

A comparative analysis of the effect of low-cost fish and commercially compounded feed on growth performance and organoleptic quality of hybrid grouper (*Epinephelus fuscoguttatus* × *Epinephelus lanceolatus*) in cage farming in Kuala Penyu, Sabah, and nutritional costs

ABSTRACT

A 25-week feeding trial was conducted to assess the growth performance, organoleptic quality, and to estimate the viability of nourishing hybrid grouper (*Epinephelus fuscoguttatus* × *Epinephelus lanceolatus*) with low-cost fish (LCF) and commercially compound feed (CCF). A group of 3600 juvenile fish (182g) were released in four sea cages and fed with either LCF or CCF in duplicate. At the end of the trial, the hybrid grouper provided LCF attained a significantly higher ($P < 0.05$) final body weight ($971.00 \pm 24.04\text{g}$) than those fed with CCF ($838.50 \pm 17.68\text{g}$). While the estimated feed cost of hybrid grouper fed with LCF (RM7.84 ± 0.45) was lower than those fed with CCF (RM9.28 ± 0.37), no significant difference was found in the fish survival and there was no clear bias in consumer preferences for either fish fed with LCF or CCF ($P > 0.05$). Although technicalities of fish fed with LCF suggest that LCF is more efficient than CCF, feeding LCF to high-value fish is an unsustainable practice as LCF is usually obtained through trawling –a destructive fishing method for the marine ecosystem. Therefore, feeding with CCF without the use of LCF as the source of protein for its fishmeal will contribute to sustainable aquaculture. In order to convince the local farmers in Sabah to adopt the practice of feeding CCF, future research should focus on completing the species-specific diet formulation to promote optimum growth, and find ways to reduce the CCF local selling price.