Pengaruh Dosis Kapur CaO dan MgO pada Pakan terhadap Pertumbuhan dan Kualitas Air Budidaya Udang Vaname (*Litopenaeus vannamei*, Boone 1931)

Intisari

Penelitian ini bertujuan untuk mengetahui pengaruh dan dosis terbaik pemberian kapur CaO dan MgO pada pakan terhadap pertumbuhan dan kualitas air budidaya udang vaname (*Litopenaus vannamei*, Boone 1931). Penelitian ini dimulai pada bulan Maret 2021 dan berakhir pada bulan Juli 2021. Penelitian dilaksanakan selama 56 hari dan bertempat di Unit Kolam Percobaan Stasiun Penelitian, Departemen Perikanan, Fakultas Pertanian, Universitas Gadjah Mada. Perlakuan pemberian dosis kapur Cao dan MgO (dalam satuan mg dolomit per kilogram pakan udang) diujikan dalam Rancangan Acak Lengkap dengan lima perlakuan dan tiga ulangan. Perlakuan dosis kapur CaO dan MgO masing-masing sebesar 0, 1, 2, 3 dan 4 mg dolomit/kg pakan. Udang uji dipelihara dalam akuarium berukuran 75x35x30 cm^3 yang berisi air payau sebanyak 50 L dengan kepadatan tebar 25 ekor udang/akuarium. Data yang diperoleh dilakukan analisis varian (*Analysis of Varians* /ANOVA) dan jika antar perlakuan terdapat beda nyata dilakukan uji lanjut menggunakan uji *Duncant's Multiple Range Test* (DMRT). Hasil penelitian menunjukkan bahwa pertumbuhan dan sintasan udang vaname tertinggi diperoleh pada dosis kapur CaO dan MgO sebanyak 4 mg dolomit/kg pakan. Pertumbuhan tertinggi untuk berat mutlak sebesar 3,19 g; berat spesifik sebesar 2,49 g; panjang mutlak 5,97 cm; panjang spesifik 2,02 cm; dan sintasan sebesar 92%. Nisbah konversi pakan terendah sebesar 1,67 yang diperoleh pada pemberian dosis CaO dan MgO sebanyak 4 mg dolomit/kg pakan. Kualitas air selama pemeliharaan udang vaname untuk suhu berkisar 25,6-28,8 ^oC; pH 7,40-8,8; salinitas 21,2-28,4 ppt; kesadahan total 255-310 mg/L; alkalinitas 120-140 ppm, O_2 terlarut 5,6-6,5 mg/L; CO_2 bebas 18 - 40 mg/L; dan NH_3 total 0-0,06 mg/L, termasuk memenuhi syarat untuk budidaya udang vaname

Kata kunci: kapur CaO dan MgO, pertumbuhan, udang vaname

The Effects of CaO and MgO Lime in Feed on the Growth and Water Quality of Pasific White Shrimp (*Litopenaeus vannamei*, Boone 1931)

Abstract

This study aims to determine the effect and the best dose of CaO and MgO lime in feed on the growth and water quality of pasific white shrimp (*Litopenaus vannamei*, Boone 1931) culture. This research started in March 2021 and ended in July 2021. The research was carried out for 56 days and took place at the Experimental Pond Unit of the Research Station, Department of Fisheries, Faculty of Agriculture, Gadjah Mada University. Treatment with doses of Cao lime and MgO (in units of mg dolomite per kilogram of shrimp feed) was tested in the experimental design used, namely a completely randomized design with five treatments and three replications. Was tested in a Completely Randomized Design with five treatments and three replications. Treatment doses of CaO and MgO lime were 0, 1, 2, 3 and 4 mg dolomite/kg feed, respectively. The test shrimp were kept in an aquarium measuring 75x35x30 cm^3 which contained 50 L of brackish water with a stocking density of 25 shrimp/aquarium. The data obtained was analyzed for variance (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 showed that the highest growth and survival of white shrimp was obtained at doses of CaO and MgO lime as much as 4 mg dolomite/kg feed. The highest growth for absolute weight was 3,19 g; specific weight of 2,49 g; absolute length 5,97 cm; specific length 2,02 cm; and 92% survival rate. The lowest feed conversion ratio of 1,67 was obtained at the dose of CaO and MgO as much as 4 mg dolomite/kg feed. Water quality during rearing vaname shrimp for temperatures ranged from 25,6 to 28,8 ^oC; pH 7,40- 8,8; salinity 21,2-28,4 ppt; total hardness 255-310 mg/L; alkalinity 120-140 ppm, dissolved O_2 5,6-6,5 mg/L; CO_2 free 18 - 40 mg/L; and NH_3 total 0-0,06 mg/L, including the requirements for vaname shrimp culture.

Keywords: CaO and MgO lime, growth, pasific white shrimp