

ORL-F&HN-03**Growth Performance and Feed Utilization of Nile tilapia *Oreochromis niloticus* Fed with Cricket Meal Substituting Soybean Meal**

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Aquaculture contributes significantly to global food and nutrition security by offering fish and fisheries items as cost-effective and high-quality animal-derived proteins to feed the world's rapidly rising population. In aquaculture, Nile tilapia (*Oreochromis niloticus*) is the most widely farmed fish in the world and has been the game changer for the fulfillment of family nutrition to cope with the problems like malnutrition and unemployment. Although, Nile tilapia consumes planktons, its annual global production of about 7 million mt requires a huge amount of feed as it is cultured at high density. Various attempts have been made to develop cost-effective commercial diets. Increasing demand for traditional fish feed ingredients like fishmeal and soybean meal has resulted in rising costs and concerns over the sustainability of these protein sources. Insect meals are becoming popular as alternatives. Cricket meal (CM) has been shown to be a sustainable and cost-effective protein source for fish feed with lower carbon footprint than fishmeal (FM) or soybean (SM) meal, making it an environmentally friendly option. Present study was conducted to compare the growth and survival of monosex Nile tilapia (*Oreochromis niloticus*) fed with the diet containing varying levels of cricket meal substituting soybean meal.

A total of 1200 Nile tilapia fry with an average weight of 0.16 ± 0.001 g were stocked in 12 hapas, with 100 fish per hapa ($2\text{m} \times 1\text{m}$) with stocking density of $50 \text{ fry}/\text{m}^3$. The fish were reared for 105 days. Four types of treatment feeds: Control (T1) with 0% replacement of SM, T2 with 10% replacement of SM by CM, T3 with 20% replacement of SM by CM, and T4 with 30% replacement of SM by CM. The results showed that the final average weight, daily weight gain, specific growth rate in the T4 (30% replacement) were significantly higher ($p < 0.05$) than the control (0% replacement). The final mean weight (13.17 ± 1.35 g) and daily weight gain (0.12 ± 0.01 g/day) of Nile tilapia fed with 30% cricket meal (T4) were 50% higher as compared to those fed with the 0% soybean meal replacement diet (T1). The FCR of the experimental diets ranged from 1.67 to 1.88 which were not significantly different ($p > 0.05$). Moreover, the survival of the fish in all treatments were around 90% that indicates cricket meal do not affect survival rate of the tilapia.

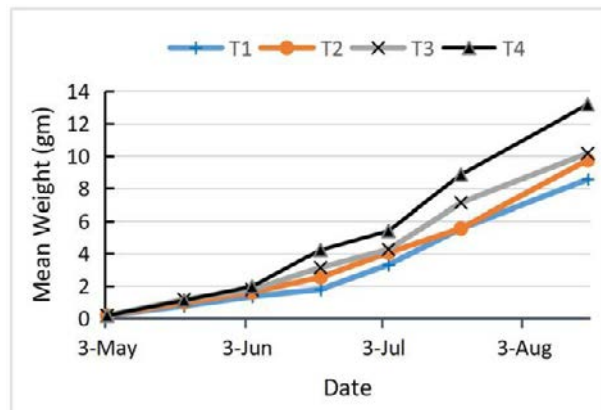


Figure: Growth performance of fish in different Treatments.

In conclusion, replacement of soybean meal at 30% showed 50% higher growth without affecting feed utilization and survival rate. This study, cricket meal showed a good potential for the substitution of soybean meal in aquafeed. However, further studies on higher levels of substitution of soybean meal by cricket meal along with varying levels of fishmeal are recommended. More importantly, methods of cost-effective and efficient methods of mass scale cricket farming is highly recommended