ACKNOWLEDGEMENT

First and foremost, Praises be to Almighty Allah, who gave me courage and patience to carry out this research work.

A journey is easier when you travel together. Interdependence is certainly more valuable than independence. During my research work, I have been accompanied and supported by many people and it seems to be an impossible task to acknowledge them all. This thesis would not have been possible without the guidance and the help of several individuals who in one way or another contributed and extended their valuable assistance in the preparation and completion of this study.

My utmost gratitude to Dr. Ram A. Vishwakarma, Director Indian Institute of Integrative Medicine (IIIM-CSIR), Jammu and Dr. G. N Qazi, former director of IIIM – Jammu, presently the Vice Chancellor of Jamia Hamdard, New-Delhi has been my inspiration as, I hurdle all the obstacles in the completion of this research work.

I particularly thank my supervisor Dr. R. K. Johri, Chief scientist and Head, PK/PD-Toxicology Department, Indian Institute of Integrative Medicine, for the plentiful support and all the hope he has put on me. He has always encouraged me to live intensively, helped me to see life and science in their full depth, and taught me how to appreciate the good scientific work that helps other researchers to build on it. He has enlightened me through his wide knowledge of intelligence and his deep intuitions about where it should go and what is necessary to get there. I really appreciate the chance he provided me to work under his supervision and the scientific freedom he provided to me. His involvement with his originality has triggered and nourished my intellectual maturity that I will benefit from, for a long time to come. His dedication to and knowledge of science is truly awesome.
I would like to acknowledge the role my co-supervisor Dr. Saleem Javed, Associate Professor, Department of Biochemistry, Jamia Hamdard (Hamdard University) for his advice, supervision, and crucial contribution, which made him a backbone of this research and so to this thesis.

I gratefully acknowledge Dr. S. C Sharma, Dr. G. D Singh, Mr. M. K Tickoo, Mr. A. K Tickoo, Dr. Iasduq and Dr. Kaiser of PK/PD-Toxicology Division for their constant encouragement, unconditional support and valuable suggestions and timely help during my research work that allow me to stay centered and rediscover what is important and why I am doing what I am doing. Their role in carrying out this research work was really immense.

I would like to acknowledge Dr. (Mrs) Johri for her unconditional support, interest in my research and valuable advices that has helped me to achieve much more that I could have never imagined.

I take this opportunity to express my profound gratitude and sincere thanks to Prof. Shakir Ali, Head, Department of Biochemistry, Prof. M. Z Abidin, Dean, Faculty of Science, Jamia Hamdard (Hamdard University) for their support and crucial contribution.

I am grateful to the research scholars of Jamia Hamdard especially Ms. Rifat, Mr. Takir and Mr. Owais for their kind support at every juncture for compilation of this thesis.

All my friends and fellow researchers like Mr. Youssuf, Ms. Tabasum, Mr. Imran, Mr. Rayees, Mr. Wajid, Mr. Nissar, Mr. Adil, Mr. Rafiq, Mr. Aamir Mr. Anirbankar, Mr. Ajay, Mr. Purshottam, and Ms. Richa, deserve my gratitude for their
understanding and help throughout my research work. Appreciation is also extended to those people that provide their time and cooperation, friendship to assist me in my research work directly or indirectly. I am thankful to all non-scientific staff of PK/BD-Toxicology Division for their help and extraordinary support.

I pay my special acknowledgement to my father, my brothers, my sisters, other family members and all other near and dear ones, whose continues prayers and love for me have strengthen my will power for overcoming all the obstacles in my life.

Last but not least my special and sincere gratitude to my Uncle and Aunty for nourishing me and providing me the financial assistance throughout my career. I do not have adequate words to express my feelings towards them and can only pray to Almighty Allah for their well being and protection from any kind of harm.

Financial support in the form of Senior Research Fellowship from Council of Scientific and Industrial Research, New Delhi is highly acknowledged.

With all my heart, this thesis is dedicated to my beloved late mother and my guardians.

I finish with a final silence of gratitude for my life.

Ishtiyag Ahmad Najeeb