ACKNOWLEDGEMENT

It is with utmost pleasure that I express my sincere gratitude to God and my parents for graceful blessings showered upon me for the successful completion of this work.

Writing a dissertation can be a lonely and isolating experience, yet it is obviously not possible without the personal and practical support of numerous people that have supported during the research development in my carrier. The journey was not always trouble-free, riddled with pitfalls and disappointments, but somehow I managed to persevere and learn so much about life along the way. I could never have completed this goal without the help, support, guidance and efforts of many people.

I am privileged to thank Prof. P. Murugesan, Chancellor, PRIST University, Thanjavur, Tamil Nadu for his encouragement by way of sanctioned university stipend and permitting me to utilize all the facilities available in the university to complete the research work.

With heart and soul I wish to place on record my heart felt thanks and gratitude to my respected Guide Dr. S. Ravikumar M.Sc., M.Phil., Ph.D., Department of Biotechnology, PRIST University, Thanjavur, who made a never fading impact on me through her meticulous guidance, steadfast inspiration, untiring patience, non-compromised, constant motivation and ready help rendered in research and personal care with doting heart. My sense of gratitude to her will preserve till eternity.

My sincere thanks to Dr. N. Ethirajalu, Vice-Chancellor; Dr. P.S.M. Kannan, Pro-Chancellor (Administration); Prof. C. Nagarajan, Pro-Chancellor (Academic); Dr. K.V. Balasubramanian, Registrar; Dr. G. Govindarajan, University Academic affairs Dr. G. Kuppuswamy, Director, Dr. V.Manivannan Additional Director and Dr. M. Ramalingam, Senior Scientist, Centre for Research and Development, Mr. Balasubramanian, PRO, PRIST University (East Campus), Mr. Mathiazhagan, Head, Department of Mathematics, PRIST University, Vallam, Thanjavur, Tamil Nadu for their encouragement and inspiration throughout the course of my study.
I am very grateful for having an exceptional doctoral committee and wish to thank Dr. S. Patharajan, Scientist, CRD, PRIST University and Dr. Gogulakrishnan, Assistant Professor, Department of Chemistry, PRIST University, Tamil Nadu, Dr. A.V.P Karthikeyan, Karur, Government arts college for their continual support and encouragement.

I am ever obliged to the most respected traditional healer Vaithiar Ayyathurai Konar, Elumalai, Peraiur Taluk, Madurai, Tamil Nadu for his benevolent support, and gave much valuable information regarding medicinal use of plant.

My cordial thanks to the CRD scientists Dr. R. Elangomathavan, Dr. S. Ramesh, Dr. S. Sankar Samipillai and J. Karthikeyan Centre for Research and Development, PRIST University, Vallam, Thanjavur, Tamil Nadu for their support, help and good will provided at the time of my research work.

It is a pleasure to thank Ms. R.V. Hemavathy, Assistant Professor, V. Vadanasundari, Assistant Professor, K. Sankaran, Assistant Professor and S.Rengabhasiyam, Assistant Professor, A. Thirumurugan, Assistant Professor, Faculty of Biotechnology, PREC, Thanjavur, Tamilnadu assisted and encouraged me in various ways during my course of studies.

I am obliged to thank Ms. R. Nithya, Assistant Professor, R. Sivasankar, Assistant Professor, K. Vasantharaj, Assistant Professor and P. Karthika, Assistant Professor, assisted and encouraged me in various ways during my course of studies.

I express my thanks to Dr. T. Ramesh, Assistant Professor, Department of Applied Biochemistry, Konkuk University Chungbuk, South Korea, who gave initial guidance of clinical biochemistry.

My profound thanks to Mrs. A. Sohna Chandra Pakeyavathi, Head, Department of Biochemistry and Mr. G. Nagarajan, former Head, Department of Pharmacy, PRIST University (East Campus), Thanjavur, Tamil Nadu for permitting me to utilize all the facilities available in the department to complete the study.
My sincere gratitude to the research scholar Mr. P. Nagendra Prabu, Department of Biochemistry, Madras University, Chennai, Tamil Nadu; Mr. S. Srigopalram and M. Vijayakumar Department of Biochemistry, Kongunadu arts and science, Coimbatore. K.Balamurugan, Department of Biochemistry, PRIST University, Ms. P. Sumitha, Department of Microbiology, Bharathidasan University, Trichy, Tamil Nadu and Ms. Balabirami, Centre for Research and Development, PRIST University, Vallam, Thanjavur, Tamil Nadu; for their compassionate support, help and goodwill provided by them at the time of my research work.

I extend my heartfelt thanks to Mr. A. Thirunavukarasu, Assistant Professor, PSG College of Technology, Coimbatore, Tamil Nadu for his timely help and contributive support for my project.

It feasts my mind to thank B. Tech and M.Tech student Mr. Ravichandran and Mr. T. Suman for their timely help and kind cooperation during the entire period of my study.

My preferred thanks to Mrs. K. Gomathi, DTP operator and Mr. V. Janakiraman, and Nagarajan, Lab Assistant and J. Ravichandran, Lab Attender, Faculty of Biotechnology for their timely help and kind cooperation in all stages of work.

My sincere thanks to Sri Gowri Biotech Research Academy, Thajnjvur for timely helping and contributive support for my research work.

I also extend my heartfelt thanks to Mr. B. Kaleeswaran, my Doctoral Research colleague who has been at my beck and call and keyed up from head to foot in the completion of my work. It is the cumulative efforts of the above minds working together day and night that gave me the contentment of completing the task. and Mr. D. Karthik, Scientist, Genei biotech lab Pvt. Ltd, Bangalore, Karnataka for his moral support with the development of the research design and providing constructive suggestions along the way.

I extend my heartful thanks to Mrs. S. Sukanya Kaleeswaran for her timely help and contributive support for my project.
In this study, direct or indirect help and suggestions were received from a large number of individuals, books and published works. Sincere efforts have been made to acknowledge or to refer them; still it is not unlikely that some of them have not been acknowledged due to inadvertence. I thank each and every soul behind the endeavor of mine.

S. ILAvenil