

## ABSTRAK

### ANALISIS KANDUNGAN SENYAWA TOKSIK AMONIA DAN NITRIT PADA BUDIDAYA UDANG VANAME, *Litopenaeus vannamei* (Boone, 1931) DENGAN PENERAPAN SISTEM *GREEN WATER* DAN *BROWN WATER* *BIOFLOC*

Oleh

MEGA CANIA

Amonia dan nitrit dalam perairan merupakan senyawa toksik yang dihasilkan oleh limbah budi daya udang vaname dan berbahaya bagi udang. Penerapan teknologi *biofloc* terbukti efektif mengurangi limbah budi daya udang vaname melalui pemeliharaan kualitas air. Dua tipe sistem yang diterapkan yaitu *green water biofloc* (outdoor) dan *brown water biofloc* (indoor). Tujuan dari penelitian ini yaitu menganalisis dinamika kadar amonia dan nitrit pada sistem *green water* dan *brown water biofloc*. Penelitian ini dilakukan dengan 3 perlakuan dan 3 ulangan yaitu perlakuan tanpa *biofloc*, *green water biofloc* (*biofloc* dengan sinar matahari), dan *brown water biofloc* (*biofloc* tanpa sinar matahari). Udang vaname yang digunakan yaitu PL10 dengan padat tebar 70 ekor/liter. Pemeliharaan dilakukan selama 30 hari. Pengukuran kadar amonia dan nitrit dilakukan pada hari ke-0, 15 dan 30 dengan metode spektrofotometer secara fenat SNI 06-6989.30-2005 untuk amonia dan SNI 06-6989.9-2004 untuk nitrit. Hasil penelitian menunjukkan kadar amonia pada perlakuan tanpa *biofloc* yaitu  $0,04 \pm 0,009$  mg/l, *green water biofloc* yaitu  $0,002 \pm 0,003$  mg/l dan *brown water biofloc* yaitu  $0,17 \pm 0,015$  mg/l. Kadar nitrit pada perlakuan tanpa *biofloc* yaitu  $0,07 \pm 0,012$  mg/l, *green water biofloc* yaitu  $0,01 \pm 0,002$  mg/l dan *brown water biofloc* yaitu  $0,14 \pm 0,007$  mg/l. Sistem *green water biofloc* lebih baik dari perlakuan lainnya dan dapat memberikan pakan alami bagi larva udang vaname.

**Kata kunci:** *udang vaname, green water biofloc, brown water biofloc, amonia dan nitrit*

## ABSTRACT

### ANALYSIS OF TOXIC COMPOUNDS OF AMMONIA AND NITRITE IN THE AQUACULTURE OF WHITE SHRIMP, *Litopenaeus vannamei* (Boone, 1931) WITH THE APPLICATION OF GREEN WATER AND BROWN WATER BIOFLOC SYSTEMS

By

MEGA CANIA

Ammonia and nitrite in waters are toxic compounds produced by vaname shrimp culture waste and are harmful to shrimp. The application of biofloc technology was proven to be effective in reducing vaname shrimp culture waste through maintaining water quality. Two types of systems were applied, namely green water biofloc (outdoor) and brown water biofloc (indoor). The purpose of this study was to analyze the dynamics of ammonia and nitrite levels in green water and brown water biofloc systems. This research was conducted with 3 treatments and 3 replications, namely without biofloc, green water biofloc (exposed to sunlight) and brown water biofloc (did not exposed to sunlight). The vaname shrimp was PL10 with a stocking density of 70 ind/liter, which was maintained for 30 days. The measurement of ammonia and nitrite were carried out at the day of 0, 15 and 30 using phenate spectrophotometer method based on SNI 06-6989.30-2005 for ammonia and SNI 06-6989.9-2004 for nitrite. The results showed that the ammonia concentration in the without biofloc was  $0.04 \pm 0.009$  mg/l, the green water biofloc was  $0.002 \pm 0.003$  mg/l and the brown water biofloc was  $0.17 \pm 0.015$  mg/l. Nitrite concentration in the without biofloc was  $0.07 \pm 0.012$  mg/l, the green water biofloc was  $0.01 \pm 0.002$  mg/l and the brown water biofloc was  $0.14 \pm 0.007$  mg/l. Green water biofloc system was better than the other treatments and it could provide more natural feed for shrimp juveniles.

**Keywords:** *vaname shrimp, green water biofloc, brown water biofloc, ammonia and nitrite*