

ABSTRAK

EVALUASI PENGGUNAAN SUMBER KARBON YANG BERBEDA DALAM SISTEM BIOFLOK UNTUK MENEKAN POPULASI *Vibrio* PADA BUDI DAYA IKAN NILA *Oreochromis niloticus* (Linnaeus, 1758)

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Teknologi bioflok adalah teknik yang dilakukan dengan menambahkan sumber karbon organik ke dalam media pemeliharaan untuk meningkatkan rasio C/N dan merangsang pertumbuhan bakteri heterotrof dalam budi daya ikan nila. Bioflok membantu mengontrol infeksi bakteri *Vibrio* yang merupakan bakteri heterotrof dan bersifat patogen, dengan cara menghambat kemampuan *quorum sensing* sehingga dapat berperan sebagai agen biokontrol patogen. Penelitian ini bertujuan untuk mengevaluasi pengaruh penggunaan sumber karbon seperti molase, tepung terigu dan tepung tapioka yang telah difermentasi dalam sistem bioflok terhadap pertumbuhan ikan nila dan kelimpahan bakteri *Vibrio* pada budi daya ikan nila. Rancangan yang digunakan dalam penelitian ini adalah rancangan acak lengkap (RAL), dengan empat perlakuan (kontrol, molase, tepung terigu fermentasi, tepung tapioka fermentasi) masing-masing dengan tiga kali ulangan. Benih nila (2-3 cm) dipelihara di kolam terpal berukuran 40x30x35cm³ selama 40 hari. Ikan dikelompokkan berdasarkan perlakuan dengan kepadatan 150/kolam. Sistem bioflok dilakukan dengan penambahan sumber karbon setiap hari. Parameter yang diamati yaitu populasi *Vibrio*, laju pertumbuhan spesifik, laju kelangsungan hidup (SR), rasio konversi pakan (FCR), dan kualitas air meliputi suhu, pH, DO, dan amonia. Hasil penelitian menunjukkan bahwa penambahan sumber karbon molase berpengaruh dalam menurunkan populasi bakteri *Vibrio* sebanyak 38% dari perlakuan kontrol. Nilai pertumbuhan ikan mencapai 7,26 gram, tingkat kelangsungan hidup rata-rata mencapai 89%, dan nilai FCR sebesar 0,84%. Kualitas air yang diukur sebagai berikut : suhu 25,5-29,8 °C, pH 6,8-7,5, DO 4,43-6,73 mg/l, dan amonia 0,013-0,022 mg/l.

Kata kunci: Bioflok, Fermentasi, *Oreochromis niloticus*, Sumber karbon, dan *Vibrio*.

ABSTRACT

EVALUATION OF DIFFERENT CARBON SOURCES USING IN A BIOFLOC SYSTEM TO CONTROL *Vibrio* ABUNDANCE IN TILAPIA *Oreochromis niloticus* (Linnaeus, 1758) CULTIVATION

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Biofloc technology is a technique that is carried out by adding organic carbon sources to the rearing media to increase the C/N ratio and stimulate the growth of heterotrophic bacteria in tilapia culture. Biofloc helps control infection with Vibrio bacteria, which are heterotrophic and pathogenic bacteria, by inhibiting the ability of quorum sensing so that it can act as a pathogen biocontrol agent. This study aimed to evaluate the effect of using carbon sources such as molasses, wheat flour and tapioca flour that has been fermented in a biofloc system on the growth of tilapia and the abundance of Vibrio in tilapia culture. The design used in this study was a completely randomized design (CRD), with four treatments (control, molasses, fermented wheat flour, fermented tapioca flour) each with three replications. Tilapia seeds (2-3 cm) kept in tarpaulin ponds measuring 40x30x35 cm³ for 40 days. Fish were grouped by treatment with a density of 150/pond. The biofloc system was carried out by adding a carbon source every day. Parameters observed were Vibrio bacterial population, specific growth rate, survival rate (SR), feed conversion ratio (FCR), and water quality including temperature, pH, DO, and ammonia. The results showed that the addition of a carbon source of molasses had an effect on reducing the population of Vibrio bacteria as much as 38% from the control treatment. The fish growth value reached 7.26 grams, the average survival rate reached 86-89%, and the FCR value was 0.84%. The water quality measured as followed : temperature was 25.5-29.8°C, pH was 6.8-7.5, DO 4.43-6.73 mg/l and ammonia was 0.013-0.022 mg/l.

Keywords: *Biofloc, Fermentation, Oreochromis niloticus, Carbon source, and Vibrio*