ACKNOWLEDGEMENT

Research in any field requires utmost perseverance, patience and optimism. Without an appropriate guidance this journey is almost impossible and hence my deepest gratitude goes to my supervisor Dr. Absar-ul Hasnain, whose unrelenting support and professional expertise made this journey a success. I shall always remain grateful for his guidance, perceptive advice and constant help.

I also thankfully acknowledge necessary material help and support provided by each of the former and the present Chairman Prof. M. Hayat throughout my research, which remained the basis of continuation of this work.

Next to my supervisor, he is Prof. Tariq M. Haqqi, Director of Research, Division of Rheumatology at Case Western Reserve University, Cleveland (USA) to whom I am most grateful for his selfless assistance, interest and support in each discipline of this work. Valuable help extended by Dr. Anil Chaterjee of National Institute of Oceanography, Goa is also thankfully acknowledged.

Memories of my favorite teacher (late) Prof. Wajih A. Nizami flood through my mind at this moment and I duly acknowledge his inspirational influences as a researcher and teacher.

Special thanks are due to Prof. Durdana S. Jairajpuri for allowing usage of facilities of Parasitology Research Laboratory and to Dr. S. M. Abbas Abidi who guided me to use those appliances. I wish to thankfully recall my reverend teachers Prof. Jamil A. Khan, Prof. Asif A. Khan and Prof. Absar M. Khan for their encouragement. I also thankfully acknowledge my teacher, Dr Iqbal Pervez who also permitted the use of his laboratory facilities beside helping with discussions on research matters. Dr. M. Afzal, Dr. Asim Azfer, Dr. Niamat Ali, Dr. Gul Ahmad and Dr. M. Khalid Saifullah also helped with their constructive criticism. I am thankful to Dr. Qamar Ahmad for his skillful help in developing Western blots.
Lab colleagues play a major role in creating a conducive environment for research for which Dr. (Mrs.) Nikhat Nabi, Dr. Rakesh B. Pandey, Dr. Syed Hasan Arif and Mr. Riaz Ahmad have to be duly credited. Their sincerity, encouragement and positive attitude has been a real asset.

All my colleagues and friends: Dr. Fauzia Sherwani, Dr. Anjum Nasreen, Dr. Shoeba Binte Anees, Dr. Rana Samad, Dr. Nazura Usmani Mrs. Kavita Singh and Fauzia, Asma, Shalini, Tasneem, Saba, Asma Shaheen, Mayeda and Yusuf deserve special thanks for their unfailing love and faith.

I sincerely acknowledge the assistance of Mr. Zaheer Ahmad, Mr. Shakir Ali and Mr. Ramesh for helping in lab work and maintenance of lab. hygiene that also deserve a note of thanks.

Lastly, I wish to thank my father Prof. Farooq Siddiqi, my Mother Mrs. Shakira Farooq, my sister Zarreen and brother-in-law Kamran for their moral support, patience and encouragement over the years. Without the love and support of my family and friends this work would not have been possible.

(Mumtaz Jabeen)