

Nonglak Phumyu 2014: Effects of 17α -Methyltestosterone on Expression of Growth-Related Genes, Blood and Biochemical Parameters and Immunity of Nile Tilapia (*Oreochromis niloticus* Linnaeus, 1758). Doctor of Philosophy (Aquaculture), Major Field: Aquaculture, Department of Aquaculture. Thesis Advisor: Professor Uthairat Na-Nakorn, Ph.D. 140 pages.

The first study aimed to investigate the influence of 17α -methyltestosterone (MT) on growth responses and expression of hypothalamic-pituitary growth hormone related genes in female, male and sex reversed Nile tilapia (*Oreochromis niloticus* Linnaeus, 1758). It was found that male and sex-reversed fish showed similar growth performances, with faster growth than in females ($P < 0.05$). In addition, there was an interaction effect between sex and MT on weight gain (WG) and specific growth rate (SGR). The MT increased the WG and SGR of the female. No significant effects of sex and MT on the expression of hypothalamic growth hormone releasing hormone (*GHRH*) and pituitary adenylate cyclase activating polypeptide (*PACAP*) genes. There were no statistically significant differences ($P > 0.05$) in growth hormone (*GH*) mRNA among sexes. However, females tended to have higher *GH* mRNA levels than male and sex-reversed fish did.

The second study aimed to investigate the effects of MT on hematological indices, blood biochemical parameters, immunity and intestinal morphology in female, male, and sex-reversed Nile tilapia. It was found that male fish had higher red blood cell counts and hemoglobin levels than female and sex-reversed fish did ($P < 0.05$). Most but not all blood biochemical and immune parameters of fish were similar. Female fish had the highest blood triglyceride levels. Female fish had the lowest alternative complement activity (ACH50). MT increased the ACH50 in female fish ($P < 0.05$). Female had the lowest villi height in the anterior intestine, and MT increased the height of anterior villi.

Student's signature

Thesis Advisor's signature