

ORL-B&G-04**Use of Tamoxifen, a Non-Steroidal Aromatase Inhibitor on Sex Reversal of Red tilapia *Oreochromis* spp.**

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The red tilapia (*Oreochromis* spp.) a hybrid fertile species is fast becoming popular among tilapia-growing farmers due to its attractive color, increased marketability, and high salinity tolerance. Mono-sex all-male culture is one of the suitable techniques to combat the main hurdle of the prolific breeding behavior of red tilapia. Synthetic hormones, mainly 17- α methyl testosterone is used for all male tilapia fry production. Due to its adverse effects on the environment and humans, its use in the tilapia culture industry has become contradictory. As an alternative to this, aromatase inhibitors are being tested.

Two experiments were conducted at the Fisheries Program, Agriculture and Forestry University, Rampur Nepal to assess the efficacy of Tamoxifen, a non-steroidal aromatase inhibitor, for the sex reversal of red tilapia, (*Oreochromis* spp.). In the 1st experiment, there were 4 treatments, and 3 in the later one respectively. The treatments included a diet with T1 (0 mg/kg -Control), T2 (500mg/kg), T3 (750mg/kg), T4 (1000mg/kg), and T1 (0mg/kg-Control), T2 (1250 mg/kg), and T3 (1500 mg/kg) of Tamoxifen respectively. Nine-day post fry were reared in aquarium of 60cm x 30cm x 45cm dimension and fed with tamoxifen incorporated feed for 30 days in the 1st phase of the experiments, while rearing was carried out in 50 cm x 50 cm x 100 cm nylon hapas, 5 m x 5 m x 1.5 m concrete tank, suspended up to 150 days in the 1st experiment and 180 days in the 2nd experiment respectively in the 2nd phase of the experiments.

Gonads showed a dose-dependent sex reversal. The proportion of males in treatments fed with 1500mg/kg of tamoxifen diet for 30 days was found to be 94.64 \pm 0.1% which was significantly higher than control feed with 51.45 \pm 0.77% of males. Results also showed that survival in tamoxifen fed treatment was significantly lower than the control group while SGR was not affected in the control and treatment group. Thus, this study showed tamoxifen can efficiently masculinize red tilapia.

Table 1. Male percentage in different treatments in first experiment.

Treatments	Male %	Range
T1 (0 mg/kg)	52.31 \pm 2.24 ^a	47.8-54.4
T2(500 mg/kg)	84.42 \pm 1.30 ^b	81.8-85.6
T3(750 mg/kg)	88.95 \pm 1.30 ^{bc}	86.3-90.4
T4(1000 mg/kg)	91.58 \pm 1.58 ^c	90.0-94.7

Mean (\pm SE) values with different superscripts in the same row are significantly different (P<0.05)

Table 2. Male percentage in different treatments in second experiment.

Treatments	Male %	Range
T1(0 mg/kg)	51.45 \pm 0.77 ^a	50.0 - 52.2
T2(1250 mg/kg)	93.06 \pm 1.53 ^b	90.0 - 94.7
T3(1500 mg/kg)	94.64 \pm 0.10 ^b	94.4 - 94.7

Mean (\pm SE) values with different superscripts in the same row are significantly different (P<0.05).