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| **Item name** | Journal Article |
| **Bibliography** | Roberts, A.; Lambert, P.; Solomon, E.; Dom, M. (2025) Growth of juvenile male (GIFT) tilapia fed 40% black soldier fly (Hermetia illucens) larval meal in tanks of fertilized or unfertilized water sources, In: Interdisciplinary Journal of Papua New Guinea University of Technology, Vol.2 (1), 27-41, URL: https://interdisciplinaryjournal.unitech.ac.pg/index.php/public/article/view/83 |
| **Associated conference** |  |
| **Abstract / Content summary** | A simple farm-made feed utilizing Black Soldier Fly Larvae (BSFL), Hermetia illucens, was offered to all male juvenile GIFT tilapia, Oreochromis niloticus, in enclosed aquaculture systems, to test the effects of managing fish in three water sources of different quality. Two isonitrogenous and isoenergetic test diets were a Basal diet with protein concentrate or a strategically formulated diet with BSFL at 40% inclusion rate (400g kg-1). A total of 240 fish (BW 1.95±0.01g) were placed in 12 tanks at a density of 20 fish to 1m-3 of tank volume in an open shed under tropical lowland conditions. The test diets were offered twice a day to satiety of fish-groups kept in tanks managed as two blocks of fertilized, natural stream and rain-tank water systems, replicated over three diet-water interchange periods (90 days), for the assessment of final body weight and length, biomass gain, feed intake/tank (FIT), FCR, PER, SGR, TGC and Condition Factor (K). Results were significant for diet, water source and by interactions (P<0.05). Higher feed intake on Basal diet (P<0.001) provided better FCR (P<0.001), PER (P<0.001), SGR (P<0.01) and TGC (P<0.001). Fertilized water afforded better growth (P<0.001) due to improved feed efficiency (P<0.001) when dietary feed intake was similar to tank water (P>0.05). Overall, fish-groups fed the BSFL diet in tank water performed the least (FIT=7.78g, FCR=4.20, PER=0.86, SGR=1.52% day-1) while fish fed the Basal diet in fertilized water performed the best (FIT=8.91g, FCR=1.25, PER=3.00, SGR=3.53% day-1). While, the nutritional value of BSFL catered for comparative SGR (P<0.01) in juvenile tilapia fed in fertilized water (FIT=7.07g, FCR=2.58, PER=1.38, SGR=2.45% day-1) the diet palatability reduced feed intake (P<0.001), utilization (P<0.001) and protein efficiency (P<0.5), compared to tank water. Manipulating the digestibility of BSFL by including other feed ingredients may improve the utilization of this valuable on-farm produced protein feed.
Keywords: Black Soldier Fly larvae, GIFT tilapia, feed utilization efficiency |
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