Acknowledgement

I wish to express my sincere gratitude to Dr. R. K. Singh, Associate Prof., Department of Chemistry, M. L. K. (P. G.) College, Balrampur, an excellent supervisor for good and learning discussions and for everlasting enthusiasm throughout this study. It is my great pleasure to acknowledge him for the freedom that he has given to me to pursue the research independently and for his constant encouragement with critical appraisal on my work. His guidance and association have been very friendly rather than like a formal student-guide relationship.

I extend my sincere gratitude to the super-chemist Dr. P. P. Singh (D.Sc., F.N.A.Sc.), Ex. Principal, Bareilly College, Bareilly, for his kind supports and inspiration during the initial phase of my work, for his kind encouragement, affection and he made my stay very comfortable in Balrampur. I am benefitted a lot from the scintillating discussions that I had with him on many aspects of the present area of research and helping me with all the paperwork needed to become a doctor.

I would like to thank Dr. O. P. Mishra (Principal) for giving me the opportunity to carry out my Ph.D. in the M. L. K. (P. G.) College, Balrampur. Thank you also for understanding so well my research problem and for giving me all the support I needed in these years.

A great thanks you to Dr. R. B. Srivastava, Head, Department of Computer Science & Associate Prof., Department of Mathematics, M. L. K. (P. G.) College, Balrampur, for introducing me to the field of computer science, for sharing your vast knowledge concerning software handling like CAChe; Softness Calculator; Energy Calculator; DRAGON 3.0; STATISTICA 8; MDL ISIS Draw 2.5; ACD/LAB 8.0, MolWorks/Version 2.0 and Math Type 5, and for helping me with all the computational-chemistry problems.

A very great thanks you to Prof. John C. Dearden, School of Pharmacy & Chemistry, Liverpool John Moores University, Byrom Street, Liverpool L3 3AF, U.K., and Dr. Amogh A. Sahasrabuddhe, Scientist, Division of Molecular and Structural Biology, Central Drug Research Institute, P.O. Box No. 173, Chattar Manzil, Lucknow 226001, for providing literatures, for all the good advice, supports and this would evolve with the time even in my future carrier also.

I am thankful to Dr. R. P. Singh, Ex.Scientist, Division of Entomology, Indian Agricultural Research Institute, New Delhi-110012, INDIA and Dr. J. P. Tiwari, Ex. Associate Prof., & Head, Department of Botany, M. L. K. (P. G.) College, Balrampur, for your bio-chemical discussion and for your valuable suggestions related to my future carrier.

I am also thankful to Dr. A. K. Srivastava, Dr. P. P. Agarwal, Dr. K. K. Ansari, Dr. B. P. Pandey and Dr. N. K. Singh of M.L.K. (P.G.) College, Balrampur; and Dr. Mukul Sinha, Dr. S. K. Srivastava and Dr. Rekha Sharma of L.B.S. (P.G.) College, Gonda; for their valuable cooperation, chemistry and biology discussions, and moral support during the work.

I am grateful to Dr. Farhan Ahmad Pasha, Laboratoire de Dynamique Moleculaire, Institut de Biologie Structurale Jean-Pierre Ebel (CEA/CNRS/UJF), Grenoble, France, & Dr. Hamant Kumar Srivastava, Molecular Modelling Group, Indian Institute of Chemical Technology, Tarnaka, Hyderabad, for interesting discussions concerning quantitative structure-activity relationship (QSAR) and for sharing your enormous collection of references.

My association with all my lab mates reminds me the words, "Prosperity makes friends and adversity tries them". Days went on with many useful academic discussions and many emotional ardent arguments on several conflicting general issues. On various grounds, I gained lot of supports as well as suggestions from Dr. P. D. Sharma and Dr. Jasmeet Kaur.
Acknowledgement

The memorable moments I shared with Dr. Gayasuddin Khan and Dr. Anil Kumar Soni are unforgettable and especially, their critical comments, good and learning discussions and lots of fun. I thank all of them.

To all my friends and especially Manoj Kumar Jaisawal, Rajkumar Gupta, Ajay Kumar Rana, Shobha Ram, Shesh Kumar Chaurasiya, Sanjeev Yadav, Prasant Kumar Srivastava, Ajay Sahu, Ajay Chaudhary (U.P., Faizabad), Harendra Kumar Dixit (Manager, Balark Hotel, Balrampur), Ram Nath Yadav (U.P., Balrampur), Santosh Gupta and Mohd. Ijhar for showing me wonderful times and being the best of friends. I thank all of them.

Mansha Ram, this is your delicious and analeptic foods (break fast, lunch and dinner) that provide energy to my body to do work hard and your tea acts as brain tonic to boost and refresh me from headache and boring work. Ajay (Savitri Devi Girls’ lodge), you are my Shravan Kumar. Thanks-a-lot.

I am also thankful to all former & present staffs of the Chemistry department; especially to Dr. D. K. Mishra (Guest Lecturer), Sri A. K. Mishra (Guest Lecturer), Sri Rajkumar, Janab Abdul Rajakk Ansari, Sri D.V. Singh, Sri Anil Kumar Srivastava, Sri Chedi Lal, Smt. Archana Singh, Mr. Chandan, Sri Santosh Singh and Sri Shiv Prasad; and also of Computer Science department specially to Janab Masud Murad Khan (lecturer, Self Finance), Sri Mansha Ram Verma, Sri Shambhu Nath Chaurasiya and Sri Avadh Bihari Singh of M.L.K. (P.G.) College, Balrampur, for making these years so enjoyable.

The library facility availed by CDRI-Lucknow, ITRC-Lucknow, National Medical Library-New Delhi, IIT-Kanpur, IIT-Guwahati and IIT-Kharagpur is gratefully acknowledged.

I extend my sincere thanks and gratefulness to the "Council of Science & Technology, U.P., Lucknow" for awarding research assistantship to me.

Finally, I would like to thank the most important person for me. My very special thanks go to Family’s of Dr. Pratibha Singh, Dr. Maninder Singh Arora and Sri Guddu Bhaiya for all their love, affection and supports such that I never feel that I am out of home and away from my family. Above all, words are not enough to say about my family member’s supports and they have always been with me personally. My mother, Smt. Soharata Devi Sahu, and my father, Late (Sri) Bhagwati Prasad Sahu, for all your love and for always letting me choose my own ways in life. I am unable to pay the loan of my elder brothers (Sri D. K. Sahu and Sri V. K. Sahu), elder sisters (Smt. S. D. Sahu and Smt. A. Sahu), Bhabhi (Smt. Anita Sahu and Smt. Sarita Sahu), Jija ji (Sri B. L. Sahu and Sri S. L. Sahu) and my younger brother Suraj Sahu, all these combine in such a way that they become a father that I have lost. In their presence I never feel that I was fatherless and I am fatherless. Suraj, for the all fun and the fights we have shared and for being such wonderful brother. Sonam Sahu and Keerti Sahu for bringing joy with all your love and wonderful smiles. Papa, you gave me the force to start and finish it. Without you this work would not have been possible, that’s why I dedicate it to you. I miss you so much.

Dated: 16/03/2011

Vishnu Kumar Sahu