



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 ₹ 23,000 crores apart from domestic consumption.

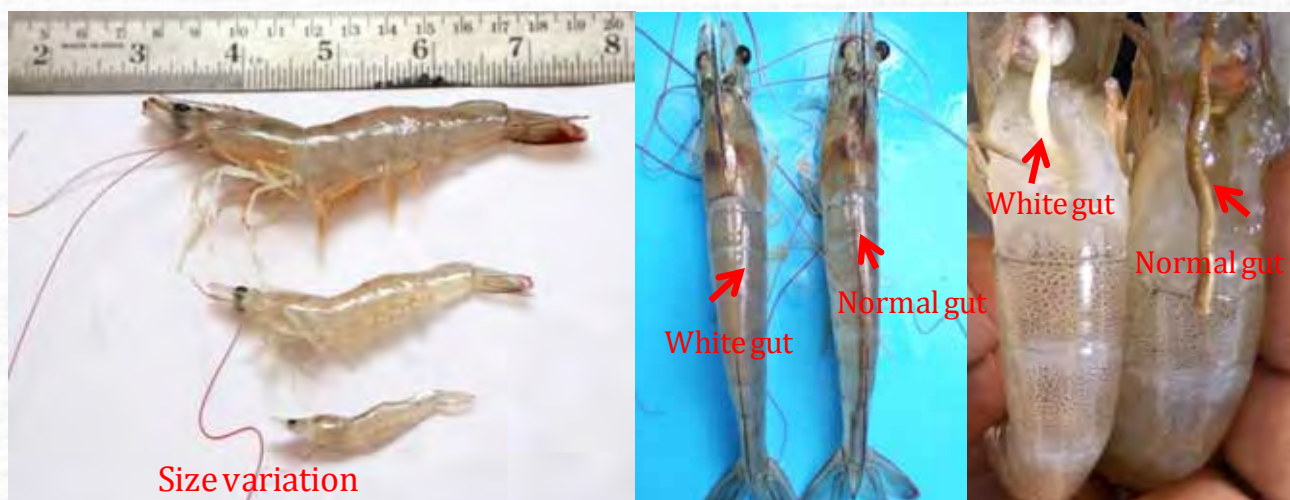
Visual loop-mediated isothermal amplification (LAMP) diagnostic kit for hepatopancreatic microsporidiasis (HPM) of shrimp

About the disease and the Pathogen

Hepatopancreatic microsporidiasis (HPM) in shrimp is important disease affecting farmed shrimp in the Southeast Asian region for nearly a decade, causing significant losses to aquaculture. The disease is caused by a microsporidian parasite, *Enterocytozoon hepatopenaei* (EHP). EHP infection in shrimp cannot be detected by visual inspection since no specifically distinctive gross signs are observed. However, suspected cases are often associated with growth retardation and white faeces syndrome.

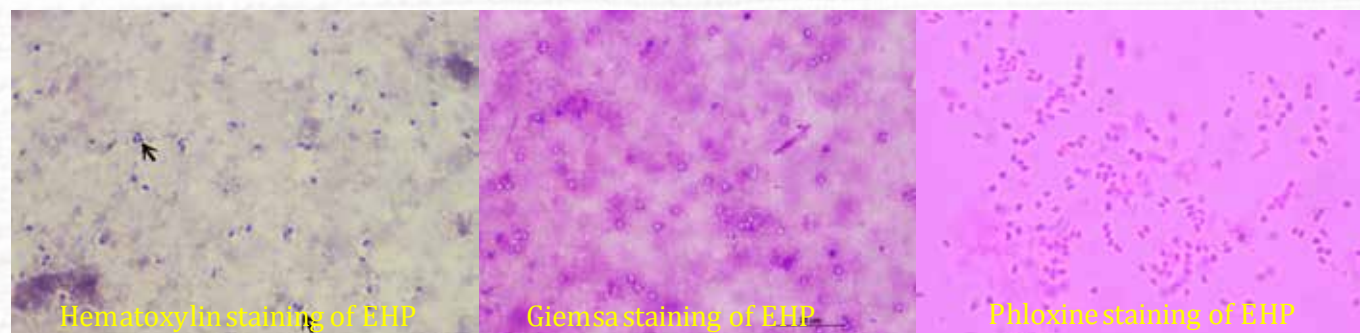
The target organ of EHP in shrimp is its hepatopancreas. Being the power house of the animal, infection in this digestive organ causes impairment of metabolism resulting in stunted growth. EHP infection can be transmitted horizontally through oral route (cannibalism, predation) and possibly by vertical transmission (trans-ovum). So far, no secondary hosts are known to be involved.

Clinical signs of Hepatopancreatic microsporidiasis



Clinical signs of Hepatopancreatic microsporidiasis

EHP infection in shrimp can be detected by microscopically demonstrating spores (1.1 ± 0.2 by $0.6-0.7 \pm 0.1 \mu\text{m}$) in stained hepatopancreatic tissue smears, hepatopancreas tissue sections and faecal samples.



About the Kit

Being a lead research institution in the area of aquatic animal health, ICAR-CIBA has developed a simple, rapid, visual loop mediated isothermal amplification (LAMP) kit for the diagnosis of EHP. This protocol is designed for the specific and sensitive detection with as low as 10 copies of EHP DNA. This kit is user friendly, cost effective and can be performed consistently with minimum laboratory skills.



Start



65 °C, 60 min

Positive Negative

LAMP detection of EHP



Mini Dry bath

Contents of the Kit:

- Kit Package comes with either 50 or 100 reactions
- The kit includes reagents for DNA Extraction and reagents for EHP LAMP such as Lamp master mix, Primer mix, negative and positive controls.
- Step by step protocol for performing the test

Salient features of the Kit are:

- The diagnostic kit is developed based on the EHP spore wall protein (SWP) gene.
- This assay is designed for the visual detection of EHP with colour change.
- This assay is designed for the rapid diagnosis of EHP (i.e.) within 45 min.
- This assay can be performed with a simple dry bath and has great potential for on- farm diagnostics under low-resource conditions.



“Brackishwater Aquaculture for Food, Employment and Prosperity”

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(ISO 9001:2015 certified)

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