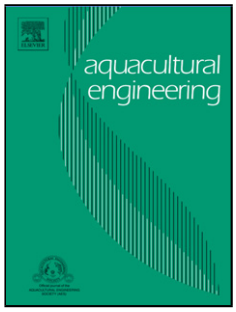

Title: Prenursery of the Pacific white shrimp in a biofloc system using different artificial substrates

Authors: Priscila Costa Rezende, Delano Dias Schleder, Hortência Ventura da Silva, Fernanda Morais Henriques, Marco Antonio de Lorenzo, Walter Quadros Seiffert, Edemar Roberto Andreatta, Felipe do Nascimento Vieira

PII: S0144-8609(17)30225-X
DOI: https://doi.org/10.1016/j.aquaeng.2018.04.001
Reference: AQUE 1939

To appear in: *Aquacultural Engineering*

Received date: 19-10-2017
Revised date: 16-2-2018
Accepted date: 23-4-2018

Please cite this article as: Costa Rezende P, Dias Schleder D, da Silva HV, Morais Henriques F, de Lorenzo MA, Quadros Seiffert W, Roberto Andreatta E, Nascimento Vieira Fd, Prenursery of the Pacific white shrimp in a biofloc system using different artificial substrates, *Aquacultural Engineering* (2010), https://doi.org/10.1016/j.aquaeng.2018.04.001

Prenursery of the Pacific white shrimp in a biofloc system using different artificial substrates

Priscila Costa **Rezende**[a], Delano Dias **Schleder**[b], Hortência Ventura da **Silva**, Fernanda Morais **Henriques**, Marco Antonio de **Lorenzo**, Walter Quadros **Seiffert**[a], Edemar Roberto **Andreatta**[a], Felipe do Nascimento **Vieira**[a*].

[a]Universidade Federal de Santa Catarina, Centro de Ciências Agrárias, Departamento de Aquicultura, Laboratório de Camarões Marinhos, Servidão dos Coroas, 503, Barra da Lagoa, Florianópolis/SC, Brazil. CEP: 88061-600.

[b]Instituto Federal Catarinense Campus de Araquari, Rodovia BR 280, km 27, Araquari/SC, Brazil. CEP 89245-000.

*Corresponding author. Tel.: +55 48 37214118.

Email address: felipe.vieira@ufsc.br

Highlights:

- A biofloc system in pre-nursery of shrimp is an option to conventional systems.
- Needlona® being able to maintain levels of suspended solids in water without water exchange.
- Needlona® as artificial substrate at a storage density of 80 postlarvae L-1 reaching survival rates over 90%.

ABSTRACT

This study evaluated different artificial substrates during pre-nursery of Pacific white shrimp in a biofloc system. Post-larvae (PL 5 – 80 PL L^{-1}) were raised in 60 L tanks filled with 52 L of chlorinated seawater (35‰) and 6 L of the microalga *Chaetoceros muelleri*. Four treatments were performed, including control (no artificial substrate), Bidim® (geotextile), mosquito net screen (2 mm mesh) and Needlona® (polyester fiber). The total surface area of artificial substrate comprised 100% of the tank area (0.89 m^2). PLs were fed nine times a day using commercial feed. Molasses was added in all treatments four times a day at an average carbon:nitrogen ratio of 14.7:1. The experiment was carried out until the PLs reached PL20, and during this time, water quality, survival, weight gain and survival to salinity stress were all evaluated. Water quality parameters remained within the accepted levels for shrimp rearing, with the exception of total suspended solids (TSS) in mosquito net screen and control, which had the highest values (507 ± 5.50 mg L^{-1} and 565 ± 23.46 mg L^{-1} , respectively). Using Needlona® as artificial substrate increased the survival rate (91 ± 11.6%) and reduced TSS (42%) when compared to the control. No significant differences were observed in final weight and survival to salinity stress. Among the different substrates, Needlona® was the most suitable for application in Pacific white shrimp prenursery in the biofloc system, essentially because it could maintain levels of solids suspended in water without the use of clarifiers or water exchange, resulting in higher survival.

Keywords: *Litopenaeus vannamei*, heterotrophic system, post-larvae, salinity stress, growth