ACKNOWLEDGEMENT

My humble thanks to the Lord who has stood by me all this time, who gave the energy and enthusiasm to fulfil this endeavour...

It would not have been possible to complete this manuscript without the help and support of the kind people around me and it’s time to thank all those souls, whose prayers inspired and guided me.

At the outset, I would like to express the deepest sense of gratitude to my mentor Dr. A. K. Handique, Professor, Department of Biotechnology, Gauhati University, for his supervision, advice, guidance and the sacrifices he made for successful completion of my work. His command over the subject, scientific intellect, insightful remarks and active persuasion contributed to enrich my growth as a student and a researcher. Above all, his faith in me and the never ending encouragement and support in various aspects of the program went a long way in the successful completion of my degree.

I am thankful to Dr. Rupjyoti Bharali, Head, Department of Biotechnology, Gauhati University for supporting me in successful completion of my degree. I deem it a great privilege to express my regards and thankfulness to Dr. M.C. Kalita, Former Head, Professor, Department of Biotechnology, Gauhati University, for encouraging me to take up Ph.D. I sincerely thank Dr. P.J, Handique, Former Head and Professor, Department of Biotechnology, Gauhati University for helping me during final registration. I am also thankful to Dr. Manab Deka, Dr. G. U. Ahmed, Dr. S. Sarma, Dr. Sunjoy Ghosh for their support.
I sincerely thank Dr. Chandana Choudhury Barua, Professor, Department of Pharmacology and Toxicology, College Of Veterinary Science, Khanapara, for her support and encouraging me to take up Ph.D. I am also grateful to her for permitting me to carry out my animal study works in her laboratory. I am also thankful to Dr. A. Chakraborty, Director, College of Veterinary Science, Assam Agricultural University, Khanapara and Dr. R. N. Goswami, Dean, College of Veterinary Science, Assam Agricultural University, Khanapara for allowing me to perform a part of my work in Department of Pharmacology and Toxicology without any hindrance.

I am highly grateful to Dr. V. R. Biswas, Additional Director, DRDO, Life Science Research Board for encouraging me and supporting for successful completion of my research work.

I express my heartfelt thanks to Dr. M. J. Bordoloi, Scientist EII, North East Institute of Science and Technology( NEIST), CSIR, Jorhat for helping me in fractionating my crude extracts in his laboratory for successful identification of active fractions. I also express my special thanks to Miss Anindita Talukdar, Ph. D Scholar for guiding me in my HPTLC work. I am also grateful to Dr. Iswar Barua, taxonomist, Department of Agronomy, Assam Agricultural University, Jorhat, for authenticating my plant samples collected from different parts of North East India,

I would like to express my gratefulness to Dr. Arnab Sen, Head, Division of Animal Health, ICAR- RC for NEH region, Umium, Meghalaya, for his immense support for completing my genetic diversity in his laboratory. I wholeheartedly thank the scientific staffs of ICAR Research complex, Dr. I. Shakuntala, Principal Scientist, Dr. Sandeep Ghatak, Senior Scientist, Dr. K. Puro, Scientist, Dr. Samir
Das, Scientist, Dr. Rajkumari Sanjukta, Scientist, Division of Animal Health for their constant encouragement, valuable suggestions and perceptive guidance during the course of my work. I would also like thank sincerely Dr. Mohapatra, Department of Agroforestry and Dr. A Pattanaik, Division of Agricultural Biotechnology, ICAR-RC for NEH region, Umium, Meghalaya for his valuable suggestions.

Where emotions are involved, words cease to mean; the affection, blessings, encouragement, sacrifice and love of my beloved Dad, Mom, Sister and Brother cannot be put forth in mere words. Their unconditional support at each turn of the road; foresight and values has paved the way for a privileged education to which I am indebted forever.

Words cannot describe the help and good association of my husband Rajkumar Pegu, who had taken so much of pain for me. His constant moral and mental support and prayers never let me down at any front of my life. It was his support, which gave me the strength to complete my work with full honesty and sincerity.

I whole heartedly thank the scientific, technical staff and colleagues of Department of Biotechnology, Gauhati University; Department of Pharmacology and Toxicology, Assam Agricultural University and Division of Animal Health, ICAR Research Complex, Barapani, Meghalaya, for their encouragement, sensible criticism and for innumerable good memories which will always bring a smile on my face.

Last but not the least, my special thanks to are due to all who have contributed, in many ways to achieve and make this work possible and to be extended to those I forgot to mention in this notion.