

Joint Meet on
19th International Conference on Food Microbiology &
17th World Congress on Food Chemistry and Food Microbiology

November 18, 2024 | Webinar

Fishmeal Replacement with Defatted Sesame Seed Meal in Feed of *Labeo rohita*: Effect on Growth, Proximate Composition and Meat Quality

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Sesame seed (*Sesamum indicum*) is a rich source of protein and can be used in aquaculture feed in the replacement of fishmeal. The aim of this study was to replace expensive fishmeal with less expensive defatted sesame seed meal in fish feed and evaluate its effect on growth, meat quality and proximate composition. In this context, a study was done to check out the effects of replacing 10%, 25%, 45%, 65% fish meal with defatted sesame seed meal on growth performance and body composition of Rahu (*Labeo rohita*). Study was conducted in Fish Nutrition Laboratory, Department of Zoology, Wildlife and Fisheries, University of Agriculture, Faisalabad. The experiment was conducted in glass aquaria each having 10 fingerlings with 3 replicates for the period of 60 days. Fingerlings were fed with 35% crude protein. One group was considered as controlled group (T0) receiving the feed with fishmeal as a protein source while other groups were fed with 10%, 25% 45% and 65% fishmeal replacement with defatted sesame meal named T1, T2, T3 and T4 respectively. Fish body weight (g) and total body length (cm) were observed weekly. Highest weight gain was observed in T2 with the mean 237.17 ± 28.00 with significance difference following T1 group with mean 206.00 ± 26.17 . Length gain was observed with significance difference in T2 and T1 while T4 showed the lowest progress in all treatments. Food conversion ratio and specific growth rate were calculated. FCR values were lower in the case of T1 and T2 hence show better feed efficiency, while T4 showed highest FCR. SGR values were higher in group T2 while the lowest SGR was calculated in T4.

Fish meat samples were taken from all the treatments to analyze and compare the body composition of experimental fish in terms of crude protein, crude fat, carbohydrates, moisture and total ash. P value for crude protein was 0.022 ($P < 0.05$) showing significant difference for T2 group. Mean of fat content for T3 was recorded highest 8.0950 ± 0.0636 . No significance difference was observed for moisture and ash content in any group. Important physicochemical parameters like pH, water temperature and dissolved oxygen were monitored throughout the experimental period. Temperature means were ranged between 28 to 30 °C. pH of all tank waters was maintained between 7.2 to 7.8. Dissolved oxygen were recorded 3.9-4.2 during whole experiment. To observe Flesh quality of fish, tenderness, color, flavor and oiliness was observed. For all the quality parameters of fish meat, no significance difference was observed. Mortality rates were highest in T4 and lowest in T1 which showed that replacement of fishmeal with sesame meal can be done upto 45% but T2 and T1 showed better results. More than 45 % replacement impact negatively on the growth rate and lower the feed efficiency.

Biography

Arooba Naseer has got expertise in fisheries nutrition, zoological studies and to check meat quality and safety parameters to improve the growth and quality of meat for health and wellbeing of public. She is an enthusiastic lecturer, a researcher in a well reputed institute Punjab Group of Colleges, Alipur Chatha, Pakistan. Syed Adnan Haider has expertise in Zoological and Entomological research and practices for food safety.