CAPABILITY OF TWO PLANT GROWING SYSTEMS TO REGULATE WATER QUALITY IN AQUAPONICS SYSTEM

by

MARIA CELLYNE BUNAG DE BLAS

An Undergraduate Thesis presented to the faculty of the College of Fisheries in partial fulfillment of the requirements for the degree of

BACHELOR OF SCIENCE IN FISHERIES

COLLEGE OF FISHERIES
CENTRAL LUZON STATE UNIVERSITY
Science City of Muñoz, Nueva Ecija

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MARIA CELLYNE B. DE BLAS

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ABSTRACT

This study aimed to determine the capability of aquaponics system in the removal of fish waste nutrients and evaluate the growth of red tilapia (*Oreochromis* sp.) and lettuce (*Lactuca sativa)*. Two treatments were used in this study namely T1 (lettuce with growing media) and T2 (lettuce without growing media). All values of water quality parameters fluctuated due to unstable weather. The water parameters, temperature, dissolved oxygen, and phosphorus showed no significant difference in both treatments except for pH reading of effluent in the afternoon which T2 (7.90 ± 0.01^{b}) showed higher mean compared to T1 (7.83 ± 0.02^{a}). The TAN, nitrite and nitrate of effluent in T2 (2.25 ± 0.07^{b}, 0.21 ± 0.01^{b}, 2.04 ± 0.06^{b}) showed higher mean compared to T1 (1.34 ± 0.04^{a}, 0.09 ± 0.00^{a}, 1.24 ± 0.04^{a}). The TAN, NH3 and NH4+of influent in T2 (2.50 ± 0.19^{b}, 0.21 ± 0.02^{b}, 2.29 ± 0.18^{b}) also revealed higher mean compared to T1 (1.43 ± 0.04^{a}, 0.10 ± 0.01^{a}, 1.34 ± 0.03^{a}).

The study justified that growing media plays an important role in the removal of nutrients in the water though both treatments are suitable growing systems.

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