Acknowledgements

“Guru Brahma Guru Vishnu Guru Devoh Maheshwarah.
Guru Sakshat Parabrahma, tasmaye Shri Ganeshaye Namah”......

I bow before almighty Shri Ganesha who protected me, gave me pure knowledge, will power and strength of perseverance to successfully complete my PhD. I could never have accomplished this without the faith I have in the Almighty.

First and Foremost, I wish to thank my guide, Dr. Brijesh Sukumaran, for accepting to become my guide in midst of all his activities, for his painstaking efforts to check my manuscripts and thesis, his untiring supervision and peerless constructive criticism coupled with befitting counsels throughout the preparation of this thesis. He has been an inspiration on how to make things ‘perfect’.

I owe my sincere gratitude to my former guide, Dr. Ashok Bhagwat. His valuable guidance, and constant encouragement in various ways has inspired me to become a researcher. He has supported me not only academically but also emotionally through the rough road towards finishing this thesis. He helped me come up with the thesis topic and guided me over. I will always remember his calm and relaxed nature, and the way he asked “YES! How can I help you?”, whenever I entered his office. I am thankful to the Almighty for giving me a mentor like him.

My thesis advisory committee members guided me through all these years. A special thanks to Dr. Shashi Menon and Dr. Ramchandra Joshi, my major advisors, for their valuable guidance throughout the TAC meetings.

I am grateful to Dr. Aparna Khanna, Dean, School of Science for providing research amenities and permission to carry out the research work. I would like to thanks Dr. Dhananjaya Sarnath, Professor Emeritus, School of Science for her valuable suggestions. I am thankful to Dr. Purvi Bhatt and Dr. Nancy Pandita for their constant help through the course of my studies. I would like to thank Dr. R.S. Gaud, Dean, SPP SPTM, NMIMS, Dr. Yogesh Kulkarni, Dr. Lokesh Bhatt and Ms. Geeta Pai for their technical help in HPTLC analysis and animal facility.
Most importantly, none of this would have been possible without my family to whom this dissertation is dedicated to. They have been a constant source of love, concern, support and strength all these years. I am thankful and feel grateful to my parents, Mr. D. P. Mishra and Mrs. Kiran Mishra whose blessings and affection have always been a vital source of inspiration during my studies. In particular, the patience and understanding shown by my mum and brother Manas Mishra, is greatly appreciated. I know, at times, my temper is particularly trying. I thank my parents for striving hard to provide a good education for me and my siblings. I always fall short of words and felt impossible to describe their support in words. I am thankful to my sister Mrs. Divya Tripathi and my jijaji Mr. Alok Tripathi for their constant support and encouraging words.

I have to give a special mention for the support given by my husband, Mr. Raman Dwivedi. This work could not have been possible without his cooperation. He stood by me through the good and bad times. Also, I would like to express my heart-felt gratitude to my extended family. They have aided and encouraged me throughout this endeavor. I warmly appreciate the generosity and understanding of my in-laws, Mr. R. D. Dwivedi and Mrs. Meena Dwivedi and for their constant encouragement and blessings during my studies. My brother-in-law Mr. Amit Dwivedi for helping me with all the graphs.

A special acknowledgement goes to my college mate of many years, Mrs. Kanika Pandit. A good support system is important for surviving and staying sane in grad school. I was lucky to have a friend like her throughout the thick and thin of my life, including the college days. She was a true friend ever since we began our PhD in 2010. I thank her for the stimulating discussions, for the sleepless nights we were working together before deadlines, and for all the fun we have had in the last six years. I know that when we will be old, Kanika will still be there as a supportive and caring friend.

Finally, I would like to thank everybody who was important to the successful realization of this thesis, as well as expressing my apology if I have missed anyone.

My heartiest feelings for the innocent animals that were sacrificed for a noble purpose of widening the horizons of science.