

## ABSTRACT

### COMBINATION OF PROBIOTIC *Bacillus* sp. AND NANOBUDDLE TO SUPPRESS THE GROWTH of *Vibrio* sp. ON VANAME SHRIMP CULTURE *Litopenaeus vannamei* (BOONE, 1931)

By

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Vaname shrimp (*Litopenaeus vannamei*) is the main export commodity for Indonesian fishery products. However, vannamei shrimp cultivation still has obstacles including disease attack, caused by the bacterium *Vibrio* sp. Efforts made to suppress the growth of *Vibrio* sp. is by using probiotics and nanobubble. This research was conducted to study the effect of a combination of giving probiotics *Bacillus* sp. with nanobubbles to suppress the growth of *Vibrio* sp. in shrimp farming. This study used a completely randomized design (CRD) with 4 treatments, namely treatment A (without nanobubble and probiotic *Bacillus* sp.), B (nanobubble and without probiotic *Bacillus* sp.), C (probiotic *Bacillus* sp. and without nanobubble). and D (nanobubble and probiotic *Bacillus* sp.). Each treatment had 3 repetitions. The parameters observed in this study were survival rate (SR), total vibrio count (TVC) of water and intestines, and water quality. The results of the study showed that the combination of probiotics and nanobubbles had a significantly difference in the survival rate of vaname shrimp larvae, but was not significantly different in the total *vibrio* count in the water, total *vibrio* count in the intestines, and total organic matter. The best treatment is a combination of probiotic *Bacillus* sp. and nanobubbles.

Keywords : Vaname shrimp, *Vibrio* sp., probiotics, nanobubble, cultivation

## ABSTRAK

### KOMBINASI PROBIOTIK *Bacillus* sp. DAN NANOBUBBLE UNTUK MENEKAN PERTUMBUHAN *Vibrio* sp. PADA BUDI DAYA UDANG VANAME *Litopenaeus vannamei* (BOONE,1931)

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Udang vaname (*Litopenaeus vannamei*) merupakan jenis udang yang menjadi komoditas ekspor utama produk perikanan Indonesia. Budi daya udang vaname masih memiliki kendala di antaranya adalah serangan penyakit karena bakteri *Vibrio* sp. upaya yang dilakukan untuk menekan pertumbuhan *Vibrio* sp. adalah dengan menggunakan probiotik dan *nanobubble*. Penelitian ini dilakukan untuk mempelajari pengaruh kombinasi pemberian probiotik *Bacillus* sp. dengan *nanobubble* untuk menekan pertumbuhan *Vibrio* sp. pada budi daya udang. Penelitian ini menggunakan rancangan acak lengkap (RAL) dengan 4 perlakuan, yaitu perlakuan A (tanpa *nanobubble* dan probiotik *Bacillus* sp.), B (*nanobubble* dan tanpa probiotik *Bacillus* sp.), C (probiotik dan tanpa *nanobubble* *Bacillus* sp.), dan D (*nanobubble* dan probiotik *Bacillus* sp.). Masing-masing perlakuan memiliki 3 kali ulangan. Parameter yang diamati pada penelitian ini adalah *survival rate* (SR), *total vibrio count* (TVC) air dan usus, dan kualitas air. Hasil penelitian menunjukkan bahwa kombinasi probiotik dan *nanobubble* berbeda nyata terhadap tingkat kelulushidupan larva udang vaname, namun tidak berbeda nyata terhadap *total vibrio count* pada air, *total vibrio count* pada usus, dan *total organic matter*. Perlakuan terbaik terdapat pada kombinasi probiotik *Bacillus* sp. dan *nanobubble*.

Kata Kunci : udang vaname, *Vibrio* sp., probiotik, *nanobubble*, budi daya