

Acknowledgement

*At the very outset, I would like to thank the **ALMIGHTY** to pursue Ph.D. at the Department of Pharmaceutical Engineering & Technology, Indian Institute of Technology (BHU), Varanasi which was founded by the great soul, **Mahamana Pandit Madan Mohan Malviya ji**. I express my deepest gratitude to him for providing this wonderful and peaceful atmosphere to study and do research.*

*I would like to thank my supervisor and Head of the Department, **Prof. Sanjay Singh** for selecting me as his student. His patience and guidance have shaped me the person I am now. I should thank him for giving me the freedom to explore and for the confidence in my work. Most importantly, I am thankful to Sir for patiently bearing with my ignorance and all of my mistakes ever since I joined the department. His care for students and his interest in improving the student's quality both scientifically and professionally are inspiring. It's a great honour for me to complete PhD under his guidance and I feel blessed to have mentor like him. Thank you Sir for everything.*

*I extend my thanks to **Prof. S. K. Singh**, former Head of the Department for providing the necessary facilities to carry out the research work. I humbly convey my regards and gratitude to **Prof. B. Mishra** for his constant support and encouragement and for giving me the excellent opportunity to get the turning point of my life by selecting me either as a Junior Assistant Fellowship under UGC-SAP II project or as Research scholar. I extend my thanks to **Prof. Hemalatha** for her moral support. I thank **Dr. A.N. Sahu** for his great support and help during my PhD. I sincerely thank the members of my **Research Program Evaluation Committee** members for their valuable suggestions in my research work. I am also grateful to all teachers of the Department, **Prof. S.K. Shrivastava, Prof. Sairam, Mr. A. K. Srivastava, Dr. Senthil Raja, Dr. S. K. Mishra, Dr. Ruchi Chawla and Dr. Ashok Maurya**, providing a cordial environment to work in the department. I specially thank **Dr. M. S. Muthu, Dr. A. K. Agrawal, Dr. Vinod Tiwari and Dr. Shreyans Jain** for their great support and scientific discussions.*

I pay my sincere thanks to all non-teaching staff for their assistance throughout my course.

*I am deeply grateful towards the valuable support provided by **Prof. O. N. Srivastava** and **Prof. R. K. Singh**, Dept. of Physics, Faculty of Science, Banaras Hindu University, Varanasi, Uttar Pradesh, India for carrying out for PXRD and DSC studies, respectively. I extend my sincere thanks to **The Head, Dept. of Chemistry**, Faculty of Science, Banaras Hindu University, Varanasi, Uttar Pradesh, India for carrying out AFM studies. I am thankful to **Prof. Mukesh Doble**, IIT Madras, Chennai for cell lines studies. I extend my thanks to **Dr. V. Ganesan**, Director, Consortium for Scientific Research, Indore, Madhya Pradesh, India for permitting me to perform SEM, AFM and confocal studies. I thank **Dr. G.N. Singh**, Secretary-cum-Scientific Director and **Dr. Pural Lal Sahu**, Principal Scientific Officer, IPC, Ghaziabad for allowing me to perform LCMS and NMR studies. I acknowledge **Dr. Sanjeev Kumar Mahto**, Dept. of Biomedical Engineering, IIT (BHU) for his kind assistance in carrying out fluorescence microscopy. I am also very thankful to students and instrument in-chargers of the above departments for helping me with the software and analyses, respectively.*

*I thank all seniors and juniors who have helped me. I thank my seniors **Dr. Punitha** and **Dr. Saravanan** for their moral support. Special thanks to my friend and batch mate, **Dr. Srivalli** for her constant support and encouragement. My best regards to **Shruthi** and **Shivaranjani** for making me feel at home and for all your friendship, emotional support, encouragement and guidance. I thank **Ms. Lavanya** who has been a great support for me through all my ups and downs. She has been a great inspiration for me. I extend my thanks to senior, **Dr. M.R. Vijayakumar** for his kind assistance and help since my M. Pharm. and my juniors, **Ms. Lakshmi** and **Mr. Hitesh** for being a great support. I thank **Mr. Ramoji**, **Mr. Raju**, **Mr. Nitin**, **Mr. Arjun**, **Ms. Khushboo** and **Ms. Apeksha** for their kind assistance in carrying out animal studies. I extend my thanks to my BHU friends, **Bala**, **Sateesh**, **Sunder** and **Sathish** for their constant support. I would like to thank few persons in my life who taught me life lessons and all others whose names I forgot to mention here.*

*I sincerely thank my M. Pharm supervisor, **Prof. Abdul Hasan Sathali**, Principal, Madurai Medical College, Madurai, Tamilnadu for his constant support and without his suggestion I would not have entered BHU.*

*I thank **Special Assistance Programme of UGC** for providing Project fellowship as Junior research fellow during initial period of my Ph.D. Further, I thank **The Director, IIT (BHU)** for providing me teaching assistantship during my Ph.D. tenure.*

*I would like to extend my thanks to my **parents** who make me feel blessed and allowed me to pursue Ph.D. Ever since my birth, they have never restricted me from my dreams and they have been a great support for me. I shall fail in my duty if I do not convey my sincere regards to my loving husband **Dr. V. Suresh** for his constant support to complete my Ph.D. degree. He has been my backbone and encouraged me to achieve high levels. Words wouldn't be sufficient enough to thank my son, **Baby. Kurundhogai Vendhan** who has become the world for me now.*

Lastly, I pray for the moksha of all the experimental animals, whose sacrifices gave the life of my research work.

Date:

Place: Varanasi

(Priyanka K.)