



ICAR-CIBA - a nodal R&D agency working in brackishwater aquaculture for the past three decades with a vision of environmentally sustainable, economically viable and socially acceptable aquaculture technologies, system interventions, technology backstopping and policy inputs by the institute, contributing to economic benefits of the sector which has already recorded annual export revenue of ₹ 20,000 crores apart from domestic consumption.

# CIBAMOX

## ICAR-CIBA

In intensive shrimp aquaculture practices, build-up of toxic nitrogenous metabolites leads to stress, poor growth, increased susceptibility to infections and loss of production. Maintaining optimum environmental parameters will help higher production and economic returns. To mitigate the deteriorating environmental quality in aquaculture ponds, ICAR-CIBA has developed a formulation for management of ammonia, with safe and natural microbial consortia selected through our arduous effort in R&D.



### The Technology

- Innovative combination of autotrophic ammonia, nitrite oxidizing and heterotrophic denitrifying bacterial consortia from brackishwater environments.
- Microbes have been selected based on their fast growth, high yield and enhanced detoxification efficiency under standard conditions.
- Mass production protocols were economised and standardised.
- Multiple field trials conducted in shrimp ponds at various locations of Gujarat, Andhra Pradesh and Tamil Nadu proved the efficiency of microbial consortia in reducing ammonia and total ammonia nitrogen.

### Technology Benefits

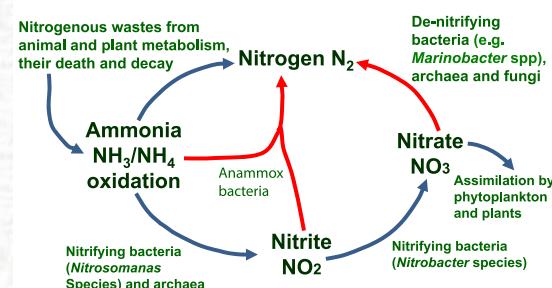
- Developed with indigenous microbes isolated from local brackishwater environment hence it works best in Indian shrimp farming systems.
- Effectively removes nitrogenous wastes from aquaculture ponds with salinities ranging from 15-45 ppt.
- Regular application of the product will keep ammonia, nitrite and nitrate levels below the maximum permissible levels and enhance aquaculture productivity.
- Mass production facility may be established with investment of about ₹ 5,00,000 and cost of production can be below ₹ 100/l.

### Services Offered

- Detailed Project Report
- Advisory services to establish mass production unit
- Sourcing of equipments, chemicals and supplies
- Transfer of technology on non-exclusive basis
- Training on propagation/mass production of microbes

### Nitrogen Cycle

Nitrogen compounds are essential for life, but some are toxic and must be managed





Shrimp Farming at Kakdwip Research Center, West Bengal

## AQUATIC ANIMAL HEALTH AND ENVIRONMENT DIVISION

### ICAR-Central Institute of Brackishwater Aquaculture (CIBA), Chennai

The Aquatic Animal Health and Environment Division has scientists with relevant specialties and expertise in Microbiology, Virology, Pathology, Parasitology, Biotechnology, Molecular Diagnostics, Soil and Water Chemistry, Environment Science and Aquaculture. The division has well established facilities for carrying out cutting edge research in molecular biology in addition to diagnostics, prophylactics and health management in brackishwater aquaculture. The advanced facilities have been established with dedicated efforts of scientists and funding support from ICAR, National Agricultural Research Project (NARP), World Bank, National Agricultural Technology Project (NATP), All India Network Project on Fish health (AINP), Consortia Research Platform on Diagnostics and Vaccines (CRP-D&V), National Innovations in Climate Resilient Agriculture (NICRA), Department of Biotechnology (DBT) and National Fisheries Development Board (NFDB). A well designed wet lab is also in place for carrying out live aquatic animal experiments in evaluating Koch's and River's postulates.



***“Brackishwater aquaculture for food, employment and prosperity”***

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