OPTIMIX-EHP™

CATALYST
Beyond Innovations

A Tested Solution

Pathogen control in aquatic animals is highly challenging as they are transmitted rapidly through water unlike pathogens of terrestrial animals and high stocking density is one of the major factors aiding easy transmissions of pathogens.

EHP an abbreviation for Enterocytozoon hepatopenaei, a microsporidean which is a spore forming and a unicellular parasite and type of a fungal infection and one of the most discussed diseases in shrimp in recent times.

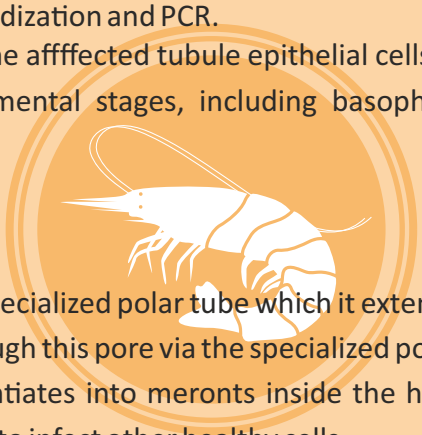
The reproductive and spreading rate of EHP is very fast and the contamination can cause an irreversible damage to the environment and maybe harmful for the future cultivations even despite thorough EHP disinfection which may not be effective due to left over spores which can also cause outbreaks. Inconsistent and retarded growth or unusually high FCR in the absence of the signs of the disease has been a typical sign which at this stage is usually uncontrollable.

Hepatopancreatic Microsporidiosis (HPM) caused by Enterocytozoon hepatopanaei (EHP) is the most difficult to control as there is no effective control or treatment available and extremely difficult to eradicate once the spores get settled in the ponds

The main clinical sign EHP Enterocytozoon hepatopanaei are: -

- Growth retardation – results in increased variability in size.
- In a more advanced stage:
  EHP- infected shrimp typically display soft shells, lethargy, reduced feed intake, and empty midgut.
- EHP is currently diagnosed through histological examination, in situ hybridization and PCR.

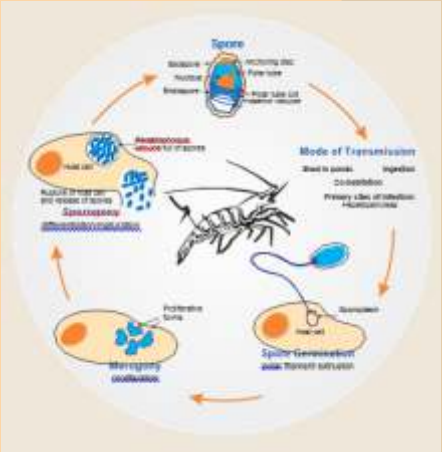
EHP is an intracellular microsporidian that replicates within the cytoplasm of the affffected tubule epithelial cells in the hepatopancreas. Histology of infected tissues reveals several developmental stages, including basophilic inclusion bodies within the cytoplasm of the hepatopancreas.



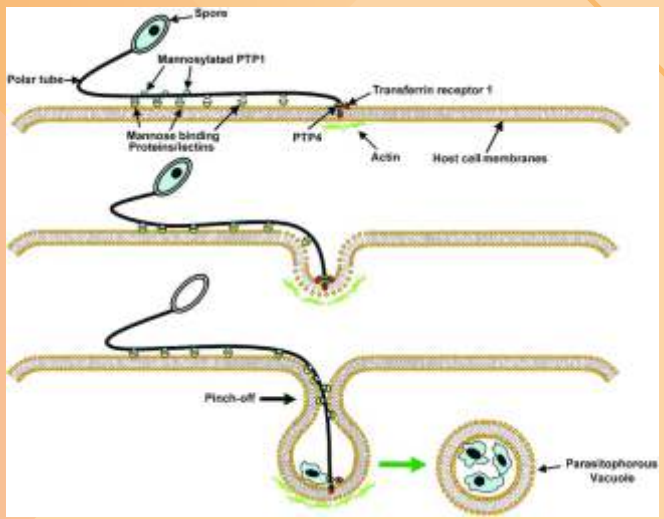
Lifecycle of EHP

EHP primarily infects the tubule epithelial cells of hepatopancreas via a highly specialized polar tube which it extends from its cell wall into the epithelial cell forming a pore in the host cell. Through this pore via the specialized polar tube it injects its sporoplasm into the host cells. The sporoplasm now dierentiates into meronts inside the host cytoplasm then sporonts and lastly mature spores that are finally released ready to infect other healthy cells.

OPTIMIX-EHP is a safe biotechnological innovation for controlling the EHP infection and increasing the efficiency of high- quality protein in aqua feeds. It not only enhances production, but also helps to improve the quality which positively influences processing characteristics. It also addresses the environmental concerns of eutrophication and pollution associated with excess nutrient waste.



OPTIMIX-EHP also optimizes the utilization of protein depending on the optimal dietary amino acid profile of a species for the protein synthesis. If the amino acid profile is poorly correlated to the requirement of the shrimp, then it leads to lower retention of synthesized protein. OPTIMIX EHP improves the retention of the synthesized protein from the feed leading to higher growth rates and low protein turnover



Mechanism for EHP Reduction

- The phyto-active components of OPTIMIX-EHP prevents adhesion of EHP spore wall and the tubule epithelial cells of shrimp hepatopancreas
- Checks virulence of EHP spores by killing them outside the cell or in the gut lumen
- Interrupts the polar tube extension to the host cell by digesting the polar tube components, thereby blocking the infection procedure
- Enhances the recovery of shrimp digestive system and improves the health condition

OPTIMIX EHP - Salient Features

- Assists in activating the function of hepatopancreas
- Aids in control of EHP/ HPM / WFS in shrimps
- Helps in achieving faster growth and body weight gain

Composition

Optimix EHP is a stable and optimized blend of Piperine, Flavonoids, Polyphenols and Mannans

Piperine - The principle alkaloid of Piper nigrum and long pepper which positively affects liver functions and plays a vital role as a chemopreventive substance through modulating enzyme functions

Flavanoids - Polyphenolic molecules which help regulate cellular activity and fight off free radicals that cause oxidative stress. Flavanoids are powerful antioxidant agents protecting against toxins & stressors

Polyphenols - Polyphenols are category of plant compounds that act as antioxidants & neutralise harmful free radicals that damage the cells and increase the productivity risk. Polyphenols also reduce inflammation which results in severe health & productivity hazards

Mannans - These are the source of MOS used as prebiotics and a cell wall polysaccharide in yeasts which helps in improving immunity and enhances growth

For Feed Millers: 1.50 – 2.00 Kg per MT of Feed
For Shrimp Ponds: 3 to 5 gm / Kg of shrimp feed

(For better results, mixing of Optimix–EHP is recommended in all the meals during the day)

OR As recommended by Aquaculture Consultants

Free From Hormones & Antibiotics

Feed Supplement for Aquaculture Use

Store In a Cool and Dry Place

Keep Out of Reach of Children

Catalyst LifeSciences Pvt. Ltd.
An ISO 9001:2015, ISO 14001:2015, HACCP Certified Company

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