**Hormonal sex reversal in Nile Tilapia (*Oreochromis niloticus*).**

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**Abstract**

Hormonal Sex reversal in fish occurs when the genetic pathway for one sex is altered, due to hormonal treatments resulting in the opposite sex's characteristics. Nile tilapia (*Oreochromis niloticus*) are highly valuable fish in freshwater aquaculture worldwide. Male tilapia are favored because of their quicker growth rate. 17α-methyltestosterone is frequently used to control tilapia sex; dosages for Nile tilapia range greatly from 10 to 70 mg/kg of food. There are 2 methods of sex reversal in Nile tilapia; oral and immersion method. Studies on methyl testosterone-induced sex reversal in tilapia have demonstrated the efficacy of both oral and immersion techniques. The percentage of male tilapia that can be produced by oral treatment with 60 mg/kg feed of 17a-methyl testosterone ranges from 93.7% to 100%. By exposing tilapia larvae to 17a-MT, the immersion approach produces male tilapia at a rate of 91.6% to 98.3%. For fish health, hormone concentrations must be closely monitored. These techniques provide useful resources for tilapia monosex male population production. Studies show time and time again that MT treatment has no negative effects on fish flesh once treatment ends, and that eating fish that was created by sex reversal is safe for customers to consume. For the best growth rates and to avoid congestion, monosex male stocks are preferred. The immersion method raises issues about hormone residue and achieves high rates of masculinization, but the feeding method with 17α-methyltestosterone is more economical and successful. The environmental effect of closed aquaculture systems, such as Biofloc Technology (BFT), can be reduced, however insufficient feed ingestion may lead to a decrease in the rate of masculinization.

Keywords: Sex reversal, Nile Tilapia, hormonal treatment, 17α- methyltestosterone, monosex oral method, immersion method.