

Acknowledgement

Through this page, I offer my salutation, to the creator of this pious seat of learning Bharat Ratna Mahamana Pt. Madan Mohan Malviya Ji.

It is indeed my proud privilege to express my deep sense of gratitude and indebtedness to my supervisor, Dr. S. H. Hasan, Professor, Department of Chemistry, Indian Institute of Technology (BHU), Varanasi for his immense help, co-operation and valuable guidance that he has extended to me for the successful completion of this investigation. I am grateful to him for his constant encouragement, sustained interest and parental care throughout the research period.

I am obliged very much to express my sincere thanks to HOD, Prof. D.Tiwary, and Ex HOD, Prof. M. A. Quraishi, Prof. R. B. Rastogi, Department of Chemistry, Indian Institute of Technology (BHU) for providing necessary facilities and constant motivation throughout my research work.

It is my privilege to express my thanks to all RPEC members Prof. Dhanesh Tiwary, Department of Chemistry, IIT (BHU), Prof. K.Sairam, Department of Pharmaceutics, IIT (BHU) for appropriate suggestions and kind cooperation.

I am obliged very much to express my sincere thanks to all the faculty members, Department of Chemistry IIT (BHU) for their support and encouragement.

I reserve special thanks for all the non-teaching staff of the Department of Chemistry, IIT (BHU) as this work would have never been completed without their technical support.

I also gratefully acknowledge to the University Grant Commission, New Delhi, Ministry of Human Resource and Development (MHRD), Govt. of India, New Delhi, and Director, IIT (BHU) for the financial support in the form of Senior Research Fellowship.

My heartfelt thanks go to my dear Seniors, Dr. Devendra Kumar Singh, Dr. Sweta Mohan, Dr. Vijay Kumar, My best friend Dr. Vikas kumar Singh, My beloved juniors Ms. Daraksha Bano, Mr. Subhash Chandra, Mr. Pradeep Kumar Yadav, Mr. Vivek Kumar, Ms.

Amisha Soni and Mr. Deepak Kumar for their valuable support and encouragement towards the successful completion of my research work.

I would like to thank my seniors and friends, Mr. Dharendra Kumar, Mr. Ankush Mishra and Ms. Ankita Ojha for moral support and making the journey happy.

I am grateful to my seniors Dr. Yogendra Kumar Singh and Dr. Devendra Kumar Verma, Department of Biochemical Engineering, IIT (BHU) for their encouragement and valuable suggestions during my research period.

*It's been possible with the blessings of my father, **Er. G.S. Pandey** and untiring efforts and prayers of my mother, **Dr. Savita Pandey** that provided me all the wisdom, strength and guidance to carry on this journey which at times became very tough and tedious*

*And Foremost to my wife **Dr. Shivangi Mani Pandey** and My lovely daughter **Ms. Vedanshi Pandey** for their affection and encouragement.*

Vinay Kumar Pandey