

## **Evaluation of Anchovy By-Products as An Ingredient in The Diets Developed for Red Hybrid Tilapia (*Oreochromis spp.*)**

### **ABSTRACT**

The main objective of the present study was to investigate the possibility of anchovy by-product meal (ABPM) as a protein source in the diet of red hybrid tilapia (*Oreochromis spp.*). Five formulated feeds were produced to contain different percentages of ABPM and soybean meal (SBM): Diet contained 100% SBM with the addition of 1% methionine; Diet contained 25% SBM and 75% ABP25 (ABP25). Diet 3 contained 50% SBM and 50% ABP (ABP50); Diet 4 contained 25% SBM and 75% ABP (ABP75), and Diet 5 contained 100% ABP (ABP100). A commercial tilapia feed was used as a control diet (CF). Fish were fed close to apparent satiation, twice a day to triplicate groups of the tilapia fingerlings ( $1.07 \pm 0.28$  g) for 10 weeks. Specific growth rate (SGR), feed conversion ratio (FCR), and protein efficiency ratio (PER) improved with the increase of ABP inclusion in the diets. Among the ABP-based diets, the highest growth performance and feed utilization were obtained by fish fed with ABP100 (SGR: 3.1%/day; FCR: 1.9) while the least was ABP0 (SGR: 1.5%/day; FCR: 2.6). Hepatosomatic index (HSI) and viscera somatic index (VSI) of ABP meal-based diets were slightly higher compared to ABP0 and CF (0.5 to 1.5 & 7 to 12.8 respectively). There was no significant difference in fish survival rate and condition factor among all treatment groups. Protein apparent digestibility coefficient (ADC) showed an increasing pattern with increasing ABP meal in the diet and no significant difference in crude lipid ADC among all treatments. Whole-body moisture and crude lipid were not affected by the inclusion of ABPM in the diet, while crude protein and ash parallely increased with the increase in the inclusion level of ABPM in the diet. Findings from this study indicated that ABPM is a good protein source and could replace SBM as the dietary protein ingredient for better growth performance and feed utilization.