ABSTRAK

PROFIL HEMATOLOGI DAN HISTOLOGI UDANG VANAME *Litopenaeus vannamei* (Boone, 1931) DALAM UJI LAPANG SUPLEMENTASI IMUNOSTIMULAN ALGINAT *Sargassum* sp.

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Udang vaname (*L. vannamei*) banyak dibudidayakan karena memiliki prospek dan profit yang tinggi. Salah satu kendala pada budi daya udang vaname adalah serangan penyakit yang disebabkan oleh beberapa organisme, yaitu bakteri, virus, jamur, dan parasit. Alginat *Sargassum* sp. dari perairan Lampung telah terbukti efektif meningkatkan respon imun udang vaname pada skala laboratorium. Penelitian ini bertujuan untuk mengkaji pengaruh pemberian natrium alginat *Sargassum* sp. terhadap profil hematologi dan histologi udang vaname skala lapang. Penelitian menggunakan 4 petak tambak udang dengan luas 3.600 m^2 dan 4.600 m^2 dan padat tebar 135 ekor/m^3. Perlakuan yang digunakan pada penelitian ini yaitu pemberian suplementasi alginat 120 ml/kg pakan sehari sekali (P1), dua hari sekali (P2), tiga hari sekali (P3), dan tanpa suplementasi alginat (K). Hemolim udang diambil pada *day of culture* (DOC) 30, 45, 60, dan untuk pengamatan profil hematologi udang meliputi *total haemocytes count* (THC), total protein plasma (TPP), dan histologi hepatopankreas. Hasil penelitian menunjukkan bahwa suplementasi alginat secara signifikan mampu meningkatkan THC dan TPP udang pada hari ke-60 dengan peningkatan 8,73 x 10^6 sel/ml dan 165 mg/ml secara berturut-turut. Hasil histologi hepatopankreas menunjukkan suplementasi alginat menyebabkan nekrosis dan vakuolasi pada udang yang diberi suplemen alginat maupun pada udang kontrol. Penelitian ini menguatkan penelitian sebelumnya bahwa suplementasi alginat mampu meningkatkan respon imun udang vaname, baik skala laboratoium maupun lapang. Berdasarkan hasil penelitian, direkomendasikan dosis 120 ml/kg pakan dengan pemberian dua hari sekali (P2) karena dapat meningkatkan *total haemocyte count* (THC) 7,91 x 10^6 sel/ml (205%), dan total protein plasma (TPP) 165 mg/ml (57%).

Kata kunci : Alginat, hematologi, histologi, imunostimulan, *Sargassum* sp., udang vaname.

ABSTRACT

HEMATOLOGICAL AND HISTOLOGICAL PROFILES OF PACIFIC WHITE SHRIMP *Litopenaeus vannamei* (Boone, 1931) IN FIELD TEST OF *Sargassum* sp. ALGINATE IMMUNOSTIMULATORY SUPPLEMENTATION.

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Pacific white shrimp (*L. vannamei*) is widely cultivated because it has high prospects and profits. One of the constraints on pacific white shrimp farming is the attack of diseases caused by several organisms, namely bacteria, viruses, fungi, and parasites. Alginate *Sargassum* sp. from Lampung waters had been shown to effectively improve the immune response of pacific white shrimp on a laboratory scale. This study aimed to examine the effect of addition of sodium alginate *Sargassum* sp. to the hematological and histological profile of field-scale pacific white shrimp. The study used 4 shrimp farming plots with an area of 3.600 m^2 and 4.600 m^2 and a stocking density of 135 heads/m^3. The treatment used in this study was alginate supplementation of 120 ml/kg of feed once a day (P1), once every two days (P2), once every three days (P3), and without alginate supplementation (K). Shrimp hemolymph was took on the day of culture (DOC) 30, 45, 60, and for the observation of shrimp Hematology profile includes total haemocytes count (THC), total plasma protein (TPP), and hepatopancreatic histology. The results showed that alginate supplementation was significantly able to increase the THC and TPP of shrimp on day 60 with an increase of 8.73 x 10^6 cells/ml and 165 mg/ml respectively. The results of hepatopancreatic histology showed alginate supplementation caused necrosis and vacuolation in shrimp supplemented with alginate and in control shrimp. This study reinforced previous research that alginate supplementation can improve the immune response of pacific white shrimp, both laboratory and field scale. Based on the results of the study, the recommended dose of 120 ml/kg of feed with bi-daily addition (P2) because it can increase the total haemocyte count (THC) 7.91 x 10^6 cells/ml (205%), and total plasma protein (TPP) 165 mg/ml (57%).

Key words : Alginate, hematological, histology, immunostimulant, *Sargassum* sp., pacific white shrimp.