ABSTRAK

EVALUASI PERAN RAGI DAN *Bacillus* sp. TERHADAP PERFORMA BUDI DAYA, IMUNITAS NON-SPESIFIK SERTA DETEKSI PENYAKIT PADA UDANG VANAME (*Litopenaus vannamei*)

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Udang vaname (*Litopenaeus vannamei*) merupakan salah satu komoditas utama dalam akuakultur Indonesia karena produktivitasnya yang tinggi dan daya adaptasi yang baik. Namun, budidaya intensif sering dihadapkan pada ancaman penyakit infeksius seperti *Acute Hepatopancreatic Necrosis Disease* (AHPND) dan *Enterocytozoon hepatopenaei* (EHP). Penelitian ini bertujuan untuk mengevaluasi efektivitas penambahan ragi dan *Bacillus* sp. dalam pakan terhadap performa pertumbuhan, imunitas non-spesifik dan deteksi penyakit AHPND dan EHP. Penelitian dilakukan selama 56 hari dengan dua perlakuan: penambahan ragi 3 g/kg (P1) dan *Bacillus* sp. 2 g/kg (P2), masing-masing dengan tiga ulangan. Parameter yang diamati meliputi rerata berat tubuh, rerata pertumbuhan harian, tingkat kelansgungan hidup, rasio konversi pakan, *total haemocyte count, differential haemocyte count*, deteksi AHPND dan EHP dengan sampel sedimen dan udang menggunakan metode *Polymerase Chain Reaction* (PCR) dan biomassa. Hasil penelitian menunjukkan bahwa perlakuan ragi (3 g/kg) dan *Bacillus* sp. (2 g/kg) tidak berbeda nyata terhadap berat tubuh, pertumbuhan harian, kelangsungan hidup, dan komposisi diferensial hemosit udang vaname ($p>0,05$). Namun, *Bacillus* sp. memberikan rasio konversi pakan lebih rendah ($1,12 \pm 0,08$) dibanding ragi ($1,68 \pm 0,31$) dan biomassa lebih tinggi (1099 ± 121 kg) berbanding ($805 \pm 31,56$ kg) ($p<0,05$). Sebaliknya, ragi meningkatkan *total haemocyte count* lebih tinggi ($8,9 \pm 0,3 \times 10^6$ sel/ml) dibanding *Bacillus* sp. ($7,8 \pm 0,6 \times 10^6$ sel/ml) ($p<0,05$). Deteksi PCR menemukan AHPND dan EHP dengan jumlah salinan rendah pada DOC 28–42.

Kata kunci: AHPND, *Bacillus* sp., EHP, Ragi, Udang Vaname

ABSTRACT

EVALUATION OF THE ROLE OF YEAST AND *Bacillus* SP. ON AQUACULTURE PERFORMANCE, NON-SPECIFIC IMMUNITY, AND DISEASE DETECTION IN PACIFIC WHITE SHRIMP (*Litopenaeus vannamei*)

By

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Pacific white shrimp (*Litopenaeus vannamei*) is one of the main commodities in Indonesian aquaculture due to its high productivity and adaptability. However, intensive farming is often challenged by infectious diseases such as Acute Hepatopancreatic Necrosis Disease (AHPND) and *Enterocytozoon hepatopenaei* (EHP). This study aimed to evaluate the effec-tiveness of dietary supplementation with yeast and *Bacillus* sp. on growth performance, non-specific immunity, and the detection of AHPND and EHP. The experiment was conducted for 56 days using two treatments: yeast supplemen-tation at 3 g/kg (P1) and *Bacillus* sp. at 2 g/kg (P2), each with three replicates. Parameters observed included mean body weight, daily growth rate, survival rate, feed conversion ratio (FCR), total haemocyte count (THC), differential haemocyte count (DHC), disease detection of AHPND and EHP from sediment and shrimp samples using Polymerase Chain Reaction (PCR), and final biomass. The results showed no significant differences ($p>0.05$) between yeast and *Bacillus* sp. treatments in mean body weight, daily growth rate, survival rate, or DHC. However, *Bacillus* sp. produced a significantly lower FCR (1.12 ± 0.08) compared to yeast (1.68 ± 0.31) and a higher biomass (1099 ± 121 kg) compared to yeast (805 ± 31.56 kg) ($p<0.05$). Conversely, yeast significantly increased THC ($8.9 \pm 0.3 \times 10^6$ cells/ml) compared to *Bacillus* sp. ($7.8 \pm 0.6 \times 10^6$ cells/ml) ($p<0.05$). PCR detection revealed low copy numbers of AHPND and EHP, first identified at DOC 28–42.

Keywords: AHPND, *Bacillus* sp., EHP, Pacific White Shrimp, Yeast