

ABSTRACT

Application of *Bacillus* sp. D2.2 in Sinbiotics Against Cellular Immune Response White Shrimp (*Litopenaeus vannamei*)

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Bacillus sp. D2.2 is a probiotic that can be used in an effort to improve the cellular immune system of vaname shrimp. *Bacillus* sp. D2.2 in sinbiotics added to commercial feed with FR 3% is an alternative combination of bacterial treatment in vaname shrimp. Application of the addition of *Bacillus* sp. D2.2 in sinbiotics on commercial feed is aimed to determine the effect of probiotics given to cellular immune response of vaname shrimp. Shrimp vaname used 12 gram size as much as 10 each tail tub. The test tubes used were 4 fruits for treatment A (0% probiotics), B (2% probiotics), C (4% probiotics), and D (6% probiotics) added 3% white sweet potato flour extract and binder Eggs 2%). The study was conducted for 12 days of maintenance period with total test parameters of hemocyte count, phagocytosis activity, phagocytosis index. *Bacillus* sp. D2.2 the applied has an effect on the increase in total hemocyte count and phagocytosis activity, as well as the phagocytosis index. The best percentage of probiotics in improving cellular immune response of vanilla shrimp is *Bacillus* sp. D2.2 treatment D with 6% concentration as evidenced by increasing THC value and phagocytic activity of vaname shrimp in observation, whereas phagocytosis index value owned by treatment D is stable index compared to other treatment.

Keywords: probiotics, *Bacillus* sp. D2.2, THC, phagocytosis activity, phagocytosis index

ABSTRAK

Aplikasi *Bacillus* sp. D2.2 dalam Sinbiotik Terhadap Respon Imun Seluler Udang Vaname (*Litopenaeus vannamei*)

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Bacillus sp. D2.2 merupakan probiotik yang dapat digunakan dalam upaya peningkatan sistem imun seluler udang vaname. Isolat *Bacillus* sp. D2.2 dalam sinbiotik yang ditambahkan pada pakan komersil dengan FR 3% merupakan perpaduan alternatif pengobatan bakterial pada udang vaname. Aplikasi penambahan *Bacillus* sp. D2.2 dalam sinbiotik pada pakan komersil ditujukan untuk mengetahui pengaruh probiotik yang diberikan terhadap respon imun seluler udang vaname. Udang vaname yang digunakan berukuran 12 gram sebanyak 10 ekor tiap bak. Bak uji yang digunakan berjumlah 4 buah untuk perlakuan A (0% probiotik), B (2% probiotik), C (4% probiotik), dan D (6% probiotik) yang ditambahkan ekstrak tepung ubi jalar putih 3% dan binder (putih telur 2%). Penelitian dilakukan selama 12 hari masa pemeliharaan dengan parameter uji total *hemocyte count*, aktivitas fagositosis, indeks fagositosis. *Bacillus* sp. D2.2 yang diaplikasikan memiliki pengaruh terhadap peningkatan total *hemocyte count* dan aktivitas fagositosis, serta indeks fagositosis. Persentase probiotik terbaik dalam meningkatkan respon imun seluler udang vaname yakni *Bacillus* sp. D2.2 perlakuan D dengan konsentrasi 6% yang dibuktikan dengan meningkatnya nilai THC dan aktivitas fagositosis udang vaname dalam pengamatan, sedangkan nilai indeks fagositosis yang dimiliki oleh perlakuan D merupakan indeks yang stabil dibandingkan perlakuan lainnya.

Kata kunci : probiotik, *Bacillus* sp. D2.2, THC, aktivitas fagositosis, indeks fagositosis