

## Acknowledgements

Gratitude makes sense of our past, brings peace for today and creates a vision for tomorrow. Behind every success there are lot many efforts, but effort are fruitful due to hands making the passage smoother. I express my deep sense of gratitude for hands, people extended to me during my work. I humbly owe the completion of this dissertation work to the Almighty for showering his everlasting blessings on me.

It gives me pleasure and profound sense of reverence to express my gratitude and thankfulness to my esteemed supervisor, **Dr. Krutika K. Sawant**, Professor of Pharmaceutics, for providing me this opportunity to excel one step in life. I am grateful for her supervision, advice and guidance throughout the entire research work. Above all and the most needed, she provided me constant encouragement and support. Her truly scientific intuition has made her as a constant oasis of ideas and passions in science, which exceptionally inspired and enriched my growth as a student, a researcher and a scientist. I am indebted to her for all the help provided to me during writing the manuscripts and this thesis.

I express my sincere thanks to **Prof. M. R. Yadav**, Dean, Faculty of Pharmacy, **Prof. A. N. Misra**, **Prof. (Mrs.) S. J. Rajput** and **Prof. (Mrs.) Krutika K. Sawant**, Coordinator, G.H. Patel Pharmacy Building, Pharmacy Department, for having provided me with the necessary laboratory facilities and congenial ambience.

Gift samples of Metoprolol succinate and Metformin HCl by Alembic Pharmaceuticals Ltd., Vadodara are duly acknowledged. I also acknowledge the help provided in term of gift samples of Celphere by Asahi Kasei Chemicals Corporation, Japan; Eudragit<sup>®</sup> E, RS and RL by Evonik Degussa, India; Ethyl Cellulose by Dow, USA..

I am thankful to **Dr. (Mrs.) Vandana J. Rao**, Department of Metallurgical and Materials Engineering, The M. S. University of Baroda, for carrying out SEM studies. I take this opportunity to sincerely thank the **University Grants Commission (UGC)**, New Delhi for the financial support in term of Senior Research Fellowship during this course.

Friendship is a treasured gift and true friends are few. I am lucky to have enough of them. I take great pleasure in thanking my dear friends Abhishek and Jigar who inspired me to

pursue PhD. A special thanks to Praveen who stood by me in time when I required any help. A word of thank to Abhinesh and Mohan for their constant motivation and encouragement. I cannot forget the help extended to me by Mitali and Kinjal.

Special thanks to Priya and Prachi for performing the FTIR studies and Mohit for performing the DSC studies. I wish to express my heartiest thanks to Jatin and Sagar for the help provided by them during all *in vivo* experiments. I would also like to extend my appreciation to my colleagues and friends, Sandip, Garima, Aditi, Girish, Dipesh and Atul for their advice and their willingness to share their bright thoughts with me, which were very fruitful for shaping up my ideas and research.

A vote of thanks to Dr. Girish Achliya (DGM, Alembic Research Centre) and Dr. Vishwanath Nande (DGM, Alembic Research Centre), Dr. Sham Dodiya (Principal Scientist, Lupin Research Park) who gave their expert opinion whenever I required.

My family deserves special mention for their inseparable support and prayers. Whatever efforts I have put to complete this work, would not have been possible without their support. First thanks to my beloved late father who always cherished a dream for my higher studies. It was his dream that I should pursue doctoral studies, which I was able to fulfill by his blessings. I deeply thank my mother, my son Praneel, brother, sister-in-law, my sweet nephew Manhar and lovely niece Sharvi for their never-ending love and support throughout the years and their encouragement and confidence in me. A special thanks to my wife Veenu, my better half, for her constant support and suggestions in preparing the manuscripts and this thesis.

I take this opportunity to thank the non-teaching staff members at Pharmacy department, Kalabhavan and G.H. Patel Pharmacy building for their kind cooperation.

Finally, I would like to thank everyone who has been involved directly or indirectly with the successful completion of this work, as well as express my apology that I could not mention personally one by one.

**Piyush K Mundada**