

## Acknowledgment

The present compilation is the result of comprehensive work of my Ph.D thesis from the Department of Biotechnology, Bodoland University, Kokrajhar, Assam, during a period of 2013-2019. The whole period was one of the most intensive stage for me, which was not possible without the collective supports, inspiration and valuable suggestions from a number of individuals.

At the very beginning, I owe my thanks and gratitude to the kindness, confidence and patience showered by my supervisor Dr. Sandeep Das, Department of Biotechnology, Bodoland University, Kokrajhar, for his worthless supervision, suggestion and incessant encouragement all through my research work. This research work was possible only because of his well planning and arrangement as well as his advice and focus to achieve the goal. Sir, my heartfelt thanks goes to you for your kind companion throughout the research work.

I would like to extend my sincere gratitude to Dr. Jatin Sharma (Associate professor), Dr. Sharmistha Brahma Kaur (Assistant professor) and Mrs. Jonali Owary (Assistant professor), Department of Biotechnology, Bodoland University, for giving me valuable suggestion as well as constant encouragement throughout the research work.

I utilize this opportunity to extend my sincere, gratitude and gratefulness to former Hon'ble Vice-Chancellor, Prof. Hemanta Kumar Baruah, former registrar, Dr. Sekhar Brahma and all the administrative personnel of Bodoland University for their authoritative approval and necessary help in the period of my research work.

With deepest affection, I attempt to extend my thanks to NFHE, UGC, Govt. of India, for providing fellowship.

I must express my hearty gratitude to the Director of MLACW and Dr. M.B. Nagaveni (HOD), Department of Biotechnology and Biochemistry, Maharani Lakshmi Amman College for Women, Malleswaram, Bengaluru, for allowing me an authoritative approval to pursue the experimental research works in their institution.

I express my heartfelt thanks to Dr. Sushil Kumar Middha and Smt. Usha Talambedu, Department of Biotechnology and Biochemistry, Maharani Lakshmi Ammani College for Women, Bengaluru for allowing and steering me to execute the animal model experimentation in their organised laboratory (Life Science Research Centre) and spending their valuable time for completion of my experimental research work.

I express my whole hearted thanks to Dr. A. A. Mao, Scientist- 'F', Joint Director, Dr. Ranjit Daimary and Ms. Chaya Deori, BSI, Eastern Regional Centre, Shillong for their significant resourcefulness for identification and authentication of my research specimen.

With deepest affection, I attempt to extend my thanks to all the supporting non-teaching staff of the Department of Biotechnology and the J.R.F of Biotech-hub as well as Mushroom Spawn Unit for their imperative endorsement, necessary and continuous help throughout my research.

I wish to express my profound sense of gratitude to Dr. Chawngthanliana, Director of RIPANS, Mizoram, Mr. Vinod Devaraji, Application Scientist of Schrodinger and Dr. M. Ravikumar, Senior Application Scientist, Schrodinger for their significant resourceful assist in carrying out the docking work smoothly for my research.

Words evade me to express a great debt of thankfulness to my mother Smt. Amila Gayary, father Mr. Mukunda Ram Boro and all my family members for their constant inspirations with moral support and endless caring with courage in my academic life.

I express my heartfelt debt of gratitude with special appreciation to my beloved wife Mrs. Phungja Brahma, without whom the survey work would have been very tough. Her love, caring, moral and constant co-operative motivation shouldered me to achieve this milestone.

Besides, I would like to offer my sincere thanks to all associate scholar friends for uphold of excellent spirit of research environment with kind co-operation.

Indeed the words at my command are just not sufficient to express my sincere thanks and deep sense of profound respect to my native villagers of Purana Titaguri and the people/herbal medicine practitioner who shared lot of information and everyone who directly or indirectly helped me to achieve this research successfully.

My deepest apologies extend to all those persons whose name could not be mentioned individually herewith.

I bow my head in front of the Almighty God for whose graces a good luck glowed me for having the opportunity of completion of this research programme.

With regards

Hankhray Boro