ACKNOWLEDGEMENT

Three years of my research journey for fulfilling my dream for pursuing Ph.D. was the combination of painful and joyful experience accompanied with several people’s kind help cumulated with hardships, trust, bitterness, frustration, motivation and encouragement. Now, finally when I have found myself conquered the heights of success, I realized that it was teamwork that helped me to crawl towards success and to reach at the top. Even though these few words are not sufficient to express my gratitude to all the people who supported and helped me throughout my research journey, I would still like to convey my big heartfelt thanks to all of them.

At this moment of accomplishment, I would sincerely like to pay my first debt of gratitude and homage to my guide and mentor Dr. P.P. Sengupta, Principal Scientist, ICAR-NIVEDI, Bangalore, India who accepted me as his Ph.D. student without any hesitation and showered his continuous support and help for my Ph.D. research work. His patience, motivation, and immense knowledge about the subject has given me the confidence to carry out my research in right direction and made me capable to overcome every difficulty I encountered during the tenure. His guidance has helped me in all the time of research period and even during writing of my thesis. I could not have imagined having a better guide and mentor for my Ph.D. study.

My second debt of gratitude goes to Dr. H. Rahman, Ex- Director, ICAR-NIVEDI, Bangalore, and Present DDG (AS), ICAR, New Delhi for extending his kind gesture and giving me all the facilities at the institute in the form of infrastructure, laboratory, animal house, chemicals, instruments etc. required for pursuing my research at NIVEDI. His words and guidance has immensely motivated me for making me a better person and a better researcher.

My sincere thanks also goes to Dr. B.R. Shome, Acting Director, ICAR-NIVEDI, Bangalore, India for imparting good moral support and accessibility to the laboratory and research facilities. His leadership qualities and down to earth nature has boosted my confidence to pursue my research in a very simple and elegant way.

I would like to offer special thanks to Dr. G. R. Rudramurthy for his kind corporation and support during my research. He had immensely guided me as a second mentor and made me understand various technical concepts which helped me for my smooth research journey.

My very special and heartfelt thanks to Dr. Siju Susan Jacob for being with me as a good friend during my toughest period of my research and motivated me throughout my research journey. Her hard working nature mixed with innocence had impressed me a lot during my research tenure.

I am extremely thankful to Mr. M. Nair, Mr. Rajeeva Lochana, Mr. R.K. Babu, Mr. M. Lakshmaiah, Mr. N. Narayanaswamy, Mrs. A. Sharanya, Mrs. G.C. Sridevi, Ms. Rekha Priyadarshini, Mr. Vijayraj, and Mr. L. Gangadhareshwara for the administrative and financial documentation related support for the continuation and progress of my research.

I am also highly thankful to Mrs. Metilda Bibins, Ms. Manisha Roy, Mr. Raju, Ms. Heena Kausar, Late Mr. H. Shivaramaiah, Mr. B. Hanumanthraju, Mr. M.K.Ramu, Mrs. Priyanka, Mr. Pattabhi Reddy, Mrs. Suma, Mrs. Majula, Mrs. Heema, Mr. Elaganty, Mr. M. Mahesh, Mr. T. Gangadhareshwara and Mr. H. Muniswamy for their technical support in my research work and assisting me for sample collections, procurement of lab animals.

I would also like to extend my gratitude to Jain University, Bangalore for providing me a chance to register for Ph.D. in Biotechnology. My special thank is due towards Drs. Sandeep Shastri, Sudha Deshmukh, K. N. Varalakshmi and the entire staff members of Jain University, Bangalore for sharing their knowledge during course work session.
I express my special thanks to Dr. Mythili Rao for timely guidance during my Ph.D. tenure. She remained very pleasant and jovial at work and that made me very comfortable to interact with her.

My thesis would not have looked beautiful and meaningful without the help of Mr. Manjunath. I would like to thank for all his efforts done for editing, formatting, compiling, printing and binding of my Ph.D. thesis.

My entire research would have been incomplete without my lab animals. Thus in this context, I offer my sincere gratitude and would like to pay homage to all my experimental lab animals including rabbits, rats and mice for sacrificing their life for carrying out my research work.

I sincerely thank to the Department of Biotechnology (DBT), Government of India (Project number: BT/PR3478/ADV/90/122/2011) for supporting my JRF/SRF grant.

The help and co-operation received from all the PIs of RRUs of AICRP on ADMAS related to the sample collection from field animals are thankfully acknowledged.

Finally, I would like to thank my family - Mr. T. A. Jose and Mrs. Lilly Jose (my parents), Mr. Lijoy Jose (brother), Mrs. Ruchira Lijoy (sister-in-law) for supporting me spiritually throughout my research work and my life in general. It’s because of their prayers, blessings and support only I could complete my Ph.D. work within speculated time frame. In this context, I would also like to extend my gratitude to my in-laws: Mr. Joseph Tattaserry, Mrs. Molly Joseph and Mr. Binoy Thomas (brother-in-law) and Mrs. Mily Binoy (sister-in law) for their support and prayers. I would also like to thank all my family members, relatives, colleagues and friends for their prayers and support.
Last but not the least, my research journey had encountered with various difficulties at several stages. I was able to overcome all those difficulties due to the continuous back support of my husband (Mr. Milesh Joseph) and my kids (Ms. Irene Milesh and Ms. Elaine Milesh), who were the strong pillars in my life. They boosted my confidence and showed me extra miles for conquering the successes. My Kids were my best stress reliever and their support has added value to my existence.

I thank the Almighty God for his powerful intervention in my life and blessings me with the highest degree of education.

(Ligi Jose)