

Pengaruh Dosis Probiotik Terhadap
Pertumbuhan, Sintasan, dan Kualitas air
Udang Vaname (*Litopenaeus vannamei*, Boone 1931)

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Intisari

Penelitian ini bertujuan untuk mengetahui pengaruh dosis probiotik terhadap pertumbuhan, sintasan, dan kualitas air udang vaname (*Litopenaeus vannamei*, Boone 1931). Penelitian ini dilaksanakan selama 98 hari pada bulan Maret hingga Juli 2021, di Unit Kolam Percobaan Stasiun Penelitian Departemen Perikanan, Fakultas Pertanian, Universitas Gadjah Mada. Penelitian dilakukan dengan metode Rancangan Acak Lengkap yang terdiri dari 4 perlakuan dan 3 ulangan. Perlakuan yang diberikan berupa dosis probiotik yang terdiri dari 0 ml, 3 ml, 6 ml, dan 9 ml per 50 L air. Probiotik yang digunakan merupakan probiotik yang mengandung *Bacillus subtilis*, *Bacillus licheniformis*, *Lactobacillus plantarum*, *Nitrozobacter* sp., dan *Nitrosomonas* sp yang telah dikultur sebelum ditebar dalam media penelitian. Penelitian menggunakan media akuarium dengan volume 73,5 L dan diisi air payau dengan volume 50 L. Larva udang vaname yang ditebar berumur PL-10 dengan padat tebar 25 ekor/media. Parameter yang diamati adalah pertumbuhan, laju sintasan, dan kualitas air media pelihara. Data dianalisis *Analysis of Varians* (ANOVA) dan jika antar perlakuan terdapat beda nyata dilakukan uji lanjut menggunakan uji *Duncant's Multiple Range Test* (DMRT). Hasil penelitian yang diperoleh yaitu pertumbuhan tertinggi untuk berat mutlak sebesar 2,43 g pada dosis probiotik 9 ml / 50 L air, berat spesifik sebesar 3,65 cm pada dosis probiotik 9 ml / 50 L air, panjang mutlak 5,61 cm pada dosis probiotik 9 ml / 50 L air, dan panjang spesifik 1,36 cm. Sintasan tertinggi sebesar 88% pada dosis probiotik 9 ml / 50 L air. Nisbah konversi pakan teroptimal sebesar 0,88 pada dosis probiotik 9 ml / 50 L air. Kualitas air yang diperoleh yaitu suhu pada kisaran 26 – 29°C, pH dengan kisaran 7,96 – 8,8., salinitas yang didapat berkisar antara 22,7 – 29 ppt, alkalinitas pada kisaran 104 – 138 ppm, Oksigen Terlarut ada pada kisaran 5,56 – 6,41 mg/L, CO₂ bebas yang didapat berkisar antara 6 – 30 mg/L, amonia (NH₃) pada kisaran 0 – 0,16 mg/L, nitrit yang berkisar antara 0 – 0,36 mg/L, dan nitrat dengan kisaran 0 – 15,7 mg/L.

Kata: Kualitas air, pertumbuhan, probiotik, sintasan, dan udang vaname.

Effect of Probiotic Dosage on Growth,
Survival, and Water Quality of Pacific White Shrimp
(*Litopenaeus vannamei*, Boone 1931) Cultivation

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Abstract

This study aimed to determine the effect of the dose of probiotics on the growth, survival, and water quality of white shrimp (*Litopenaeus vannamei*, Boone 1931). This research was conducted for 98 days from March to July 2021, at the Experimental Pond Unit of the Research Station of the Department of Fisheries, Faculty of Agriculture, Gadjah Mada University. The study was conducted using a completely randomized design method consisting of 4 treatments and 3 replications. The treatment given was a dose of probiotics consisting of 0 ml, 3 ml, 6 ml, and 9 ml per 50 L of water. The probiotics used were probiotics containing *Bacillus subtilis*, *Bacillus licheniformis*, *Lactobacillus plantarum*, *Nitrozobacter* sp., and *Nitrosomonas* sp. which had been cultured before being stocked in the research media. The study used aquarium media with a volume of 73.5 L and filled with 50 L of brackish water. The vaname shrimp larvae that were stocked were PL-10 with a stocking density of 25 fish/media. Parameters observed were growth, survival rate, and water quality of the maintenance media. Data were analyzed by *Analysis of Variance* (ANOVA) and if there was a significant difference between treatments, further tests were carried out using *Duncant's Multiple Range Test* (DMRT). The results obtained were the highest growth for absolute weight of 2.43 g at a dose of probiotics 9 ml / 50 L water, specific weight of 3.65 cm at a dose of probiotic 9 ml / 50 L water, absolute length 5.61 cm at a dose of 5.61 cm. probiotic 9 ml / 50 L of water, and a specific length of 1.36 cm. The highest survival rate was 88% at a dose of 9 ml / 50 L of probiotics. The optimal feed conversion ratio was 0.88 at a dose of 9 ml / 50 L of probiotics. The water quality obtained is temperature in the range of 26 – 29°C, pH in the range of 7.96 – 8.8., salinity obtained in the range of 22.7 – 29 ppt, alkalinity in the range of 104 – 138 ppm, Dissolved Oxygen in the range of 5 .56 – 6.41 mg/L, free CO₂ obtained in the range of 6 – 30 mg/L, ammonia (NH₃) in the range 0 – 0.16 mg/L, nitrite in the range 0 – 0.36 mg/L , and nitrate in the range of 0 – 15.7 mg/L.

Key Words: Growth, survival, probiotic, water quality, and white shrimp