Title	Effect of *Butea superba* and 17-α-Methyltestosterone (MT) on Sex Reversal and Some Growth Parameters in Three Strains (Red, Ghana and Chitralada) of Nile Tilapia (*Oreochromis niloticus*, L.)
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ABSTRACT

This study evaluated the potential of *B. superba* crude powder, liquid ethanol extract and freeze-dried extract powder for use in tilapia sex reversal and its effect in growth rate. The three-part experiment was done in earthen pond and aquaria. In the first part, *B. superba* crude root powder and two 17-α-Methyltestosterone (MT) dosages were given to three strains of Nile tilapia (Red, Ghana and Chitralada). Results revealed that MT treatments (40 and 60 mg kg^{-1}) had comparable effects in terms of male sex percentage, survival rate (SR), except in Red strain, feed conversion rate (FCR) and gain in weight (GW), except in Ghana strain. MT treatments were significantly different with the control group in terms of percent male sex (except in Chitralada strain), SR (except in Chitralada and T2 of Ghana strains) and GW (except in Red and T1 of Ghana strains). *B. superba* treatments (100, 200 and 300 g kg^{-1}) did not have significant difference with the control group and with the MT treatments in some cases. However, a 72.2 $\pm$ 25.5 % male sex ratio was obtained in the T4 (200 g kg^{-1}) of the Ghana strain. As to the effect of the treatments on the three strains, it was observed that they generally had comparable effects.

The second experiment utilized *B. superba* liquid ethanol extract and powder fed to Ghana strain Nile tilapia in earthen pond and aquaria. Male sex percentage in T1 (60 mg kg^{-1} MT) in the earthen pond was highest (90%) and statistically significant among other treatments. The control, T2 (200 g kg^{-1} *B. superba* crude powder), T5 (6 ml kg^{-1}), T4 (4 ml kg^{-1}) and T3 (2 ml kg^{-1}) had 45.2, 58.2, 56.7, 50.0 and 31.2 % male sex percentage, respectively. The lowest SR was in T0 (64.7%) which was significantly different among the treatments and the highest was in T1 (89.0%). In the aquaria, male sex percentage was highest in T1 (97.0%) and statistically significant among the treatments followed by T2 (68.1%). Lowest male sex ratio was observed in T5 (28.6%). SR was lowest in T0 (86.7%) and statistically significant with T1 (96.7%), and T4 (98.7%).

On the third part *B. superba* crude ethanol extract was freeze-dried into powder and fed to Nile tilapia in three levels (70, 80 and 90 g kg^{-1}). Highest male percentage observed in T1 (100.0%), 60 mg kg^{-1} MT was statistically significant among all treatments (40.0-56.7%). No significant difference was observed in SR (84.4-98.9%). Final weight of T3 (70 g kg^{-1}) and T4 (80 g kg^{-1}) were statistically significant (122.7 $\pm$ 37.3 and 125.3 $\pm$ 27.6 grams, respectively) to T0 (56.0$\pm$2.5 grams), T1 (72.3 $\pm$3.8 grams) and T2 (102.7 $\pm$32.7 grams). Feed conversion rate was statistically comparable between T3 (0.6 $\pm$0.1) and T4 (0.6 $\pm$0.1) but both were significantly different to T0 (1.4 $\pm$ 0.3) and T1 (1.0 $\pm$0.0).