

Viral Diseases in Prawns

Monika Jangra^{1*}, Tejpal
Dahiya², Rekha Moun¹,
Priya¹

¹ Research Scholar, Department
of Zoology and Aquaculture,
CCS Haryana Agricultural
University, Hisar (125001)

² Assistant Professor,
Department of Zoology and
Aquaculture, CCS Haryana
Agricultural University, Hisar
(125001)



*Corresponding Author
Monika Jangra*

Article History

Received: 15.07.2022

Revised: 21.07.2022

Accepted: 26.07.2022

This article is published under the
terms of the [Creative Commons
Attribution License 4.0](https://creativecommons.org/licenses/by/4.0/).

INTRODUCTION

Viral diseases are the most prominent infectious diseases in prawns and there is no much effective treatment available against them. They multiply within the host cells using the host machinery. In prawns, 14 disease causing viruses have been identified and some of these viruses are explained below:

1. *Baculovirus penaei* (BVP)

- **Host:** *Penaeus vannamei*, *P. setiferus*, *P. duorarum*.
- **Virus characteristics:** Large polyhedral inclusion bodies (20 micron size) present at nuclei of hepatopancreatic cells.
- **Effects on host:** All stages (larval, juvenile and adult) are susceptible. After infection, the nuclei enlarges due to degeneration of nucleoli. Infection rate is high (nearly 80%) and leads to high rate of mortality.

2. *Monodon baculo Virus* (MBV)

- **Host:** *Penaeus monodon* (post larval and neo adults).
- **Symptoms:** Retardation in growth, appetite loss, sluggish movement, body color becomes pale bluish grey to dark blue black, hepatopancreas yellow to white, and lethargicness.
- **Effects on host:** Misfunctioning of hepatopancreas due to tubular necrosis. Within the midgut epithelial cells and hypertrophoid nuclei of hepatopancreatic tubules, multiple eosinophilic round bodies form.

3. *Infectious Hypodermal And Hematopoietic Necrosis Virus* (IHHNV)

- **Host:** *Penaeus monodon* (post larval and juveniles).
- **Symptoms:** Black coloration of body, erratic swimming behavior, appetite loss and repeatedly motion to the surface and bottom of water till death (usually within 4-12 hours).

- **Effects on host:** Causes necrosis of tissue with generalized inflammation that can lead to malfunctioning in metabolism or death. Larvae can be latently infected.

4. Yellow head Baculo Virus (YBV)

- **Host:** *Penaeus monodon* (juveniles and sub adults).
- **Symptoms:** Due to discoloration of hepatopancreas, cephalothorax turns light yellow to pinkish, lethargic, and loss of appetite.
- **Effects on host:** Degeneration of hepatopancreatic tubules and hemocytic infiltration. Densely stained basophilic bodies can be observed in interstitial cells, tubular lumen and gill lamellae.

5. White Spot Baculo Virus (WSBV)

- **Host:** Penaeids (all stages).
- **Symptoms:** Occurrence of large white spots starting with carapace and then ultimately on whole body cuticular lining, off fed, and lethargic.
- **Effects on host:** The main target tissues are epithelial, epidermal and

hypodermal cells, connective tissues, hematopoietic tissue and adrenal glands. Presence of intranuclear eosinophilic inclusion bodies initially followed by basophilic bodies at later stages.

6. Hepato Pancreatic Parvo-like Virus (HPV)

- **Host:** *Penaeus semisulcatus*, *P. monodon* and *P. merguensis*.
- **Symptoms:** Retardation in growth, appetite loss and occurrence of white opaque areas on abdominal portions.
- **Effects on host:** presence of intranuclear inclusion bodies in epithelial cells and hepatopancreatic tubules, shrinkage of hepatopancreas and extremely high rate of mortality that may reach to 100 per cent in 1-2 months of infection.

7. Baculoviral Midgut Necrosis Virus (BMNV)

- **Host:** *Penaeus japonicus*.
- **Effects on host:** hepatopancreatic necrosis in larval and post larval stages that can cause severe mortalities.

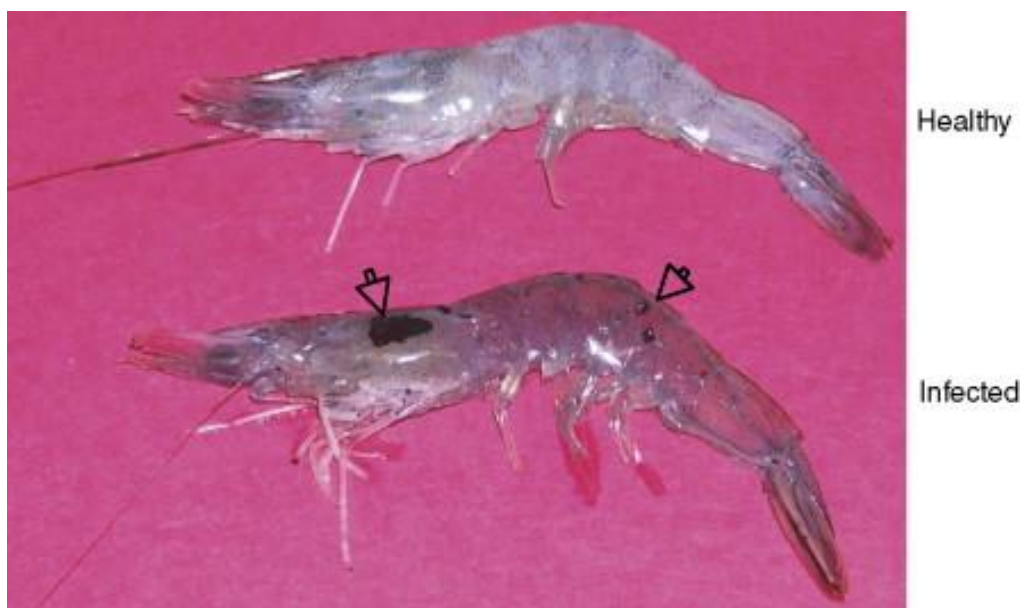


Figure 1: Morphological difference in healthy and infected sp. of *Penaeus*

Treatment

- **Chemical:** The viruses are known to use the host machinery for their growth and therefore, any chemical used against the virus can potentially affect the host. Although some antiviral drugs are present but these

are not generally used to avoid the risk of cell cytotoxicity.

- **Physical:** Enhancing pH, irradiating sunlight, oxidizing agents such as chlorine or I₂. Moreover, these cannot survive freely in sea water for long period.