

ABSTRACT

FIELD TEST OF THE EFFECTIVITY OF *Sargassum* sp. ALGINATE IMMUNOSTIMULANT AND VITAMIN C SUPPLEMENTATION IN SHRIMP FEED ON THE SURVIVAL RATE AND GROWTH PERFORMANCE OF PACIFIC WHITE SHRIMP *Litopenaeus vannamei* (Boone, 1931) CULTIVATED IN HIGH DENSITY POLYETHYLENE (HDPE) PLASTIC PONDS

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Pacific white shrimp (*Litopenaeus vannamei*) is an excellent fishery commodity that has great potential due to high market demand. Alginate *Sargassum* sp. supplementation and vitamin C have been proven to be effective in increasing the body resistance of Pacific white shrimp infected with the WSSV virus in laboratory scale tests. The study aimed to examine the effectivity of Na alginate *Sargassum* sp. and vitamin C in feed on the growth performance and water quality of Pacific white shrimp in HDPE plastic ponds. The study was conducted with two treatments: P1, commercial feed without any additives (0 ml Na alginate *Sargassum* sp. + 0 g vitamin C) and P2, commercial feed with the addition of Na alginate *Sargassum* sp. 100 ml per kg of feed and vitamin C 3 g per kg of feed. The study used ponds with an area of 2,000 m² with a stocking density of 100 fish per m² during the 63 day of culture. The parameters of the study included, average body weight (ABW), average daily growth (ADG), survival rate (SR), feed conversion ratio (FCR), and productivity, as well as water quality including, temperature, DO, salinity, pH, phosphate, calcium, magnesium, alkalinity, brightness, and hardness. The results showed that in P1, the productivity achieved was 15.56 kg per m², ABW 13.1 g per individual, ADG 0.44 g per day, SR 81.9%, and FCR 1.46. Meanwhile, in P2, the productivity achieved was 16.30 kg per m², ABW 13.2 g per individual, ADG 0.43 g per day, SR 89.1%, and FCR 1.42. The water quality parameter values for P1 and P2 during the maintenance period were within the acceptable range for Pacific white shrimp cultivation. The feeding of *Sargassum* sp. alginate supplementation and vitamin C could be applied in the Pacific white shrimp farming in HDPE pond scale.

Keywords: *alginate, HDPE, Sargassum sp., pacific white shrimp, vitamin C*

ABSTRAK

UJI LAPANG EFEKTIVITAS SUPLEMENTASI IMUNOSTIMULAN ALGINAT *Sargassum* sp. DAN VITAMIN C DALAM PAKAN TERHADAP KELULUSAN HIDUP DAN PERFORMA PERTUMBUHAN UDANG VANAME *Litopenaeus vannamei* (Boone, 1931) YANG DIPELIHARA DI TAMBAK PLASTIK *HIGH DENSITY POLYETHYLENE* (HDPE)

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Udang vaname (*Litopenaeus vannamei*) merupakan komoditas perikanan unggulan yang sangat potensial karena permintaan pasar yang tinggi. Suplementasi alginat *Sargassum* sp. dan vitamin C terbukti efektif dalam meningkatkan ketahanan tubuh udang vaname yang terinfeksi virus WSSV pada uji skala laboratorium. Penelitian ini bertujuan untuk mengkaji efektivitas suplementasi Na alginat *Sargassum* sp. dan vitamin C dalam pakan terhadap performa pertumbuhan dan kualitas air udang vaname pada tambak plastik HDPE. Penelitian dilakukan dengan dua perlakuan yaitu P1 pemberian pakan komersial tanpa penambahan apapun (0 ml Na alginat *Sargassum* sp. + 0 g vitamin C) dan P2 pemberian pakan komersial dengan penambahan Na alginat *Sargassum* sp. 100 ml per kg pakan dan vitamin C 3 g per kg pakan. Penelitian dilakukan di tambak dengan luas 2.000 m² dengan padat tebar 100 ekor per m² selama masa pemeliharaan 63 hari. Parameter penelitian meliputi, rerata berat tubuh (ABW), rerata pertumbuhan harian (ADG), kelulusan hidup (SR), ratio konversi pakan (FCR), dan produktivitas, serta kualitas air meliputi, suhu, DO, salinitas, pH, fosfat, kalsium, magnesium, alkalinitas, kecerahan, dan kesadahan. Hasil penelitian menunjukkan pada P1 menghasilkan produktivitas sebesar 15,56 kg per m², ABW 13,1 g per ekor, ADG 0,44 g per hari, SR 81,9 %, dan FCR 1,46. Sedangkan pada P2 menghasilkan produktivitas sebesar 16,30 kg per m², ABW 13,2 g per ekor, ADG 0,43 g per hari, SR 89,1%, dan FCR 1,42. Nilai parameter kualitas air pada P1 dan P2 selama pemeliharaan berada pada kisaran yang layak untuk budi daya udang vaname. Pemberian pakan dengan suplementasi alginat *Sargassum* sp. dan vitamin C dapat diaplikasikan pada budi daya udang vaname di tambak HDPE skala lapang.

Kata kunci: *alginat*, *HDPE*, *Sargassum* sp., *udang vaname*, *vitamin C*.