

## Intisari

### Identifikasi dan Uji Patogenisitas *Vibrio* sp. dari Hepatopankreas Udang Vaname (*Litopenaeus vannamei*) dengan Gejala *Acute Hepatopancreatic Necrosis Disease* (AHPND)

*Early Mortality Syndrome* (EMS) atau penyakit *Acute Hepatopancreatic Necrosis Disease* (AHPND) merupakan penyakit lintas batas yang dapat menyebabkan kematian hingga 100% pada udang usia larva. Penelitian ini bertujuan untuk mengidentifikasi fenotipik dan mengetahui patogenisitas bakteri yang diisolasi dari hepatopankreas udang vaname yang menunjukkan gejala mirip AHPND di tambak udang daerah Purworejo. Isolat *Vibrio* sp. kemudian diberi nama VIB diinfeksi pada udang sehat dengan dosis  $10^4$ ,  $10^5$ ,  $10^6$ ,  $10^7$  cfu/ekor secara intraperitoneal. Pengamatan dilakukan selama 24 jam, 42 jam, dan 72 jam pasca infeksi. Identifikasi bakteri dilakukan dengan uji biokimia. Keberadaan bakteri selama masa pengamatan dipantau melalui perhitungan *Total Plate Count* (TPC), jumlah total hemosit dihitung menggunakan metode *Total Hemosite Count* (THC) serta gejala dan perubahan morfologi pada udang diamati pada setiap jamnya. Jaringan hepatopankreas dan usus udang diambil untuk dilakukan pemeriksaan histopatologi. Hasil identifikasi biokimia didapatkan spesies dengan karakteristik morfologi mirip *Vibrio parahaemolyticus*. Hasil pengamatan TPC menunjukkan peningkatan jumlah bakteri *Vibrio* sp. di hepatopankreas selama masa pengamatan. Hasil pengamatan THC menunjukkan adanya penurunan jumlah hemosit udang selama masa pengamatan. Udang yang diinfeksi dengan isolat VIB menunjukkan perubahan morfologi dan tingkah laku seperti hepatopankreas kecoklatan hingga pucat, terdapat bercak merah pada telson dan uropod, kaki kekuningan, serta usus mengalami kekosongan. Hasil pengamatan histopatologi pada usus menunjukkan kerusakan seperti desakumulasi sel epitel dan pemendekan villi, sedangkan pada hepatopankreas udang terjadi kerusakan jaringan seperti pemanjangan pada sel epitel, penyempitan lumen, pengelupasan sel tubulus, penipisan sel epitel, vakuolasi pada sel B, nekrosis sel dan infiltrasi hemosit.

Kata kunci: Histopatologi, *Litopenaeus vannamei*, THC, TPC, *Vibrio parahaemolyticus*

## Abstract

### Identification and Pathogenecity Test of *Vibrio* sp. from Hepatopankreas *Litopenaeus vannamei* with Symptoms of Acute Hepatopancreatic Necrosis Disease (AHPND)

Early Mortality Syndrome (EMS) or Acute Hepatopancreatic Necrosis Disease (AHPND) is a transboundary disease that can cause death up to 100% in larval age shrimp. This study aimed to identify the phenotypic and pathogenicity of bacteria isolated from the hepatopankreas of white shrimp that showed AHPND-like symptoms in shrimp ponds in the Purworejo area. Isolates of *Vibrio* sp. then given the name VIB infected in healthy shrimp with a dose of  $10^4$ ,  $10^5$ ,  $10^6$ ,  $10^7$  cfu/shrimp intraperitoneally. Observations were made for 24 hours, 42 hours, and 72 hours after infection. Bacterial identification is done by biochemical test. The presence of bacteria during the observation period was monitored by calculating the Total Plate Count (TPC), the total number of haemocytes was calculated using the Total Hemosite Count (THC) method and symptoms and morphological changes in shrimp were observed every hour. Hepatopankreas tissue and shrimp intestine were taken for histopathological examination. The results of biochemical identification obtained species with morphological characteristics similar to *Vibrio parahaemolyticus*. The results of TPC observations showed an increase in the number of *Vibrio* sp. in the hepatopankreas during the observation period. The results of THC observations showed a decrease in the number of shrimp haemocytes during the observation period. Shrimp infected with isolate VIB showed morphological and behavioral changes such as brownish to pale hepatopankreas, red spots on telson and uropod, yellowish legs, and empty intestines. The results of histopathological observations in the intestine showed damage such as epithelium cell desaccumulation and shortening of the villi, while in shrimp hepatopankreas there was tissue damage such as elongation of epithelium cells, narrowing of the lumen, sloughing of tubular cells, thinning of epithelium cells, vacuolation of B cells, cell necrosis and hemocytic infiltration.

**Keywords:** Histopatology, THC, TPC, *Vibrio parahaemolyticus*, *Litopenaeus vannamei*