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RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: Apparent Digestibility Coefficients of Various Feed Ingredients for Grouper *Epinephelus coioides*

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Abstract: Apparent digestibility coefficients (ADC) of dry matter, crude protein, lipid, gross energy, amino acids, and fatty acids in white fish meal, brown fish meal, soybean meal, peanut meal, and yeast were determined for grouper *Epinephelus coioides*. Apparent digestibility was determined using a reference diet with 0.5% chromic oxide indicator and test diets that contained 70% reference diet and 30% of the feed ingredient being evaluated. The fish, averaging 12.0g, were held in 250-L tanks at a density of 30 fish per tank. Feces were collected from three replicate groups of fish.

Apparent dry matter digestibility of ingredients was 78.85 ± 2.43 , 79.11 ± 0.61 , 69.85 ± 3.60 , 73.67 ± 2.30 and $57.70 \pm 4.69\%$ for white fish meal, brown fish meal, soybean meal, peanut meal, and yeast, respectively. Apparent gross energy digestibility of ingredients was 93.27 ± 2.90 , 89.48 ± 1.78 , 70.52 ± 4.01 , 73.13 ± 2.41 and $51.67 \pm 2.01\%$ for white fish meal, brown fish meal soybean

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meal, peanut meal, and yeast, respectively. White fish meal and brown fish meal showed higher protein digestibility among ingredients tested ($P < 0.01$). Lipid digestibility of ingredients was high (90.66-94.48%) and not significantly different except for yeast. Amino acid availability values for test ingredients were similar to values of protein digestibility. Amino acid availability values of white fish for test ingredients were similar to values of lipid digestibility. In general, the digestibility of most fatty acids was over 80% in all ingredients, except for 14:0 in yeast and 18:0 in peanut meal, PUFA + HUFA > MUFA > SFA. Longer-chain saturated fatty acids were less digestibility, except for 14:0, with digestibilities diminishing as fatty acid chain length increased. Apparent digestibility of dry matter, crude protein, lipid, gross energy, amino acids, and fatty acids in yeast was the lowest among the ingredients.

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