

**THE EFFECT OF SEX REVERSAL TREATMENT ON THE GROWTH AND  
SURVIVAL OF TWO STRAINS OF NILE TILAPIA (*Oreochromis niloticus*)  
AND MOSSAMBIQUE TILAPIA (*Oreochromis mossambicus*)  
RAISED IN BRACKISHWATER**

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## ABSTRACT

*BADILLO, SUSAN DELOS SANTOS. University of the Philippines in the Visayas, August 2000. The Effect of Sex Reversal Treatment on the Growth and Survival of Two Strains of Nile Tilapia (*Oreochromis niloticus*) and Mossambique Tilapia (*Oreochromis mossambicus*) raised in Brackishwater.*

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A study to determine the effects of sex reversal (SRT) on the growth and survival of two strains of Nile tilapia (*Oreochromis niloticus*) and Mossambique tilapia (*Oreochromis mossambicus*) was conducted in four 2m x 1m x 1.5m suspended hapa nets in UPV-IA Hatchery and Biology brackishwater fishpond for 75 days. The experimental treatments and codes used in this study were the following, Treatment GGn (GIFT/normal), Treatment GGsrt (GIFT/sex reversal), Treatment MMn (Moss/normal), Treatment MMsrt (Moss/sex reversal), Treatment GEn (GIFT-Egypt/normal) and Treatment GESrt (GIFT-Egypt/sex reversal). Juvenile fry (average weight 0.01g) were subjected to sex reversal treatment by feeding fish diet with methyltestosterone at 60 mg per kg of feed for three weeks in freshwater.

After SRT, the fingerlings were nursed in fine mesh net (0.5 mm mesh, 2m x 1m x 1m) for 30 days until the fish attained the weight from 3.0 g to 5.3 g. They were individually tagged by fin clipping method. They were acclimated from 0 ppt to 20 ppt prior to experimental proper. Juvenile fish of 3.40-5.44 g were communally stocked at 25 fish each treatment. Juvenile fish were fed with a commercial feed at 15% of their mean body weight per day from 1-30 days and 10% per day of their mean body weight from day 31-75 days culture period.

Within the normal treatments, there was no significant ( $P>0.05$ ) difference in mean body weights between Treatments GGn and GEn but both are significantly higher ( $P<0.01$ ) than Treatment MMn. Within the sex reversed treatments, mean body weight in Treatment GGsrt was not significantly ( $P>0.05$ ) different from Treatment GESrt, but showed high significant ( $P<0.01$ ) difference with Treatment MMsrt, similar to the normal treatments.

The highest average final biomass of 808.88 g was obtained in Treatment GGsrt followed by Treatment GESrt (795.58 g) and lowest in treatment MMn (367.63 g). The biomass gain of tilapia within the normal treatments ranged from 282.6 g to 672.95 g. Treatment GGn showed no significant ( $P>0.05$ ) different from Treatment GEn, but both were significantly higher from Treatment MMn. The same trend was observed within sex reversal treatments.

Treatment GGn obtained the highest (589.70%) percentage biomass gain and Treatment MMn (335.01%) was the lowest within the normal treatments. In sex reversal treatment, Treatment GGsrt has no significant difference with Treatment GESrt, but both showed a high significant difference in Treatment MMsrt.

Highest specific growth rate was observed in Treatment GGn ( $2.62 \text{ g day}^{-1}$ ) and lowest in Treatment MMn ( $1.97 \text{ g day}^{-1}$ ). Mean condition factor (MCF) of tilapia was highest in Treatment GGn (1.60), followed by Treatment GEn (1.56) and lowest in Treatment MMsrt (1.17). Within the normal treatments, Treatment GGn and GEn showed no significant difference ( $P>0.05$ ), but both were significantly higher ( $P<0.01$ ) than Treatment MMn. Within the SRT treatment, all treatments showed highly significant

( $P < 0.01$ ) difference from each other with highest at Treatment GGsrt and lowest at Treatment MMsrt. Mean survival ranged from 95% to 100%.

Highest percent male population was obtained in hormone-treated fish (95-100%) compared to normal treatments (64-71%). Sex reversal treatment did not improve growth and survival of the two strains of Nile tilapia (*O. niloticus*), but improved the growth of Mossambique tilapia (*O. mossambicus*) significantly after 75 days under the conditions this experiment was conducted.