

**MORPHOLOGICAL AND BEHAVIORAL RESPONSES OF FEMALE RED
TILAPIA (*Oreochromis* sp.) EXPOSED TO DIFFERENT SALINITY
CONCENTRATIONS**

By

PRINCESS JOY PASCUA SANTACERA

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

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

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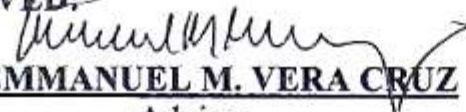
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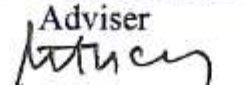
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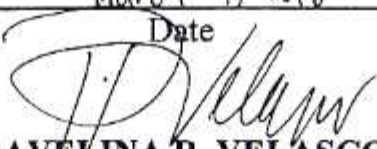
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PRINCESS JOY PASCUA SANTACERA

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MORPHOLOGICAL AND BEHAVIORAL RESPONSE OF FEMALE RED TILAPIA (*Oreochromis sp.*) EXPOSED TO DIFFERENT SALINITY CONCENTRATION^{1/}

ABSTRACT

The study evaluated the morphological and behavioral response of female red tilapia (*Oreochromis sp.*) exposed to different salinity concentrations. The objective of the study was to determine if ECP and VR can be an effective stress indicators in juvenile stage of female red tilapia exposed to different salinity concentrations. Also the salinity tolerance of female red tilapia was assessed. Juvenile female red tilapia of size 12 were used in the study. The salinity concentration was gradually raised every hour (within 8 hours) until they reached their respective levels and monitored 24 hours. The salinity concentrations used were 0 (Control), 5 ppt, 10 ppt, 15 ppt, 20 ppt and 25 ppt.

Mean ECP at 5 ppt (2.28 ± 0.61) and 10 ppt (2.01 ± 0.24) were comparable but both were significantly higher compared to those in the other treatments. The mean ECP at 0 ppt (1.95 ± 0.30) and 20 ppt (1.95 ± 0.12) were also comparable but both were significantly higher than those at 25 ppt (1.90 ± 0.06) and 15 ppt (1.55 ± 0.16). The latter two means were not significantly different from each other. There exist an insignificant weak negative relationship between mean ECP and salinity concentration ($r = -0.388$; $n = 6$; $P < 0.05$). Mean VR at 10 ppt (1.47 ± 0.05) and 0 ppt (1.46 ± 0.05) were comparable but both were significantly higher compared to those in the other treatments. The mean VR at 5 ppt (1.42 ± 0.57) and 15 ppt (1.42 ± 0.05) were also comparable but both were significantly higher than those at 25 ppt (1.37 ± 0.03) and 20 ppt (1.37 ± 0.06). The latter two means were not significantly different from each other. There exist is significant weak negative relationship between the mean VR and salinity concentration ($r = -0.815$; $n = 6$; $P < 0.05$). The mortality recorded were from 20 and 25 ppt salinity level concentrations. In the first eight hours, 25 ppt treatment had recorded one fish died on the seventh hour in replicate 3 and another one died on the eighth hour in replicate 4. While on the twenty-fourth (24th) hours, two fish died on replicates 3 and 4 on the 20 ppt treatment and another two fish died on replicates 1 and 2 of the 25 ppt treatment. Another one has been recorded on the thirty-sixth (36th) hour - in replicate 5 of 25 ppt treatment. And the last recorded was on the forty-eighth (48th) hour- in replicate 1 of the 20 ppt treatment. Results of the study indicate that ECP and VR are not reliable tools for the assessment of stress in red tilapia exposed to different salinity levels because of varying results. However, gradual increase of salinity concentration up to 15 ppt can be tolerated by the fish.

^{1/} Undergraduate thesis presented to the faculty members of the College of Fisheries, Central Luzon State University as partial fulfillment of the requirements for the degree of Bachelor of Science in Fisheries. Prepared at the Department of Aquaculture under the supervision Dr. Emmanuel M. Vera Cruz

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