## **ACKNOWLEDGEMENTS**

I would like to express my truthful appreciation and heartfull thanks to all the persons around me intended for their valuable advices, critics, commitment and encouragement that made my journey conceivable.

Initially, I "Mr. Adesh Kumar Singh" would like to express my deep sense of gratitude to my supervisor "Dr. Jeyakumar Kandasamy", Department of Chemistry, Indian Institute of Technology (Banaras Hindu University), Varanasi, for providing me generative, positive supervision and also for his valuable guidance, constant support, critical and motivating comments throughout the course of my research work.

I would like to thank my RPEC members, "**Dr. Sundaram Singh**", Department of Chemistry, IIT (BHU), Varanasi and "**Dr. Senthil Raja A**", Department of Pharmaceutical Engineering and Technology, IIT (BHU), Varanasi for their valuable suggestions, constant guidance and kind encouragement during my research work.

My sincere thanks to the former Heads, "Prof. (Mrs.) Rashmi Bala Rastogi" Department of Chemistry, IIT (BHU), Varanasi, and the present head "Prof. Dhanesh Tiwary" as well as all the faculty members of Department of Chemistry IIT (BHU) for their kind support and for extending all required facilities to carry out my research work smoothly.

I gratefully acknowledge the facilities provided by **CIFC**, **IIT** (**BHU**), Varanasi for **NMR** facilities for doing characterization of samples.

I would like to express my deepest affection to My Grandfather "Mr. Ram Krishna Ram", my grandmother, "Mrs. Yashoda Devi", my father, "Mr. Dharmraj Singh", my mother, "Mrs. Fulpatti Devi", younger sisters "Mrs. Shudha Singh", "Mrs. Seema Singh" and younger brother "Roshan Kumar Singh" for their love, concern, continuous moral support and encouragement which enabled me to perform my liabilities. I also would like to thank my friends "Rajkumar Patel", "Nikhil Kumar Singh", "Vikash Kumar Patel", "Nazar Hussain", "Avadhesh Kumar", "Sandeep Kumar Patel", "Anchal Kumar", "Manish Kumar", and "Anoop Kumar Sharma", for their unconditional love, support as well as hard scolds to focus on my aim.

I would like to thank my all classmates "Jiyaul Haque", "Dinesh Verma", "Sunil Yadav", "Atendra Kumar", "Daraksha Bano", "Shwarnima Singh", "Pratibha Verma", "Swati Chauhan" and "shaili Pal" for their affection, prayer and support in my research work as well as their willingness to share my research problems.

I am thankful to all lab members "Dr. Surabhi Gupta", "Dr. Priyanka Chaudhary", "Miss Varsha Tiwari", "Miss Sadaf Azeez", "Mr. Siddharta Barnewal", "Mr. R. Venkatesh", "Mr. K. Vimlesh Kumar", "Miss Shweta Singh", "Dr. Kunj Bihari Mishra", "Dr. Bharat Kumar Allam", "Dr. Kranthikumar Tungala", "Dr. Vishnu Nayak", "Dr. Saidareddy Puli" and "Dr. Sureshbabu Popuri" for their kind cooperation and friendly environment during entire period of my research. Special thanks to project staff member "Ashish Kumar Maurya" in our laboratory for his support in complete duration of my research.

My special thanks to "Miss Varsha Tiwari" who helped me a lot during the preparation of my thesis. I delightfully mention her for her helping nature, always

motivational, moral support and my closest friend.

I am thankful and indebted to **CSIR** (Council of Scientific and Industrial Research)

File No. 09/013(0613)2015-EMR-1 for providing me financial support during my research

work.

At the last but not the least, I thank to all my well-wishers whose names I may have

failed to mention here unintentionally. Thanks to all of you for being there for me when

times were the toughest.

Date: (Mr. Adesh Kumar Singh)

Research Scholar

viii