

**Soybean meal as a source of protein in formulated diets for tiger grouper, *Epinephelus fuscoguttatus* juvenile. Part II: Improving diet performances with phytase supplementation**

**Abstract**

The present study was conducted as a continuation of our previous study on the effects of fish meal replacement with soy bean meal, SBM in the diets of tiger grouper, *Epinephelus fuscoguttatus* which revealed the possible level of fish meal protein replacement of 30% with positive effect of phytase supplementation in one of the test diet. In the present study, all experimental diets with SBM inclusion (10%, 20%, 30%, 40% replacement levels) were supplemented with phytase and fed to juvenile tiger grouper with initial body weight of  $44.57 \pm 0.28$  g for eight weeks. Apart from the effects on growth performance, diet utilization and fish whole-body composition, apparent digestibility coefficient of diets was also measured. Similar findings to our previous experiment were observed in the present study. Diet SM40P (40% replacement level) had produced the poorest growth performance and feed conversion ratio (FCR). However, it was observed that FCR of SM40P was improved when compared to SM40 (without phytase) in our previous experiment. Other than that, SBM-based diets were performed as good as the control diet in terms of growth, feed utilization and survival rate. Replacement of fish meal did not significantly influence body composition, except for whole body lipid content in SM40P. In general, dry matter and protein apparent digestibility coefficients (ADC) of the test diets were influenced by SBM inclusion in the diets. However, crude lipid ADC was very high in all dietary treatments indicating efficient utilization of dietary lipid by juvenile tiger grouper. The findings of the present study confirmed that SBM can be used to replace FM at a level of up to 30% and supplementation of phytase in SBM-based diets is recommended to improve the diet performance.