

Utilization of fermented food garbage in the formulated diet for juvenile flounder (*Paralichthys olivaceus*)

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Introduction

Aquaculture production of flounder has been increased in the last decade in Korea. However, moist pellet primarily made of raw fish has been used as feed for flounder. Therefore, for further expansion of flounder farming, it is essential to employ practical formulated feeds which can support reasonable growth. Several studies on nutrition (Lee et al., 2000) and utilization of some plant protein source as a substitute for fish meal (Kikuchi, 1999) have been conducted for flounder diets. The garbage by-products from food occupy about 28% of total food consumed in Korea. This by-products have been not used effectively since putrefaction and rancidity took place rapidly. Considering its nutritive value and environmental pollution with disuse, the exploitation of utilization method of food garbage is indispensable. Therefore, this study was conducted to investigate the utilization of fermented food garbage in formulated diet for juvenile flounder.

Materials and methods

The experimental diets were formulated to satisfy the protein and lipid requirements of flounder, based on previous studies (Lee et al., 2000). The four experimental diets containing 0%, 5%, 10% and 15% fermented food garbage levels were prepared. Juvenile flounder (an average body weight of 4 g) were randomly allocated into tanks with 25 fish to each tank. Fish were hand-fed to visual satiety

two times daily at 0900 h and 1700 h for 45 days. Filtered seawater was supplied at a flow rate of 5 l /min to each tank. The water temperature was maintained at $19\pm 2.1^{\circ}\text{C}$, and photoperiod was left at natural condition during the feeding trail.

Results and discussion

Survival, feed efficiency, hepatosomatic index and protein efficiency ratio of fish were not affected by dietary fermented food garbage level ($P>0.05$). Weight gain of fish fed the diets containing 5%, 10% and 15% fermented food garbage were significantly higher than the control diet ($P<0.05$). Condition factor of fish fed the 15% fermented food garbage diet was significantly higher than that of fish fed the control diet ($P<0.05$). Daily feed intake of fish fed the diets containing 5% and 15% fermented food garbage were significantly higher than the control diet ($P<0.05$). Proximate composition of whole body and plasma glucose of fish were not affected by dietary fermented food garbage level ($P>0.05$). These findings indicate that fermented food garbage could be partially used as feed ingredient for juvenile flounder.

References

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