

## ABSTRACT

### THE EVALUATION OF THE DIFFERENT CARBON SOURCES UTILIZATION IN BIOFLOK SYSTEMS ON SUPPRESSING THE *Vibrio* ABUNDANCE IN AFRICAN CATFISH, *Clarias gariepinus* (Burchell, 1822) CULTIVATION

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*Vibrio* bacteria is one of the opportunistic pathogens in African catfish farming. The increased accumulation of waste in intensive African catfish farming has great potential in increasing the number of *vibrio* bacteria in the pond. Biofloc technology is proven to be able to inhibit the abundance of pathogenic bacteria. This study aimed to evaluate the effect of adding several fermented carbon sources to suppress *vibrio* growth in African catfish (*Clarias gariepinus*) cultured biofloc system. African catfish were reared in a 160 x 90 x 61 cm<sup>3</sup> rearing tank with an initial weight of 1.47g and reared for 40 days with a density of 150 ind/m<sup>3</sup>. The carbon sources were used as treatments consisted of molase, wheat flour, and tapioca flour each with a C/N ratio of 15 that had been fermented and control (without the addition of a carbon source) was carried out in this study with 3 replications each. floating pellet feed (30% protein content) was given with a frequency of 3 times a day. Total *vibrio* count (TVC) of each treatment was calculated on days 0, 20 and 40. Data were analyzed by anova and Duncan test, with a 95% confidence level. The results showed that fermented wheat flour was able to suppress the abundance of *vibrio* bacteria. In African catfish cultured water which is characterized by a 4-fold decrease in the number of bacterial colonies. However, the provision of three different carbon sources did not significantly increase the growth performance of absolute length, absolute weight, survival (SR) and feed conversion ratio (RKP) of African catfish. The addition of a carbon source from fermented wheat flour has the potential to be applied in intensive African catfish cultivation with a biofloc system to suppress the abundance of pathogenic bacteria.

**Keywords:** Biofloc, *Clarias gariepinus*, molase, fermented flour, fermented tapioca and *Vibrio* sp.

## ABSTRAK

### EVALUASI PENGGUNAAN SUMBER KARBON YANG BERBEDA PADA SISTEM BIOFLOK DALAM MENEKAN KELIMPAHAN *Vibrio* PADA BUDI DAYA IKAN LELE DUMBO, *Clarias gariepinus* (Burchell, 1822)

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Bakteri *vibrio*. menjadi salah satu patogen oportunistik dalam budidaya lele dumbo. Meningkatnya akumulasi limbah pada budidaya lele dumbo intensif berpotensi besar dalam peningkatan jumlah bakteri *vibrio* di kolam. Teknologi bioflok terbukti mampu menghambat kelimpahan bakteri patogen. Penelitian ini bertujuan untuk mengevaluasi pengaruh penambahan beberapa sumber karbon yang telah difermentasi untuk menekan pertumbuhan *vibrio* pada budi daya lele dumbo sistem bioflok. Lele dumbo dipelihara pada wadah pemeliharaan berukuran 160 x 90 x 61 cm<sup>3</sup> dengan bobot awal  $\pm 1,47$ g dan dipelihara selama 40 hari serta dengan kepadatan 150 ekor/m<sup>3</sup>. Sebanyak tiga perlakuan pemberian sumber karbon yaitu molase, tepung terigu, dan tepung tapioka masing-masing dengan rasio C/N 15 yang telah difermentasi serta kontrol (tanpa penambahan sumber karbon) dilakukan dalam penelitian ini masing-masing dengan 3 ulangan. Pakan pelet apung (kadar protein 30%) diberikan dengan frekuensi 3 kali sehari. *Total vibrio count* (TVC) masing-masing perlakuan dihitung pada hari ke 0, 20, dan 40. Data dianalisis dengan Anova dan uji Duncan, dengan tingkat kepercayaan 95%. Hasil penelitian menunjukkan bahwa tepung terigu terfermentasi mampu menekan kelimpahan bakteri *vibrio* pada air budi daya ikan lele dumbo yang ditandai dengan menurunnya jumlah koloni bakteri sebanyak 4 kali lipat. Namun dengan pemberian ketiga sumber karbon yang berbeda tidak berbeda nyata dalam meningkatkan performa pertumbuhan panjang mutlak, bobot mutlak, kelangsungan hidup (SR) dan rasio konversi pakan (RKP) ikan lele dumbo. Penambahan sumber karbon dari tepung terigu terfermentasi berpotensi untuk diaplikasikan dalam budi daya lele dumbo intensif dengan sistem bioflok untuk menekan kelimpahan bakteri patogen.

**Kata kunci :** Bioflok, *Clarias gariepinus*, molase, tepung terigu, tepung tapioka dan *Vibrio* sp. .