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RESEARCH REPORTS

SUSTAINABLE AQUACULTURE FOR A SECURE FUTURE

**Title:** Masculinization of Nile tilapia *(Oreochromis niloticus)* by immersion in androgens

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**Abstract:** The use of all-male populations increases the efficiency and feasibility of tilapia aquaculture. The objective of this study was to determine the efficacy of a short-term immersion procedure for masculinizing Nile tilapia *(Oreochromis niloticus).* Two synthetic androgens were evaluated: 17α-methyldihydrotestosterone (MDHT) and 17α-methyltestosterone (MT). Exposure (3 h) on 10 and again on 13 days post-fertilization to MDHT at 500 μg/l successfully masculinized fry in all experiments, resulting in 100, 94 and 83 ± 2% males in Experiments 1, 2 and 3, respectively. Immersions in MDHT or MT at 100 μg/l resulted in significantly skewed sex ratios in Experiments 1 and 3 (MT resulted in 73 and 83 ± 3% males; and MDHT resulted in 72 and 91 ± 1% males) but not in Experiment 2. Immersion in MT at 500 μg/l only caused masculinization in Experiment 3. Although further research and refinement is needed, immersion of Nile tilapia in MDHT may provide a practical alternative to the use of steroid-treated feed. Furthermore, when compared with current techniques for steroid-induced sex inversion of tilapia, short-term immersion reduces the period of time that workers are exposed to anabolic steroids.

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