

Acknowledgements

*At the outset, I would like to pay my tribute to the father and founder of the Banaras Hindu University respected **Shri. Pt. Mahamana Madan Mohan Malviya ji**, because of whom thousands of students put their step towards bright and prosperous future and receive a warm gesture wherever they go by the spirit of Bharat, BHU and Mahamana.*

*I welcome this opportunity to express my heartfelt gratitude and thankfulness to my admired supervisor, **Prof. Sanjay Singh (Guru ji)**. His inspiration and kind support helped me throughout the period of my research. I always remain indebted for his diligent efforts and professional competencies, which contributed for me to get matured towards the completion of the research work methodically. I feel very much honored and it has been a real privilege for me to get an opportunity to work under his guidance.*

*I am grateful to **Prof. B. Mishra**, Head, Department of Pharmaceutics, Indian Institute of Technology (Banaras Hindu University) and **Prof. R.S. Srivastava**, (Former Head) for allowing me to access the facilities in the department for carrying out my research work and for their kind help during the course of my study.*

*It is my pleasure to thank all my respected **R.P.C members** and all the teachers of the Department of Pharmaceutics **Prof. J.K. Pandit, Prof. P.V. Sharma, Prof. P.N. Singh, Prof. S.K. Singh, Prof. S.K. Srivastava, Mr. A.K. Srivastava, Dr. (Mrs.) Hema Latha, Dr. Sairam Krishnanmurthy, Dr. Vikas Kumar, Dr. Senthil Raja, Dr. Alakh N Sahu, Dr. S.K. Mishra, Mrs. Ruchi Chawla, Dr. Ashok Maurya and Dr. Pradeep Kumar Srivastava**, Department of Biochemical Engineering, IIT(BHU) for their valuable suggestion and guidance throughout the course of my research.*

*I pay my sincere thanks to **Mr. Sanjeev ji, Mr. Sankaran ji, Mr. Nandlal ji, Mr. Ajay Pal ji (late), Mr. Virendra ji, Mr. Gopal ji, Mr. Upadhya ji, Mr. Ramjeevan ji, Mr. Ramachetan ji, Mr. Rafeeq ji, Mr. Jaamil ji, Mr. Pathak ji, Mr. Kapil ji, Mr. Chotelal ji, Mr. Arun ji, Mr. Madan ji, Mrs. Saroj Kumari ji, Mrs. Archana Singh ji, Ms. Shyamli Ghoshal ji** and all other non teaching staff of the department who had provided me all the requirements that I needed for my research.*

My sincere thanks goes to Indian Council of Medical Research (ICMR) India and University Grants Commission - Special Assistance Programme (UGC-SAP) for providing

financial support in the form of Senior Research Fellowship and Project Fellowship, respectively.

I record my thanks to Department of Science and Technology (DST), India and Council for Scientific and Industrial Research (CSIR), India for extending me financial support to attend International Conferences at Bayeruth University, Bayeruth, Germany and Monash University, Melbourne, Australia, respectively.

*I would also like to acknowledge the valuable support of **Dr. Abraham Patani**, Founder, Inga Pharmaceuticals, Mumbai, India for providing the sample of Berberine Chloride. The kind assistance of **Dr. Madhu Yaspal**, Department of Anatomy, Institute of Medical Sciences, Banaras Hindu University for Transmission Electron Microscopy studies is gratefully acknowledged.*

*My heartfelt thanks also go to **Dr. J. Balasubramaniam** for his warm heartedness, keen interest, incessant encouragement and heartfelt wishes for my bright career.*

*I owe my heartfelt thanks to **Prof. Sitaram Velaga**, for his kind invitation to visit his lab at the Department of Health Sciences, Lulea University of Technology, Lulea, Sweden under STINT project which broadened my perspective of solid state pharmaceuticals. I am also thankful to **Dr. Manish and Mrs. Amani** (members of Prof. Sitaram's lab), for practical assistance and grate hospitality.*

*Most importantly, I would like to put my heartiest warm regards and eminent indebtedness to my **Parents, Shri. Maheswara Rao (Nanna) and Smt. Nooka Ratnam (Amma)** for their love, moral support and blessings. A heart full of loving appreciation is reserved for my beloved brother **Nagesh**. I have no words to express my innermost feelings for my loving wife **Dr. Swathi**, who was a constant source of precious love, moral motivation and emotional support to me.*

*I would like to express my special thanks and indebtedness to my most supportive seniors and lab mates **Amit Mishra, Dr. Manoj Rawat, Dr. Achint Jain, Dr. Anuj Garg, Dr. Muthu, Dr. Bhagawati Saxena, Sanjay Kumar Singh, Vijaykumar, Priyanka, Hitesh, Laxmi and Dr. Awaneesh K Singh** who always helped me whenever I was in need. I am highly thankful to **Dr. Subhashis Chakraborty** for providing a good deed of inspiration and cordial support in my entire research work. I will never forget the practical as well as theoretical knowledge given to me by them, which will definitely play a major role in developing bright and prosperous career. I extend my heartfelt gratitude and indebtedness to*

my beloved seniors **Dr. Kesavan, Dr. Rahul Thripati, Dr. Gireesh Kumar Singh and Dr. Rajesh Kumar** and all Research scholars of this department for their affection, love and help.

Special thanks to my friends from BHU; **Satyendra K Prasad, Damiki Laloo, Anupam Banerjee, Manish Kumar, Saurabh Sinha, Dr. Govinda Kapusetti, Sudhakar Rao Gorja, Kalyan Ramesh, Kranthi and Dr. Ravi Kumar**, my M. Pharm batch mates; **Bhavani Prasad, Vamsi, Satya Narayana, Vijay, Deva Dasu, Srikanth Reddy and Nishanth**, my B. Pharm seniors and friends; **Nagesh, Pratap, Bhaskar, Suri Babu, Kasi, Satish, Dowla, Y. V. Rajesh, Kumara Swamy, Vinay and D.M.K. Chakradhar**, my D. Pharm friends; **Srinu, Charan, Raju and Manikantha**, childhood friends; **Naga Raju, Trinadh** and many others, whose moral and confidence boosting support always inspired me in whatever context I think off.

I also extend my special thankful to **Ramoji Sir and Vidya (Sister)** for providing me with a homely atmosphere full of love and care as we had wonderful time together in BHU and Varanasi.

I pray to almighty for the 'Moksha' of my experimental animals, whose sacrifices proved the truth of my thesis work done for the betterment of the ailing humanity. Lastly, thanks to the "**Lord Shiva**", who is always with me and listened to my silent prayers.

Date:

Place: Varanasi

(Parameswara Rao Vuddanda)