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Synergetic Effect of Dietary Essential Amino Acids (Lysine and Methionine) on the Growth, Body Composition and Enzymes Activities of Genetically Male Tilapia

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Abstract : This study was conducted on genetically male tilapia (GMT) fry reared in glass aquarium for three months to examine the synergetic effect of essential amino acids (EAA) supplementation on growth, body composition, and enzyme activities. Fish having average body weight of 16.56 ± 0.42g were fed twice a day on artificial feed (20% crude protein) procured from Oryza Organics (commercial feed) supplemented with EAA; methionine (M) and lysine (L) designated as T1 (0.3%M and 2%L), T2 (0.6%M and 4%L), T3 (0.9%M and 6%L) and control without EAA. Significantly higher growth performance was observed in T1, followed by T2, T3, and control. The results revealed that whole-body dry matter and crude protein were significantly higher ($p \leq 0.05$) in T3 (0.9% and 6%) feeding fish, while the crude fat was lower ($p \leq 0.05$) in a similar group of fish. Additionally, protease, amylase, and lipase activities were also observed maximum ($p \leq 0.05$) in response to T3 than other treatments and control. However, the EAA, especially lysine and methionine, were found significantly higher ($p \leq 0.05$) in T1 compared to other treatments. Conclusively, the addition of EAA, methionine, and lysine in the feed not only enhanced the growth performance of GMT fry but also improved body proximate composition and essential amino acid profile.

Keywords : genetically male tilapia, body composition, digestive enzyme activities, amino acid profile
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