

## Efficacy of **BACITOX PLUS** in Improving the Water Quality Parameters in Aquaculture Ponds

### Introduction:

Fish and shrimp are dependent on the water they live in for all their needs, including breathing, eating, reproducing and growing. Inadequate water quality causes more losses than any other problem and to a great extent, water quality determines the success or failure of any farming operation. Water quality parameters, which are of importance are mainly, temperature, salinity, turbidity, oxygen, CO<sub>2</sub>, nitrogen, ammonia, pH, alkalinity, hardness and minerals etc. A pond with good water quality will produce more and healthier animals than a pond with poor quality.

The use of probiotics is important for sustainable aquaculture as they are safe, effective and eco-friendly alternatives to antibiotics by stimulating animal growth and health status. Water probiotics will promote improvement in water quality and bottom pond health status through bioremediation.

Probiotics break down and consume the organic matter as well as exclude the pathogenic bacteria from the pond. Among all the species of probiotics discovered, Bacillus species have been found to be very effective and widely used in aquaculture.

### Objective of the Trial:

To study the efficacy of **BACITOX PLUS** in improving the water quality parameters in aquaculture ponds.

**BACITOX PLUS** is an Optimised Probiotic blend containing not less than 10 billion CFU per gram of viable spores of *B. subtilis*, *B. licheniformis*, *B. megaterium*, *B. polymyxa*, *Nitrosomanas*, *Nitrobacter*, *Rhodobacter*, *Rhodococcus* and *Thiobacillus denitrificans* in a compatible base.

### Pond History:

Ponds were reported with poor water quality along with very heavy loads of Vibrio.

### Trial Protocol:

**BACITOX PLUS** was used @ 500g/acre of pond per week continuously for 6 weeks. It was soaked in a mixture of jaggery and **YEAFORTE PLUS** for 30 minutes before applying for better results.

### Trial Summary:

Period : 13/10/2022 to 14/11/2022  
Location : Chinchinada, W.G.Dt., AP  
Pond Size : 2 acres  
DOC : 45 days  
Density : 2 lakhs  
Water depth : 4.0 feet

### Trial Results:

After the application, there was a significant improvement in the chemical & microbiological parameters of the pond water. Ammonia levels reduced from 0.05 to 0.00 mg/l (Fig.1) and DO level increased from 3.5 mg/l to 4.7 mg/l (Fig. 2). Vibrio loads started decreasing continuously after every application of Bacitox Plus (Fig 3).



Pond before BACITOX PLUS application



Pond after BACITOX PLUS application

### Ammonia

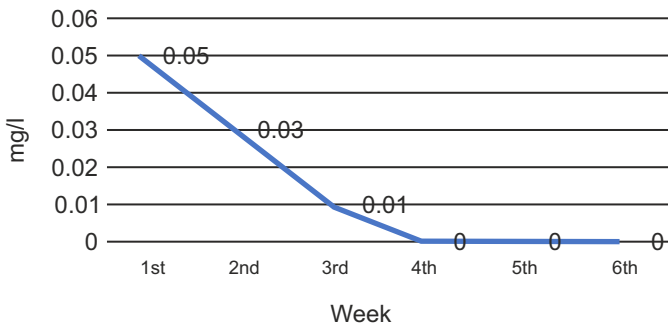


Fig. 1. Ammonia levels in pond water

### D.O

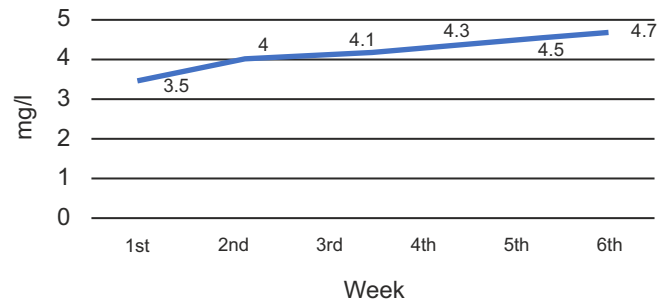


Fig. 2. DO levels in pond water

### Vibrio spp.

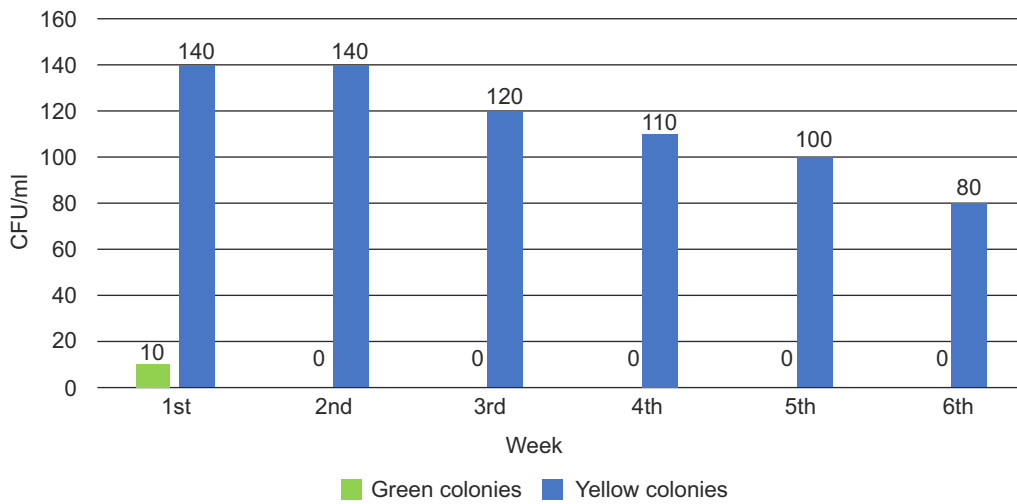


Fig. 3 Vibrio spp. colonies in pond water

### Conclusion:

Based on the trial results, it can be concluded that **BACITOX PLUS** proves to be very effective in controlling ammonia levels, maintaining DO and reducing Vibrio loads, thereby improving overall performance of shrimps.

