

**STRESS RESPONSES OF RED TILAPIA (*Oreochromis niloticus* L.) REARED IN
DIFFERENT KINDS OF MUSIC GENRE**

by

MA. FATIMA M. ESGUERRA

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
Philippines**

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*"For all that God in mercy sends; For health and children, home and friends;
For comfort in time of need, for every kindly word and deed, for happy thoughts and holy
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STRESS RESPONSES OF RED TILAPIA (*Oreochromis niloticus* L.) REARED IN DIFFERENT KINDS OF MUSIC GENRE

ABSTRACT

In this study, the stress responses of red Nile tilapia (*O. niloticus*) reared in different kinds of music genre (Treatment 1 – no music (control); Treatment 2 – classical; Treatment 3 - rock) were quantified using eye color pattern (ECP), ventilation rate (VR) and skin color. The experimental fish were subjected in music treatment for 30 minutes per day in span of 30 days. The ECP, VR and skin color were monitored before and after the application of music. The sound level that was applied in all music treatments ranged from 90 to 100 dB.

The mean ECP of fish in Treatment 2 before and after the music treatment did not show any changes during the experimental period. It also obtained the lowest mean ECP (0.00) which means no darkening of the eye and was followed by Treatment 3 with mean ECP of 0.58 and lastly, Treatment 1 with mean ECP of 1.41. Statistical analysis revealed that mean ECP in Treatments 1 and 3 were significantly different from that of Treatment 2. Changes in VR values were observed right after the application of music, there was an increase in VR in Treatment 3 from 1.71 beats/sec to 1.83 beats/sec while VR of Treatment 2 decreased from 1.59 beats/sec to 1.53 beats/sec. Statistical analysis of mean ventilation rate before and after the application of music did not show significant difference among treatments. However, correlation analysis revealed that there was a significant and moderate positive relationship between mean ECP and mean VR ($r = 0.376$; $P < 0.05$).

The mean gain in weight (12.23 g) of Treatment 3 (Rock) exceeded the other treatments even though it had the least mean initial weight of 46.36 g. Mean gain in weight of Treatment 1 (Control) was 11.70 g with a mean initial weight of 48.16 g and Treatment 2 (Classical) with 11.16 g mean gain in weight and 50.73 g mean initial weight. However, statistical analysis of mean initial, final and gain in weight did not show any significant difference among treatments.

The recorded mean initial length of the experimental fish ranged from 13-14 cm. Treatment 1 obtained the lowest mean length gain of 0.90 cm with a mean final length of 15.06 cm, followed by Treatment 2 with mean length gain of 0.96 cm and a mean final length of 15.63 cm while Treatment 3 obtained the highest mean gain length of 1.73 cm with a mean final length of 15.66 cm. Statistical analysis revealed that the mean values for gain in lengths were significantly different among all treatments ($P < 0.05$).

In conclusion, this study revealed that: (1) classical music produce lesser level stress responses (i.e. ECP, VR and body color) than rock music, (2) exposing fish in music helps to increase gain weight and length, and (3) subjecting fish to music will decrease the level of stress that was brought about by culture production noise.

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