Preface

The Asian catfish, *Clarias batrachus* (Linn.) bears high consumer preference due to exceptional nutritional portfolio and delicious taste. The exploitation of its natural habitats, illicit fishing of juveniles, uncontrolled introduction of allied exotic fishes and massive pathogenic infections has brought down the condition of *C. batrachus* to quite a deplorable state. Thus emphasis on indigenous *C. batrachus* farming is becoming inevitable. The use of probiotic organism is the safest mode to protect aquatic diseases as well as to promote fish nutrition in worldwide aquaculture.

Considering the rapid declining of indigenous *C. batrachus*, the present thesis entitled 'Assessment of growth and nutrient status of indigenous fresh water catfish (*Clarias batrachus* Linn.) in relation to the application of newly isolated probiotics' was designed. The general introductory portion gives a brief idea about aquaculture probiotics; drastic reduction of indigenous *C. batrachus* and the importance of developing autochthonous probiotics for the cultivation of *C. batrachus*. The Review of literature section recapitulates aquatic diseases of *Clarias* sp.; commercial application of aquaculture probiotics; their mode of action; molecular identification technologies of probiotics; salient features of *Clarias batrachus* and probiotics in *Clarias* sp. The chapter 1 deals with the study of the physico-chemical characters of water of a normal habitat of *C. batrachus*. The chapter 2A represents isolation and selection of probiotic microorganisms from the intestine of adult *Clarias batrachus*. The chapter 2B entails the *in silico* structure prediction and catalytic interaction study of probiotic marker protein: bile salt hydrolase from *Lysinibacillus sphaericus*. In chapter 3, study of the growth and nutrient status of *C. batrachus* through the application of newly isolated probiotic-supplemented feed was carried out. In chapter 4, present scenario and existing threats of *Clarias batrachus* in Bankura district, WB with reference to freshwater fish diversity was revealed. The next section highlighted the important summary and

conclusion drawn from the thesis. The literature cited in the thesis has also been presented as references at the end.

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