ACKNOWLEDGEMENTS

With immense pleasure, I take the opportunity to express my deep sense of gratitude and sincere appreciation to my supervisor Dr. M.S. Dkhar (Reader), Department of Botany, NEHU for her expert guidance, valuable comments, helpful suggestion and constant encouragement throughout the course of study.

I express deep sense of indebtedness and sincere appreciation to my joint-supervisor Dr. S.C. Tiwari, Senior Lecturer, Department of Forestry, NERIST for his valuable guidance, constant encouragement and special interest shown to me in completing this study.

My heartfelt thanks are due to Prof. A. K. Mishra, (Head), Prof. R.R. Mishra (Retd.), Prof. R. S. Tripathi, Prof. P. Tandon and Prof. H. N Pandey (former Heads), other faculty members and non-teaching staff of the Botany Department, NEHU for their valuable advice, kind cooperation and technical support during my stay at NEHU for the research work.

I am very much thankful to the Director, North-Eastern Regional Institute of Science and Technology (NERIST) for providing necessary facilities for the research work and encouragement during the entire period of research.

I am grateful to Dr. (Mrs.) P. Rethy (HOD), Department of Forestry, NERIST and all other faculty members, namely; Dr.(Mrs.) U. Melkania, Dr. M. L. Khan, Dr. C. L. Sharma, Dr. (Mrs.) P.P. Mary, Dr. (Mrs.) M. Sharma, Dr. G. S. Solanki, Mr. K. K Sood, Dr. (Mrs.) K. Srivastava, Dr. A. Arunachalam, and Dr. (Mrs). K. Arunachalam, for their valuable advices, suggestions and necessary help extended to me during the research work in the department.

I am thankful to Dr. Tapankumar Chakrabarty (Asst. Prof.) and Mr. R.K. Pritamjit Singh (Research Scholar) Department of Statistics and Dr. Swapan Kumar Sinha (RA) Department of Life Sciences, Manipur University, Imphal for their help and support in statistical analysis of data.

I extend my thankfulness to my friend Dr. Padmaraj Gajurel (RA) for his help during field tours, laboratory works and for his personal support rendered to me during our stay in NERIST. Further, my appreciations goes to Mr. Putul Bhuyan, Mr. Kalidas Upadhyay, Miss. Kh. Ashalata Devi, Hridip Kumar Sarma, Bipin Kumar Sharma, and all the research scholars in the Department of Forestry, NERIST for their kind co-operation and help extended to me for the completion of my thesis work.

I am especially thankful to Dr. L. Sanjukumar Singh (Post Doctoral Research Associate), Cleveland State University, Ohio and Dr. O. Barun Singh (Humboldt Fellow, MPI for Molecular Physiology, Dortmund, Germany for their inspiration and suggestions for smooth and successful completion of my research work.

My thanks go to all the research scholars of Botany Department, NEHU who rendered help during my stay and work at NEHU. I also thank to my friend Mr. N. Dhiren Singh (research scholar) for his kind help extended to me.
I am also thankful to A. Tomba, Ng. Tarun, R.K. Amarjeet, A. Tiken and Th, Somananda Singh (Research Scholars, NEHU) for their cooperation and suggestions and Th. Doren Singh, St. Anthony’s College, Shillong for computational help in completing the research work.

I would like to thank Dr. N. D. Singh (STA), Mrs. P. Saikia (UDC), B. Thapa (Peon), Pradeep Basumati (TA) and Mohim Chutia (TA) of Forestry Department, NERIST for their co-operation and technical support during my research tenure. Further, I am very much thankful to project assistants, D. Deori, A. Saikia, B. Basumati, M. Ingti for their cooperation during my field study and laboratory work in the department.

My sincere thank also goes to Sri L. Shivadutta Singh and Anupam Sarmah, (Research scholar, SFRI), Kh. Nripendra Singh (Research Scholar, Gauhati University), Mr. Bulbul. Gogoi, Mr. Nityanand Chutia, Dr. A. K. Thakur senior research scholars of NERIST, for their encouragement and help.

I am thankful to the Department of Environment and Forest, Govt. of Arunachal Pradesh for the permission to work in the Banderdewa Reserve Forest of Papum pare District, Arunacha Pradesh.

My thank also goes to all those who helped me in various ways during the course of my research work and specially the people of Arunachal Pradesh for their help and kind co-operation during my field survey, sample collection and my stay in Nirjuli.

Further, I am very much thankful to the Head, HRDG, CSIR, New Delhi for providing financial assistance by awarding Junior and Senior Research Fellowships which enabled me to complete my research work in time.

I take the opportunity to express my sincere thanks to Prof. J.C. Munch (Director) and Dr. Michael Schloter, Andreas Gattinger (Group Leaders, Microbial Ecology Group) and technical assistants, Institute of Soil Ecology, GSF-National Research Centre for Environment and Health, Neuherberg (Munich), Germany and German Academic Exchange Service (DAAD) for their kind hostage, expertise, technical support and financial assistance in conducting the experiments on molecular microbial ecology of soils. Further, I also thank the research associates and scholars for their kind help and technical supports during my work in the Institute.

Finally, but not the least, I am very much thankful especially to my wife Rosy, whose esteemed caring, help and constant encouragement enhanced completion of my work.

Lastly, I am very much indebted to all of my beloved family members for their constant encouragement, inspiration, appreciation, financial support and cares given to me during the entire period of my research work which ultimately helped me in completing my desire to put this work into completion.

(Sorokhaibam Sureshkumar Singh)