



**CAPACITY BUILDING
ON
PCR DIAGNOSIS OF
AQUATIC ANIMAL DISEASES**

18th to 20th September 2018



Organized by

ICAR - Central Institute of Brackishwater Aquaculture (CIBA)
Chennai 600028, Tamil Nadu

About ICAR-CIBA

Central Institute of Brackishwater Aquaculture (CIBA), Chennai is one of the national institutes under the nation's apex body, Indian Council of Agricultural Research (ICAR), Govt. of India. ICAR- CIBA, established on 1st April 1987 serves as the nodal agency for research and development of brackishwater aquaculture in the country. The institute with a vision of environmentally sustainable, economically viable and socially acceptable brackishwater aquaculture, is involved in R&D with focus on breeding and seed production technology on candidate brackishwater finfish and shellfish, cost effective indigenous formulated feeds, brackishwater farm, environment and health management, population genetics and stock improvement and social research etc.

Background

The shrimp farming sector during early 90's expanded rapidly across AP and Tamil Nadu, and then to other coastal states. However, a viral disease emerged during 1994, the white spot virus disease (WSD) caused by white spot syndrome virus (WSSV). The lethal WSSV causes heavy crop losses and inflicts economic losses to the shrimp farming sector. The shrimp farming activity has been facing challenge due to this disease year after year. As there is no therapeutic option available for this viral disease, the only option available is to detect and avoid the pathogen entry in the hatchery and farm, using smart diagnostic tools such as polymerase chain reaction (PCR), where even single virus can be detected, in a short span of 3-4 hours. What followed was a kind of diagnostic revolution, where PCR based WSSV detection labs were set up across AP and TN in private sector and the screening of broodstocks and shrimp seeds were a routine. PCR methods were described since 1996 for the detection of white spot syndrome virus (WSSV), and a number of diagnostic kits were marketed that cost farmers Rs 1200 to Rs.2000/- per test. At this point, ICAR-CIBA came forward and developed and commercialised an indigenous and sensitive PCR diagnostic kit for WSSV costing only about Rs 200 per test. Until 2008, majority of the farmers tested shrimp seed for WSSV in commercial PCR laboratories prior to stocking, and the practice helped to control the introduction of WSSV in the rearing systems and managed successful crops using tiger shrimp *Penaeus monodon*.

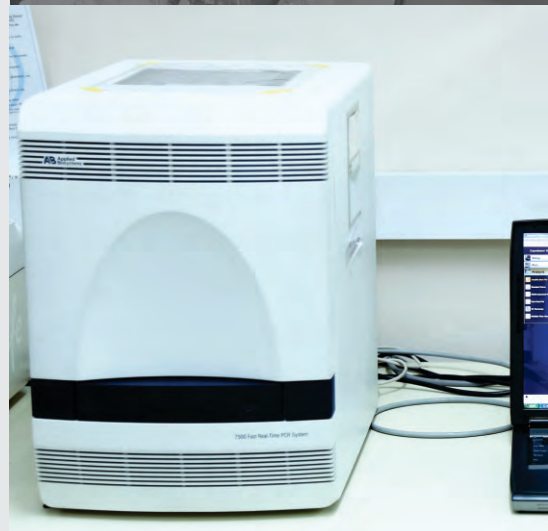
Screening of viral pathogens through PCR laboratories by the farmers provided biosecurity in shrimp farms, preventing the spread of devastating infectious diseases such as WSD of shrimp through early detection and adoption of best management practices (BMPs).

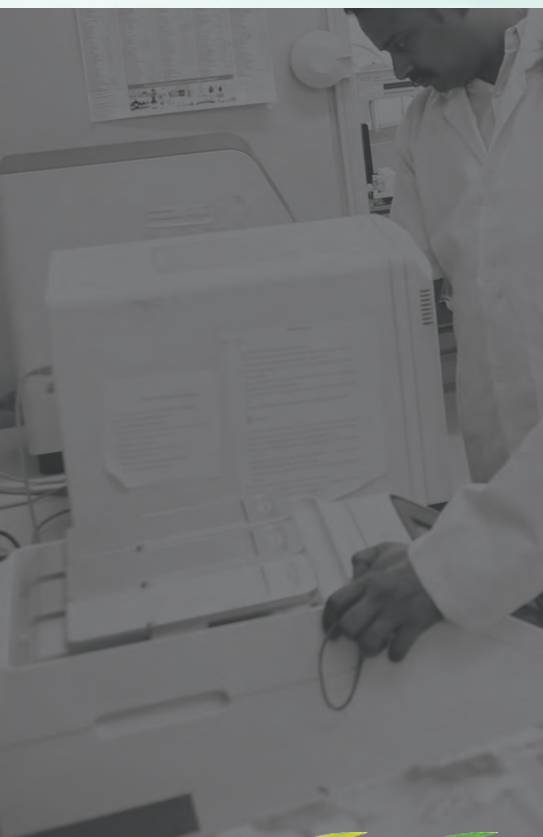
However, after the introduction of the exotic specific pathogen free (SPF) Pacific white shrimp, *Penaeus vannamei* in the year 2009, farmers gave away the practice of PCR screening of shrimp seed, possibly due to a wrong assumption of farmers that since the seed originated from SPF stock, PCR testing was not required. As a fall out of this, many of the private laboratories became virtually non-functional as farmers did not come forward to test seed for WSD, and eventually closed down. Further, it is believed that some of the hatchery operators started practicing inbreeding of Pacific white shrimp for quick profit, ultimately losing the SPF status. What followed was the re-emergence of WSSV related crop losses along with new emerging disease situations such as running mortality syndrome (RMS), white faeces syndrome (WFS), stunted growth, white muscle syndrome (WMS) and the latest, shrimp hepatopancreatic microsporidiosis caused by *Enterocytozoon hepatopenaei* (EHP) since 2013 concomitant with further expansion of shrimp farming. This situation has therefore necessitated testing seed before stocking using smart DNA based diagnostic tools such as PCR.

This PCR training is being conducted for the benefit of those genuinely interested in learning and the laboratory technicians whose parent laboratories may wish to participate in the PCR ring test (Please see separate notification about ring test on web sites of CIBA and CAA).

Training Programme

In view of the above background, the ICAR-CIBA and the CAA have been constantly advocating testing seed before stocking and periodic testing during on-going crops to minimise disease related loss to farmers and the aquaculture sector at large. Performing PCR test is an important skill and farm management decisions depend on the diagnostics results. Hence it is necessary that well trained technicians are involved in this important service sector.





What is the Training Programme about?

The PCR training would cover theoretical aspects and hands on training on (i) nucleic acids and principles and practice of polymerase chain reaction (PCR) including real time quantitative PCR, reverse transcriptase-PCR, (ii) overview of the various diagnostic tests used for important pathogens such as white spot syndrome virus (WSSV), infectious hypodermal and hematopoietic necrosis virus (IHHNV), the microsporidian parasite *Enterocytozoan hepatopenaei* (EHP) and acute hepatopancreatic necrosis disease (AHPND).

During our experience with the disease surveillance in the states of Andhra Pradesh and Tamil Nadu, it is observed that, most of the laboratories prefer using REAL-TIME or qPCR, over conventional nested PCR recommended by OIE. To our understanding, this shift is due to the perceived ease of performing real time procedure over nested PCR, as nested procedure requires higher level of technical efficiency and lesser time for diagnosis. Further, the economic capacity of the stakeholders, the service providing laboratories, shrimp hatcheries and farmers is also an added factor. In this background, in the present RING TEST, Real-Time PCR will be used as a normal test along with nested PCR. We hope this would provide an added advantage for all those who are participating in the ring test.

Who can participate in the training programme?

The PCR training programme is open to all interested personnel / technicians with a minimum Bachelor's degree in science with about six months working experience in an active PCR laboratory, preferably with exposure to diagnostics of aquaculture pathogens. Participants from other R & D organizations or having own diagnostic laboratories and involved in routine screening of shrimp pathogens can also participate.

When is the training programme?

The training programme will be of 3 days duration from **18th to 20th September 2018** with a maximum of 20 participants on a first come first basis. If more number of candidates are interested, training will be organised in additional batches and the dates of training will be communicated at a later date.

Where is the training programme?

The PCR training programme will be held at the Aquatic Animal Health Laboratory, CIBA, #75 Santhome High Road, MRC Nagar, Chennai- 600028. visit: www.ciba.res.in.

What is the training fee?

A nominal fee of Rs.3000/- + GST 18% will be collected from the participants towards the cost of training kit material and refreshment. The payment can be made in the form of demand draft (DD) payable to "ICAR Unit CIBA" or upon arrival through credit card.

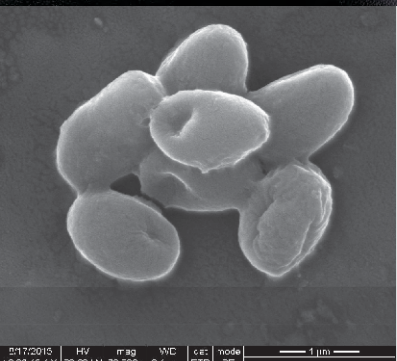
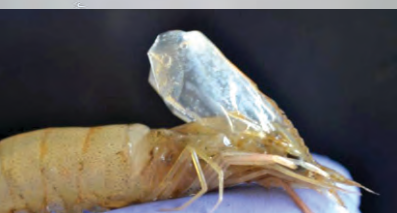
How to Apply

Interested applicants are requested to fill up the application form and submit before **05th September 2018** to subhendu@ciba.res.in

Travel, boarding and lodging

The selected participants are requested to travel by their own cost. The guest house located at CIBA is almost all the times occupied and there is no guarantee for accommodation during the desired time. However, several hotels are located near to the facility which can be booked upon request and participants have to bear all the cost. No accompanying persons will be allowed at the training facility.





Application for Capacity building on PCR diagnosis of aquatic animal diseases.

1. Full Name (in BLOCK Letters):
2. Date of birth & Age:
3. Sex: Male/Female
4. Address (including email and Phone no):
5. Educational Qualification:
6. Theoretical Knowledge on PCR:
7. Training acquired/Experience:
8. Profession:
9. Job description:

Statement of interest: (Write briefly why you are interested in this training and what you expect from the training):

Attached crossed demand Draft bearing no..... for Rs 3000/- only drawn in favour of ICAR Unit, CIBA, Chennai 600028.

Certificate: This is to certify that all the information provided here are true to best of my knowledge.

Date:
Place:

Signature of applicant

Submit the filled in application to Dr S.K. Otta @ subhendu@ciba.res.in

For more details:

The Director
Central Institute of Brackishwater Aquaculture,
75 Santhome High Road, MRC Nagar,
Chennai 600028, Tamil Nadu,
Phone: 044 – 2461 8817/ 2461 0565
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