

## **The performances of hybrid grouper, *epinephelus Fuscoguttatus* × *e. Lanceolatus* fed with defatted soybean mealbased feeds with supplementation of phytase**

### **ABSTRACT**

Fish meal is the primary protein ingredient in fish feed and this material is expensive and non-renewable. However, the use of plant protein in marine fish feed such as soybean meal products are limited due to anti-nutritional factor that hindered fish performances. Therefore, hybrid grouper, a cross between tiger grouper (*Epinephelus fuscoguttatus*) and giant grouper (*E. lanceolatus*) was evaluated using defatted soybean meal (DSM) based feed and phytase. DSM- based feeds (30% of protein replacement) with supplementation of phytase at 0 and 2000 FTU/ kg dosages, as well as a control feed (CON) comprised completely of fish meal (FM) was given to the hybrid grouper with an initial body weight of  $6.2 \pm 0.0g$ . Each experimental feed was formulated with 50% of crude protein and 12% of crude lipid. The fish were raised in 100L fiberglass tanks equipped with a flow-through water system for each triplicate treatment. The hybrid grouper was fed with the respective feeds twice a day until the perceived satiation level for 12 weeks. Hybrid grouper fed CON and DSM-based feed did not exhibit any significant difference in growth. However, hybrid grouper fed with DSM-based feed grew larger compared to that fed with CON. Hybrid grouper fed with DSM-based feed showed significantly higher feed intake, lower net protein utilization, hepatosomatic index, viscerosomatic index, and apparent digestibility coefficient (ADC) protein values ( $p < 0.05$ ). The value of ADC of phosphorus was slightly higher in DSM-based feed supplemented with phytase at a dosage of 2000 FTU/kg. No significant effect was observed on body proximate composition, morphological condition of the intestine, and ADC of lipids in all the treatments. The results show that hybrid grouper can effectively consume 30% DSM-based feed and supplementing phytase did not affect the fish performances.