ACKNOWLEDGEMENT

First and above all, I would like to express my heartfelt gratitude to my PhD Supervisor, **Dr. Satya Sundar Bhattacharya** for accepting me as a PhD student. This thesis is the result of his thoughtful guidance, warm encouragement, healthy criticisms, and moral support.

I earnestly thank the Honorable Vice-chancellor Tezpur University for extending necessary infrastructural facilities to carry out my research work. I also convey my sincere regards to the senior faculty members, head of the department and other faculty members in the Department of Environmental Science, Tezpur University for their constructive comments and advice.

I also take the opportunity to thank my doctoral committee members, Prof. N. Karak, Dr. S. Pratihar, and Dr. N.Gogoi for their suggestions and keen monitoring of my progress.

I would like to extend my heartful of thank my co-guide Dr. Sanjay Pratihar, and Prof. N. Karak, Department of Chemical Science Tezpur University for their constant help and support. I also thank Kasturi Sarmah for her support.

The Department of Zoology in Visva-Bharati University, Santiniketan have provided me necessary facilities and infrastructure at various points of time.

My sincere gratitude goes to the institutes and the personnel involved. Grateful thanks are expressed to Mofizul Rahman, and Saiful Islam for providing me a helping hand while working in the pot culture and the field study.

I cannot forget the help forwarded to me by my dear lab members, Linee ba, Banashree ba, Subhasis da, Nazneen, Ananya, Sarmishtha, and Jinashree in many ways. I would like to thank Chaitali, Nilamoni, Dipti, Bhagyuidyoi and all other post graduate students that I got the chance to help and work with.

They say friends do no thank each other. I must then thank my own good fortune to have people like Lina, Pranami, and Nairit.

I cannot finish without thanking my family. Here I would like to make a special mention of my parents, brothers, and sister in laws for their spiritual support in all aspects

of my life. My two little nephews Dhrumil (Mumu) and Jiyangshu (Jiku), thanks lot sweethearts for giving me the happiness at the time when I needed it most.

My sincere gratitude is also due to the DBT and ICAR Government of India for conferring the project fellowship that enabled me to complete my work.

Last but not the least; I thank the Almighty for keeping me in good health and granting me the capability to proceed successfully.

Date:

(Pallabi Das)