

## Identifikasi dan Histopatologis Infeksi Virus pada Budidaya Udang Vaname (*Penaeus vannamei* Boone, 1931) di Indonesia

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### INTISARI

Infeksi virus merupakan tantangan bagi budidaya udang vaname (*Penaeus vannamei*) karena dapat menyebabkan kematian dan berakhir dengan kerugian ekonomi. Penyakit merupakan bentuk ketidakseimbangan antara lingkungan, inang, dan patogen.. Identifikasi agen penyebab penyakit perlu dilakukan sebagai langkah pencegahan dan peningkatan kewaspadaan. Penelitian ini bertujuan untuk mengetahui virus penyebab penyakit pada budidaya udang vaname serta mengetahui perubahan histopatologis jaringan udang yang terinfeksi. Kasus kematian masal dilaporkan terjadi pada budidaya udang vaname di Kabupaten Kendal, Jawa Tengah dengan tingkat kematian 83%. Gejala klinis yang teramati berupa adanya bintik putih pada karapas udang serta kemerahan pada pereopod, pleopod, dan uropod mengarah pada infeksi *White spot syndrome virus*. Dua individu diambil dan dilakukan deteksi molekuler berdasarkan protein amplop VP28. Hasil deteksi menunjukkan bahwa organ insang, hepatopankreas, usus, otot, dan pleopod dari kedua individu positif *White spot syndrome virus* dan memiliki homologi 100% dengan isolat dari beberapa negara. Perubahan histopatologis menunjukkan adanya atrofi tubular, degenerasi hidrofik intertubular, vakuolasi, dan adanya badan inklusi eosinofilik. Pengujian postulat Rivers menunjukkan bahwa filtrat virus menyebabkan kematian hingga 100% pada udang dan terkonfirmasi positif *White spot syndrome virus*. Infeksi *White spot syndrome virus* tidak terdeteksi pada beberapa lokasi budidaya udang vaname lain meliputi Kabupaten Kulonprogo, Kabupaten Purworejo, Kabupaten Kebumen, Kabupaten Batang, dan Kabupaten Pati.

**Kata kunci:** gejala, histopatologis, penyakit, virus

Identification and Histopathology of Viral Infection in Pacific White Shrimp  
(*Penaeus vannamei* Boone, 1931) Culture in Indonesia

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**ABSTRACT**

Infectious disease is a major challenge in Pacific white shrimp (*Penaeus vannamei*) culture which cause high mortality rate and lead to significant losses. Disease represents an imbalance between the environment, host, and pathogen. Identification of the disease causative agent is essential for prevention and raising awareness. This study aims to identify viral disease causative agent in shrimp culture outbreak and to examine the histopathological alterations of the infected tissues. Mass mortality of Pacific white shrimp culture is reported in Kendal Regency, Central Java with the mortality rate 83%. Clinical symptoms of white spot on carapace, reddish discoloration on pereopod, pleopod, and uropod were observed, which indicate to infection with *White spot syndrome virus*. Two individuals were taken out for molecular detection based on viral envelope protein VP28. The gill, hepatopancreas, gut, muscle, and pleopod of two individuals were all positive tested for *White spot syndrome virus* and shows 100% homology with isolates from several countries. Histopathological alteration including tubular atrophy, hydrophic intertubular degeneration, vacuolation, and eosinophilic inclusion body were observed. Rivers' postulates show mortality up to 100% in healthy shrimp and were tested positive of *White spot syndrome virus*. The incidences of WSSV infection were not recorded in other area such as Kulonprogo Regency, Purworejo Regency, Kebumen Regency, Batang Regency, and Pati Regency.

**Keywords:** disease, histopathology, symptoms, virus