ABSTRAK

MANAJEMEN BUDIDAYA UDANG VANAME *Litopenaeus vannamei* BERBASIS SALINITAS RENDAH

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Salinitas berperan dalam proses osmoregulasi dan molting pada udang vaname. Pada salinitas luas (*euryhaline*) pertumbuhan udang akan terganggu hal tersebut menyebabkan energi yang digunakan untuk aktivitas pertumbuhan berkurang, sehingga menurunkan laju pertumbuhan dan kelangsungan hidup. Oleh karena itu, salinitas yang optimal diperlukan untuk mendukung pertumbuhan dan kelangsungan hidup udang vaname. Penelitian dilakukan dalam tiga tahap secara terpisah menggunakan rancangan acak lengkap (RAL). Benih yang digunakan udang vaname PL 10. Pemeliharaan dilakukan selama 40 hari. Penelitian bertujuan menganalisis pertumbuhan, tingkat kelangsungan hidup (TKH) dan rasio konversi pakan udang vaname. Penelitian tahap pertama terdiri 5 perlakuan salinitas berbeda (salinitas 5 ppt, 10 ppt, 15 ppt, 20 ppt, 25 ppt) dengan 3 ulangan. Hasil penelitian menunjukkan bahwa pemeliharaan udang vaname pada salinitas berbeda berpengaruh nyata ($P<0,05$) terhadap pertumbuhan, TKH dan rasio konversi pakan udang vaname. Penelitian tahap kedua terdiri dari 4 perlakuan penambahan kalsium pada salinitas rendah 5 ppt (0 mg/L, 50 mg/L, 100 mg/L, 150 mg/L) dengan 3 ulangan. Hasil penelitian menunjukan bahwa penambahan kalsium berpengaruh terhadap pertumbuhan, TKH dan rasio konversi pakan udang vaname ($P<0,05$). Penelitian tahap ketiga terdiri dari 4 perlakuan penambahan kalium pada salinitas rendah 5 ppt (0 mg/L, 50 mg/L, 100 mg/L, 150 mg/L) dengan 3 ulangan. Hasil penelitian menunjukan bahwa pemberian mineral kalium pada media berpengaruh terhadap pertumbuhan, TKH dan rasio konversi pakan udang vaname ($P<0,05$). Pertumbuhan dan konversi pakan terbaik pada percobaan salinitas berbeda adalah salinitas 15 ppt, dengan pertumbuhan berat mutlak (2,8 gram), laju pertumbuhan spesifik (12,3%/hari), rasio konversi pakan (1,5). TKH terbaik pada salinitas 20 ppt (79%). Udang vaname yang dipelihara pada salinitas rendah 5 ppt dengan penambahan kalsium 50 mg/L menghasilkan TKH (54%) dan rasio konversi pakan (1,4) terbaik. Udang vaname yang dipelihara pada salinitas rendah 5 ppt dengan penambahan 100 mg/L kalium menghasilkan pertumbuhan berat mutlak (1,4 gram), laju pertumbuhan spesifik (10,5%/hari), TKH (74%), dan rasio konversi pakan (1,4) terbaik.

Kata kunci: *Udang vaname, salinitas rendah, kalsium, kalium, mineral.*

ABSTRACT

MANAGEMENT OF PACIFIC WHITE SHRIMP Litopenaeus vannamei CULTIVATION IN LOW SALINITY CONDITIONS

By

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Salinity plays a role in the process of osmoregulation and molting in pacific white shrimp. At broad salinity (*euryhaline*) pacific white shrimp growth will be disrupted due to disturbed osmoregulation. The disruption of osmolarity causes the energy used for growth activities to decrease, thereby reducing the growth rate and survival rate. Therefore, optimal salinity is needed to support the growth and survival rate of pacific white shrimp. The research was conducted in parallel experiment used a completely randomized design (CRD). The seeds used were post larvae (PL) 10 pacific white shrimp. Maintenance was carried out for 40 days. The experiment of the study aimed to analyze the growth, survival rate and feed conversion ratio of pacific white shrimp. The first experiment of the study consisted of 5 treatments (salinity 5 ppt, 10 ppt, 15 ppt, 20 ppt, 25 ppt) with 3 replications. The results showed that the treatments had a significant effect on growth, survival rate and feed conversion ratio ($P<0.05$). This experiment consisted of 4 treatments with the addition of calcium minerals at low salinity of 5 ppt (0, 50, 100, 150 mg/L $CaCO_3$) with 3 replications. The results showed that the treatments significantly affected the growth, survival, and feed conversion ratio of pacific white shrimp ($P<0.05$). The third experiments of this study consisted of 4 treatments with the addition of potassium minerals at low salinity of 5 ppt (0, 50, 100, 150 mg/L of KCl) with 3 replications. The results showed that the treatments in the media had a significant effect on the growth, survival rate and feed conversion ratio of pacific white shrimp ($P<0.05$). The best growth and feed conversion in the experiments reared at various levels of salinity was resulted in 15 ppt, with absolute weight growth (2.8 gram), specific growth rate (12.3%/day), feed conversion ratio (1.5). Besides, the best survival was observed in the salinity 20 ppt (79%). Pacific white shrimp reared at low salinity of 5 ppt with the addition of 50 mg/L calcium resulted in the best survival rates (54 %) and feed conversion ratios (1,4). Pacific white shrimp reared at low salinity of 5 ppt with the addition of 100 mg/L potassium resulted in the best absolute weight growth (1.4 gram), specific growth rate (10.5%/day), survival rate (74%), and feed conversion ratio (1.4).

Keyword: *Pacific white shrimp, low salinity, calcium, potassium, minerals.*