Acknowledgements

During the thesis work I have been accompanied and supported by many people. It is a pleasant aspect that now I have the opportunity to express my gratitude for all of them.

Words in any thesaurus will fail to express the deep sense of gratitude and respect felt by me for my supervisor and mentor Dr. Arvind Singh Negi, Scientist E-I, Analytical Chemistry Department, CIMAP, Lucknow. I feel fortunate enough to work under his supervision. I offer my humble thanks and sincere gratitude to him for his valuable support, constructive criticism, patient hearing and motivating discussion during the course of my work. His enthusiasm, dedication, determination and integral view on research with an obligation for providing the best, has made a deep impression on me. He was always there to remove my doubts whenever needed.

With great respect I express my thanks to Prof. Ramaraj Shekharan, Director CIMAP Lucknow, for providing me all research facilities and STRENGTH (Student Activity Center) which enabled me to pursue my research work.

With due respect I express my gratitude to Dr. S. P. S. Khanuja, Ex-Director CIMAP, Lucknow for allowing me to work in this premiere institute and also for all the necessary research facilities.

I wish to express my immense sense of gratitude to Dr. M. M. Gupta, Head Analytical Chemistry Department for his support and suggestions during the course of the work.

I am thankful to Council of Scientific and Industrial Research (CSIR), New Delhi for awarding me Senior Research Fellowship.

I am also grateful to Dr. Karuna Shankar, Dr. J. Kotesh Kumar, Dr. C. S. Chanotiya, Mrs. Priyanka, Mrs. Namita and Mrs. A. Yadav for providing spectral data and their support during the course of work.

I am thankful to Dr. M. P. Darokar, Dr. S. Luqman, and Mr. D. Saikia Biotechnology Division, CIMAP, Lucknow for their help in conducting the biological activity related experiment of the present work.

I am also thankful to Dr. S. K. Srivastava, Dr. S. Dhavan, Dr. D. U. Bavankule, Dr. N. P. Yadav, Dr. T. Jhang, Dr. A. pal, Dr. A. Gupta, Dr. D. Chanda and Dr. R. K. Verma for their support and suggestion.
I appreciate the support extended to me by library staff and administrative staff members of the institute who have helped me in various ways during the entire course of my work.

I will never forget the cordial and friendly companionship and light moments that I shared with my senior, colleagues and juniors especially Dr. Ambesh, Alpana, Uzma, Farzana, Priyanka, Ranjeet, Akhilesh, Neelam, Pooja, Neerja, Deepti, Nidhi, Anupam, Sharad, Shikha, Komal, Harish, Rashmi, Suchita, Sonal, Rashmi, Kalpana, Mrs. Manju, Jyoti, Manika and Vikas. I wish to express special thanks to my senior Dr. Richa for her moral support and care.

The friendly association I shared with my labmates Atiya, Swati, Pragya, Kanak, Anand, Dr. J. Prakash, Prakasham, Sathish and Amit will always be cherished. Their support and cheerful nature was a major booster during the present work. The help received by Rajeev, Suresh and Mahesh is duly acknowledged.

I am extremely thankful to my friends Neetu, Rashmi, my cousins Guria, Amit da, Sumit da, Richa, Khusboo, Ankjit my chacha ji and bua ji.

Above all, I am extremely thankful to my family without whose support this work would have not been possible. World in my lexicon will fail me to express of my love and respect for my mother. Her blessing, unconditional support, affection, understanding, patient to tolerate my nature has been the pillar of my strength. Special mention needs to be made for my younger sister Rachna, without whose sympathetic cooperation this work could have not been possible. Worlds are insufficient to appreciate her love, care and the way she pampered me instead of being younger to me. I am also thankful to my elder and younger brothers for their support, care and understanding during stressed moment of my life.

I am thankful to my school teachers specially my Chemistry teacher Kamlesh Sir for his guidance and having faith in me. I would also like to thank all those who have helped me in the past, in any way, either in my academic pursuit or life in general but due to memory lapse remain unmentioned.

Last but not the least, I admire the almighty that instilled my confidence, patience and firm determination for fulfilling my dreams.

Vandana Srivastava