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**Pengaruh Soda Kue [NaHCO3] dan Kapur Hidrat [Ca(OH)2] terhadap Pertumbuhan dan Kualitas Air pada
Budidaya Udang Vaname (Penaeus Vannamei, Boone 1931)**
Saffina Luthfii Anindyajati, Dr. Ega Adhi Wicaksono, S.Pi
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INTISARI

Pengaruh Soda Kue [$NaHCO_3$] Dan Kapur Hidrat [$Ca(OH)_2$] terhadap Pertumbuhan dan Kualitas Air pada Budidaya Udang Vaname (*Penaeus Vannamei,* Boone 1931)

Penelitian telah dilakukan untuk mengetahui pengaruh pemberian soda kue (NaHCO3) dan kapur hidrat [Ca(OH)2] terhadap pertumbuhan dan kualitas air budidaya udang vaname (Penaeus vannamei, Boone 1931). Penelitian ini dilakukan pada bulan Desember 2025 - Februari 2026 di Unit Kerja Budidaya Air Payau (UK-BAP) Samas, Bantul, Yogyakarta. Penelitian ini terdiri dari 4 perlakuan pemberian kapur yang meliputi kontrol, NaHCO3 (6 mgCO3.L-1), Ca(OH)2 (4 mgCa.L-1), dan kombinasi NaHCO3 (3 mgCO3.L-1) + Ca(OH)2 (2 mgCa.L-1), masing-masing perlakuan dengan 3 kali ulangan. Benur udang vaname yang digunakan yaitu PL10. Pemeliharaan udang dilakukan selama 77 hari dalam bak conical dengan volume air 100 liter, sebanyak 200 ekor/m3. Selama pemeliharaan udang, air dalam bak conical diberi aerasi dan dilakukan sifon dua kali dalam satu pekan. Pakan yang diberikan berdasarkan biomassa udang dengan dosis 3% dari berat udang. Pengamatan dilakukan terhadap kualitas air dan udang vaname yang dipelihara. Parameter pertumbuhan yang diamati meliputi sintasan, berat mutlak, berat spesifik, panjang mutlak, panjang spesifik, dan rasio konversi pakan yang dianalisis secara statistik dengan analisis sidik ragam (Analysis of Variance), uji lanjut Duncan dengan tingkat kepercayaan 95%. Parameter kualitas air yang diamati pada media budidaya udang vaname meliputi suhu, pH, salinitas, O2 terlarut, CO2 bebas, alkalinitas, dan amonia. Data kualitas air dianalisis secara deskriptif. Hasil penelitian menunjukkan bahwa kualitas air budidaya udang vaname yang dipelihara selama 77 hari menunjukkan seluruh parameter antar perlakuan tidak jauh berbeda. Hasil penelitian juga menunjukkan bahwa perlakuan yang diberikan tidak berpengaruh nyata terhadap sintasan, rasio konversi pakan, dan berat spesifik. Perlakuan kombinasi NaHCO3 dan Ca(OH)2 memberikan pengaruh nyata terhadap pertumbuhan berat mutlak, panjang mutlak, panjang spesifik, dan total produksi, namun tidak dengan ketiga perlakuan lainnya.

Kata kunci: *Penaeus vannamei*, soda kue ($NaHCO_3$), kapur hidrat [$Ca(OH)_2$], pertumbuhan, kualitas air, alkalinitas

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ABSTRACT

Effect of Baking Soda ($NaHCO_3$) and Hydrate Lime [$Ca(OH)_2$] on Growth and Water Quality in Pacific White Shrimp (*Penaeus vannamei*, Boone 1931) Cultivation

Research had been carried out to determine the effects of sodium bicarbonate (NaHCO3) and hydrate lime [Ca(OH)2] on the growth performance and water quality of Pacific white shrimp (Penaeus vannamei, Boone 1931) cultivation. The research was carried out from Desember 2025 to February 2026 at the Brackish Water Aquaculture Unit (UK BAP) Samas, Bantul, Yogyakarta. The study included four treatment groups: a control, NaHCO3 (6 mgCO3.L-1), Ca(OH)2 (4 mgCa.L-1), and a combination of both (3 mgCO3.L 1) (2 mgCa.L-1), with each treatment replicated three times. The shrimp used were PL10 post-larvae. The shrimp were reared for 77 days in 100 liter water of conical tanks, with 20 individuals per tank. During the rearing period, aeration was provided, and siphoning was performed twice a week. Feed was given according to the shrimp's biomass at a dosage of 3% of body weight. Observations were made on water quality and shrimp performance. Growth performance parameters observed included survival rate, absolute weight, specific growth rate (weight), absolute length, specific growth rate (lenght), feed conversion ratio (FCR), and total production. Statistical analysis was performed using Analysis of Variance (ANOVA) and Duncan's Multiple Range Test at a 95% confidence level. Water quality parameters observed included temperature, pH, salinity, dissolved oxygen, free carbon dioxide (CO_2), alkalinity, and ammonia, which were analyzed descriptively. The results of the study showed that the water quality of vaname shrimp cultured for 77 days showed that all parameters between treatments were not significantly different. The results also showed that the treatments given did not significantly affect survival, feed conversion ratio, and specific weight. The combination treatment of NaHCO3 and Ca(OH)2 had a significant effect on the growth of absolute weight, absolute length, specific length, and total production, but not with the other three treatments.

Keywords: *Penaeus vannamei*, sodium bicarbonate ($NaHCO_3$), hydrated lime [$Ca(OH)_2$], growth performance, water quality, alkalinity