ACKNOWLEDGEMENT

First of all, I express my sincere and deepest gratitude to my mentor Prof. S. Karutha Pandian for having given me the opportunity to work under him. I profusely thank him for his able guidance, motivation and constant support (both academic and moral) throughout my Ph.D. Programme. I feel very fortunate to be closely associated with him and have learnt various aspects of teaching and research besides imbuing the essential characters such as integrity, dedication and commitment from him during my Ph.D. tenure.

I would like to thank my Teachers Prof. K. Balamurugan, Dr. A. Veera Ravi, Dr. M. Ramesh and Dr. K. Pandima Devi for having given me constant support and encouragement right from my M.Sc., days.

I express my heartfelt thanks to Dr. D. Viszwapriya, Ms. A. Valliammai, Dr. S. Sethupathy and Mr. Dilawar Ahmed Mir for their fruitful scientific discussions during my Ph.D. Programme. My special thanks are due to Dr. C. Nithya who gave me the opportunity to work on Metagenomics during my M.Sc., Project Work that ultimately formed the basis of my Ph.D. work.

I would like to express my love and gratitude to Dr. R. Sakthivel, Dr. B. Vignesh Kumar, Ms. M. Sivaranjani, Ms. M. Kani Mozhi and Ms. K. P. Divya for making my Ph.D. days more memorable.

I am thankful to my seniors Dr. D. Bakkiyaraj, Dr. K. Balaji, Dr. B. Jancy Kalpana Dr. R. Beema Shafran, Dr. A. Padmavathi, Dr. R. Salini, Dr. S. Gowrishankar and my peers Ms. J. Rathna @ Nandhini, Ms. S. Muthamill, Mr. K. Ganesh Prasath, Mr. A. Selvaraj, Ms. S. Alagu Lakshmi, Ms. T. K. Swetha, Mr. Rajeev Meora, Ms. T. Kasthuri and Ms. A. Priya for their support and timely help throughout my Ph.D. tenure.

My special thanks are due to Dr. G. Ashwinkumar Subrameni, Dr. C. Sivasankar, Ms. D. Sheeba Malar, Mr. B. Shanmuganathan, Mr. T. Ragupathi and all other Research Scholars of the Department for their kind cooperation and endless support throughout my Ph.D. Programme.

I would like to thank Mrs. V. P. Malathi, Mr. G. Seenivasan, Mr. SP. Muthukrishnan, Mrs. S. Amarajothi and Mrs. T. Vasumath for their constant support throughout my research work.

I thankfully acknowledge the financial assistance provided by the Department of Biotechnology (DBT), Govt. of India, New Delhi & ITC LSTC, Bangalore in the form of JRF and Council of Scientific and Industrial Research (CSIR), New Delhi in the form of SRF (File No. 09/688(0027)/2014-EMR-I), computational facilities provided by the Bioinformatics Infrastructure Facility, Alagappa University [funded by the Department of Biotechnology, Government of India; Grant No. BT/BI25/015/2012(BIF)] and the Instrumentation Facility provided by Department of Science and Technology, Government of India through PURSE [Grant No.SR/S9Z-23/2010/42 (G)] & FIST-LEVEL-I- (PHASE-I & II - Grant No.SR-FST/LSI-087/2008 & SR/FST/LSI-639/2015 (C)) and University Grants Commission, New Delhi through SAP-DRS1 [Grant No.F.3-28/2011 (SAP-II)].

I wish to honour my mother Smt. C. Nallathangal, my brothers Mr. C. Arun Raja, Mr. C. Ashok Raja and all my family members for their patience, unconditional love, support and understanding.

C ARAVINDRAJA
Dedicated to my Parents and Teachers