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Abstract

A factorial experiment 2×2 was conducted to investigate the effect of protein level (30% and 35%) within each level substitution ratio of fish meal (FM) and plant protein (PP) percentage (50% FM: 50% PP, and 33% FM: 67% PP) on the growth performance, feed utilization, survival rate %, carcass chemical composition and economical evaluation of Bayad (*Bagrus bajad*) fingerlings with average of initial body weight 31.86 ± 0.34 g. The survival rate was within the range 96.67–100 %. The highest growth parameters and the best feed conversion ratio (FCR) were obtained with the diet contained on (35% CP and 50% FM: 50% PP). The diet contained (30% CP and 33% FM: 67% PP) had the lowest growth and the worst FCR than other treatments. However, differences in growth parameters among diets contained on (30% CP, 50% FM: 50% PP) and (35% CP, 33% FM: 67% PP) were insignificant. Final body weight was progressively decreased with increasing plant protein under both protein levels of diets. The improvement of growth performance and FCR tested in diets containing higher levels of fish meal under both protein levels of diets. The results showed significant difference in obtained of carcass composition however ash had insignificant differences. Regarding to economical evaluation 35% protein level is more economical in Bayad aquaculture. Net returned of Bayad were better for the 35% treatment (50 FM: 50 PP) which was 1.20 but the worst was 30% (33 FM: 67 PP) which was 0.77. It could be concluded that 35 % and 30% crude protein levels (CP) were the best under composition of the diet (50 FM: 50 PP) in terms of growth performance, feed utilization and economical evaluation under these experimental conditions.

Key words: protein level, protein source, fish meal, plant protein, growth performance, feed conversion ratio, Bayad (*Bagrus bajad*).