

ABSTRAK

Budidaya intensif udang vaname (*Litopenaeus vannamei*) menerapkan padat tebar tinggi dan input budidaya secara intensif, sehingga berisiko menyebabkan penumpukan limbah budidaya di dasar tambak. Limbah tersebut berasal dari sisa pakan, metabolisme udang, organisme mati, pemupukan, pengapuran, pestisida dan air masuk saat pergantian. Akumulasi limbah yang tidak terbangun optimal saat pergantian air dapat meningkatkan populasi bakteri patogen dalam sedimen. Tujuan dari penelitian ini untuk mengetahui jumlah total dan karakteristik bakteri pada sedimen tambak udang vaname (*Litopenaeus vannamei*) sistem intensif pasca kasus kematian massal. Metode yang digunakan pada penelitian ini yaitu observasi. Hasil penelitian menunjukkan bahwa jumlah total bakteri pada sampel A9-2.1 sebesar $5,2 \times 10^5$ CFU/gram dan B6-2.2 sebesar $3,5 \times 10^5$ CFU/gram. Karakterisasi morfologi koloni menunjukkan hasil beragam, didominasi koloni yang memiliki bentuk *circular*, elevasi *convex*, tepi *entire*. Secara umum koloni bakteri yang ditemukan memiliki bentuk (*circular*, *irregular*, dan *filamentous*), warna (kuning, putih, transparan, merah, kuning-merah), elevasi (*convex*, *raised*, dan *flat*), tepi (*entire*, *undulate*, dan *filamentous*). Karakteristik biokimia isolat didominasi Gram negatif, katalase dan oksidase positif, mampu memfermentasi terhadap (glukosa, laktosa, dan sukrosa) serta produksi enzim protease. Hasil ini menunjukkan keberadaan bakteri heterotrof yang berpotensi berperan dalam proses dekomposisi maupun sebagai patogen.

Kata kunci: Udang vaname, *Litopenaeus vannamei*, Sedimen, Bakteri

ABSTRACT

Intensive culture of vannamei shrimp (*Litopenaeus vannamei*) involves high stocking densities and heavy use of inputs, which can lead to the accumulation of organic waste at the bottom of the pond. This waste originates from uneaten feed, shrimp metabolites, dead organisms, fertilizers, lime, pesticides, and incoming water during exchange. Improper waste removal during water exchange may contribute to the proliferation of pathogenic bacteria in pond sediments. This study aimed to determine the total bacterial count and characterize bacterial isolates from pond sediments in an intensive *L. vannamei* culture system following a mass mortality event. The method used was observational. Results showed that the highest bacterial counts were found in sample A9-2.1 (5.2×10^5 CFU/gram) and B6-2.2 (3.5×10^5 CFU/gram). Colony morphology was diverse, dominated by circular shapes, convex elevation, and entire margins. Overall, colonies exhibited various forms (circular, irregular, filamentous), colors (yellow, white, transparent, red), elevations (convex, raised, flat), and edges (entire, undulate, filamentous). Biochemical characterization revealed that most isolates were Gram-negative, catalase and oxidase positive, capable of fermenting (glucose, lactose, and sucrose), and protease enzyme production. These findings indicate the presence of heterotrophic bacteria with potential roles in organic matter decomposition and pathogenicity.

Keywords: *Vannamei shrimp, Litopenaeus vannamei, Sediment, Bacterial*

