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Efficacy of Substituted Barley Meal Based Diet for Improvement in Performance of Common Carp (Cyprinus carpio)

With continuous expansion of human population, fish is a rich protein source used as food all over the world but high cost of fish meal (FM) and its inconsistent supply has entailed researchers to find its substitute. In present experimental work, plant based protein source was used as an alternative of fish meal as it is available at comparably low-cost and effectively accessible. The present research work was conducted to evaluate the effects of barley seed meal by replacing FM on the growth performance, nutrients digestibility and hematological indices in Cyprinus carpio. Six test diets (replacing FM at 0, 10, 20, 30, 40 and 50% level) were prepared using barley meal (BM) as an alternative protein source. Three replicates were used for each treatment consisting of 15 fingerlings (of average weight 8.13g) per tank. Fish was fed at the rate of 4% live wet body weight two times a day for 70 days. The results revealed that fingerlings fed Barley seed meal based diets (BSMD) II (having 20% FM replacement) showed best results in growth parameter (weight gain%; 249%, weight gain; 20g, SGR; 1.39 and FCR; 1.31), hematological indices (RBCs; 2.83×106mm-3, PLT; 68.54 and Hb; 8.15g/100ml) and nutrient digestibility (crude protein; 72% and gross energy; 67%). It was noticed that further increase in BM level decreases the fish performance as compared to above mentioned diet. From results, it was concluded that we can replace FM up to 20% to improve growth performance, nutrients digestibility and hematological indices as well as making eco-friendly and cost effective feed.

Keywords: Barley seed meal diets, fish meal, fish performance, alternate protein source, cost effective feed.