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## RESEARCH REPORTS

SUSTAINABLE AQUACULTURE FOR A SECURE FUTURE

**Title:** Masculinization of Nile tilapia (*Oreochromis niloticus*) by single immersion in 17 $\alpha$ -methyl dihydrotestosterone and trenbolone acetate

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**Abstract:** The production of single sex populations offers several advantages in tilapia aquaculture, including enhanced growth and prevention of unwanted reproduction. A number of androgens have been shown to masculinize various tilapia species, including 17 $\alpha$ -methyltestosterone (MT; summarized by Pandian and Varadaraj 1990 for *Oreochromis mossambicus*); mibolerone (Torrans et al. 1988 with *O. aureus*); fluoxymesterone (Phelps et al. 1992 with *O. niloticus*); norethisterone acetate (Varadaraj 1990 with *O. mossambicus*); 17 $\alpha$ -ethynyltestosterone (Shelton et al. 1981 with *O. aureus*); 17 $\alpha$ -methyl androstendiol (Varadaraj and Pandian 1987 with *O. mossambicus*), and trenbolone acetate (Galvez et al. 1996 with *O. niloticus*).

Aquaculturists usually administer hormones to fish through the diet, but this method is prone to inefficiencies such as uneven exposure to steroid due to the establishment of feeding hierarchies or the availability of supplemental feed from pond primary productivity. Immersion of tilapia fry in steroid solutions may be one way to achieve masculinization and avoid these inefficiencies. This technique is well-developed in salmonid aquaculture (Piferrer and Donaldson 1989; Feist et al. 1995); however, it remains largely experimental in tilapia culture. Most of the reported studies immersed tilapia fry in androgens for periods of over 1 week to 5 weeks (Varadaraj and Pandian 1987; Torrains et al. 1988). Recently, Gale et al. (1995) demonstrated that immersion for just three hours in 17 $\alpha$ -methyl dihydrotestosterone (MDHT) on two days resulted in masculinization of Nile tilapia. The study described below was undertaken to determine

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if these findings could be extended through examination of the effects of 1) rearing density on efficacy of MDHT immersion, 2) a single immersion in MDHT, and 3) immersion in another masculinizing androgen, trenbolone acetate (TBA).

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