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Effect of Feed Deprivation and Refeeding Cycles on Growth Performance and Feed Utilization in the Common Carp (*Cyprinus carpio* L.)

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ABSTRACT

This study was carried out to investigate the effects of compensatory growth (starvation and refeeding) and its subsequent influences on weight gain (WG), daily growth rate (DGR), relative growth rate (RGR), specific growth rate (SGR), feed conversion ratio (FCR), and efficiency of feed conversion (ECR) in the common carp (*Cyprinus carpio* L.). Fish initial weight was 22.29 ±3.40g, while total length was 6.47±1.31cm. The experiment included six treatments, each with three replicates: T1 (continuous feeding), T2 (one day fasting and two days feeding), T3 (two days fasting and four days feeding), T4 (three days fasting and six days feeding), T5 (four days fasting and eight days feeding), and T6 (five days fasting and ten days feeding). The trial lasted for 70 days (February 6 to April 15, 2024), excluding a 14-day acclimatization period. In statistical analysis, there was significant improvement ($P \leq 0.05$) in weight gain in continuous feeding treatment (control, T1) compared to other treatments, with a mean value of 50.07g. Similarly, specific growth rate, relative growth rate, and daily growth rate were significantly higher ($P \leq 0.05$) in the control treatment, recording 1.69%/day and 227.8%, respectively, compared to other treatments. No significant differences ($P > 0.05$) were observed in survival rate among all treatments. Regarding feed conversion ratio (FCR) and efficiency of feed conversion (ECR%) of experimental fish during the 70-day trial, significant improvement ($P \leq 0.05$) was indicated in FCR in treatments T5 and T2 compared to the others, with values of 1.27 and 1.50, respectively. At the same time, starvation for four days followed by eight days of refeeding (T5) recorded the best feed conversion efficiency at 77.81%. In conclusion, the four-day starvation and eight-day refeeding cycle improved feed efficiency, suggesting potential feed cost reduction without affecting the survival of cultured fish.

INTRODUCTION

Experts in aquaculture are now focusing on optimizing fish and aquatic organism rearing because of global population growth, which is expected to reach 9.7 billion by 2050. This will necessitate the provision of sufficient food resources to meet the growing demand **(Paul *et al*., 2022)**.