SEX REVERSAL AS AN OPTION TO INCREASE PROFIT MARGIN IN NILE TILAPIA (*Oreochromis niloticus*) INDUSTRY

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Fresh water fish farming is a possible solution to protein malnutrition in man in most developing countries. Tilapia, the second most popular fresh water fish today, has reached world production levels of 974,000 MT in the year 2000, and it is expected to be 1,916,000 MT by the year 2010. Three lacustrine species of Tilapia are currently popular in Sri Lanka, namely, Oreochromis niloticus, Tilapia rendolli and Oreochromis mossambica. It is known that the male Tilapia is heavier when compared with their females. Therefore, if the proportion of males can be increased in a Tilapia production farm, the profits can be increased. Several attempts have been made in this context by researchers using hormones and hybridisation. The present pilot investigation was carried out in a fish production unit in Saudi Arabia to examine whether a 30 days treatment of Oreochromis niloticus with 17-alpha methyl testosterone would increase the proportion of males and therefore their production.

Two fish ponds, each of 2m x 2m x 0.75m in Rasheid Mohd Al Ballaa farm, Saudi Arabia were selected for the study in February 1999. Three thousand six hundred, one day-old Oreochromis niloticus fry (crosses between Florida and Sterling of Nile tilapia) were transferred directly from the hatchery into each of the above two ponds. The powdered diet of these fry (containing 44% crude protein) was mixed with 17- alpha methyl testosterone at the rate of 60 mg/kg. The day-old fry in one pond were fed with the above feed according to their bodyweight until they were 30 days old. The fry in the other pond served as controls. Fish samples from both ponds were weighed once a week in order to make the required calculations. Both groups of fish were transferred to separate nursery and fattening ponds when they were 30 and 90 days old, respectively. At the end of the 30^{th} day, the average bodyweight of the treated fry was 1 g while that of control group was 0.75 g. At the end of the 90^{th} day, 80% of the fish in the treated pond were found to be males while approximately 50% of those in the control pond were found to be males. The average weight of the fingerlings of the treated group was 30g while that of the control group was 20 g. By the 90^{th} day, the mean weight of the treated group was 120 g while that of the control group was 90 g. The market weight, which is 400g, was achieved in treated group within 7.5 months while in the control group it was achieved in 9 months.

It appears that treatment with 17-alpha methyl testosterone could increase the proportion of male Tilapia leading to a mono sex culture and therefore also increase the growth rate and production. This hormone treatment could be recommended after further studies aimed at evaluating the effects of consumption of the hormone treated fish on man.