shameem, Ms. Dilafroza Jan, Mr. Javaid A. Parray, Mr. Bashir A. Lone and Mr. Gowhar H. Dar who rendered full cooperation and support during the research programme without which conduct of field study and data analysis would have been rather difficult.

While working on my thesis, I came across several problems and obstacles and then my creator sent some helping hands in which the first name is of my parents. Without their prayers, moral, spiritual, financial and pragmatic support, I was totally unable to produce this piece of work.

At last but not the least I feel short of words to express my gratitude to my in laws, in particular to my mother in law and then to my husband Dr. Amjad Ali, for their moral support all through the course of study.

In the end, may God Almighty bless all of us and show the right path.

Samira Saleem