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Masculinisation of Nile Tilapia (*Oreochromis niloticus*) Fry by Immersion in 17 α -methyltestosterone

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Abstract

This study was conducted to develop a short-term immersion procedure for masculinisation of Nile Tilapia (*Oreochromis niloticus*) by using 17 α -methyltestosterone at 100, 200 or 400 $\mu\text{g l}^{-1}$ for 3, 6 or 12 h. Fry were immersed two successive times with 3 days interval period. The highest percentage of male *Oreochromis niloticus* (96 \pm 4%) and the lowest gonado-somatic index of female *Oreochromis niloticus* (1.89 \pm 0.02) were obtained by immersion of fry in 17 α -methyltestosterone at the level of 400 $\mu\text{g l}^{-1}$ for 6 h. However, survival rate of *Oreochromis niloticus* Fry during hormone treatment period did not differ significantly from survival rate in the control group.

Tilapia culture is widespread all over the world. The problem of overpopulation in fish ponds caused by uncontrolled reproduction is a major constraint to the further development of the Tilapia culture industry. This problem could be overcome by culturing all-male populations of Tilapia. One of the most common techniques for producing all-male populations of Tilapia is androgen-induced-sex-reversal by using androgen-treated feed. However, the immersion of fry is not fully developed for practical usage. Feeding androgen carries some potential disadvantages as in efficiency in masculinisation. Immersion of Tilapia fry in androgen solutions may be an alternative to oral administration of androgen, this technique is well developed in salmonid culture; however it remains largely experimental in Tilapia culture.

The objective of this research was to develop short-term immersion procedure for the masculinisation of Nile Tilapia by using 17 α -methyltestosterone and evaluating the most proper dose concentration and hormone treatment period.

Keywords: Androgen, males, methyltestosterone, *Oreochromis niloticus*, sex ratio, sex reversal, tilapia