

ABSTRAK

PENGARUH PENAMBAHAN EKSTRAK *Tribulus terrestris* DENGAN DOSIS BERBEDA PADA PAKAN FUNGSIONAL TERHADAP RESPON IMUN UDANG VANAME *Litopenaeus vannamei* (Boone, 1931)

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Budidaya udang vaname (*Litopenaeus vannamei*) sering mengalami serangan bakteri *patogen* yang menyebabkan penurunan respons imun, meningkatnya mortalitas, kerugian ekonomi pembudidaya. Penggunaan antibiotik terus-menerus berisiko menimbulkan resistensi bakteri, sehingga diperlukan alternatif yang lebih aman berupa imunostimulan alami. Ekstrak *Tribulus terrestris* mengandung senyawa bioaktif yang berpotensi meningkatkan sistem imun udang. Penelitian ini bertujuan menganalisis pengaruh ekstrak *Tribulus terrestris* dengan dosis berbeda terhadap respons imun udang vaname. Penelitian dilaksanakan pada April–Mei 2026 di Laboratorium Budidaya Perikanan, Universitas Lampung, menggunakan Rancangan Acak Lengkap (RAL) dengan 4 perlakuan dan 3 ulangan, yaitu perlakuan A (0 mg/kg), B (50 mg/kg), C (100 mg/kg), dan D (200 mg/kg pakan). Udang vaname PL-10 dipelihara selama 15 hari dan diberi pakan yang telah dicampur ekstrak *Tribulus terrestris*. Parameter yang diamati meliputi *Total Haemocyte Count*, *Differential Haemocyte Count*, aktivitas fagositosis, indeks fagositosis, tingkat kelangsungan hidup. Data dianalisis menggunakan ANOVA pada taraf kepercayaan 95% dan dilanjutkan uji Duncan jika terdapat perbedaan nyata. Hasil penelitian menunjukkan bahwa ekstrak *Tribulus terrestris* berpengaruh nyata ($P < 0,05$) terhadap THC, DHC, aktivitas fagositosis, dan tingkat kelangsungan hidup udang vaname. Perlakuan terbaik pada dosis 50 mg/kg pakan (perlakuan B) dengan nilai THC sebesar $3,89 \pm 0,30 \times 10^4$ sel/ml, aktivitas fagositosis $58,70 \pm 1,53\%$, dan tingkat kelangsungan hidup $86,80 \pm 1,46\%$.

Kata kunci: Imunostimulan, Respon Imun, *Tribulus terrestris*, Udang vaname

ABSTRACT

THE EFFECT OF ADDING *Tribulus terrestris* EXTRACT AT DIFFERENT DOSAGES TO FUNCTIONAL FEED ON THE IMMUNE RESPONSE OF VANNAMEI SHRIMP *Litopenaeus vannamei* (Boone, 1931)

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White shrimp (*Litopenaeus vannamei*) farming is frequently challenged by pathogenic bacterial infections that suppress immune responses, increase mortality rates, and cause substantial economic losses to farmers. The prolonged use of antibiotics may lead to the development of bacterial resistance; therefore, safer and more sustainable alternatives, such as natural immunostimulants, are required. *Tribulus terrestris* extract contains various bioactive compounds that are believed to enhance the immune system of shrimp. This study aimed to examine the effect of *Tribulus terrestris* extract at varying doses on the immune response of Pacific white shrimp (*Litopenaeus vannamei*). The research was conducted from April to May 2026 at the Aquaculture Laboratory, University of Lampung, employing a Completely Randomized Design (CRD) with four treatments and three replications: treatment A (0 mg/kg feed), B (50 mg/kg feed), C (100 mg/kg feed), and D (200 mg/kg feed). PL-10 white shrimp were reared for 15 days and fed diets supplemented with *Tribulus terrestris* extract. The observed parameters included *Total Haemocyte Count* (THC), *Differential Haemocyte Count* (DHC), phagocytic activity, phagocytic index, and survival rate. Data were analysed using one-way ANOVA at a 95% confidence level, followed by Duncan's multiple range test where significant differences were detected. The results demonstrated that supplementation of *Tribulus terrestris* extract significantly affected ($P < 0.05$) the total haemocyte count (THC), differential haemocyte count (DHC), phagocytic activity, and survival rate. The best performance was observed in Treatment B (50 mg/kg feed), which resulted in a THC value of $3.89 \pm 0.30 \times 10^4$ cells mL^{-1} , phagocytic activity of $58.70 \pm 1.53\%$, and a survival rate of $86.80 \pm 1.46\%$. Moreover, shrimp receiving Treatment B exhibited a slower progression of clinical symptoms compared to those in the other treatments.

Keywords: Immune Response, Immunostimulant, *Tribulus terrestris*, White Shrimp