



INVESTIGATION INTO THE IMPACTS OF REPLACING FISH MEAL IN WHITELEG SHRIMP (*Litopenaeus vannamei*) DIETS WITH INCREASING LEVELS OF PEKILO®Aqua.

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AQUA 2024

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The impacts of replacing fish meal in whiteleg shrimp (*Litopenaeus vannamei*) diets with increasing levels of **PEKILO®Aqua** were investigated in an eight-week nutrition study. **PEKILO®Aqua** mycoprotein, with high crude protein content and elevated levels of beta-glucans and nucleotides, is a sustainable alternative to fishmeal for feed formulations.

The trial was conducted at the **AquaBioTech Group** research facility, **ABT Innovia**, using 20 growing units with 500L capacity, initially stocked with 60 juvenile *L. vannamei* with an average body weight of 3.7g. Five different diets were formulated with varying inclusion levels of **PEKILO®Aqua**, as shown in Table 1. The feeding and growth performance of the whiteleg shrimp were monitored over a period of eight weeks to determine various parameters including body weight gain, feed intake, specific growth rate (SGR), feed conversion ratio (FCR). Samples were taken for the determination of shrimp composition, and faecal material for the determination of apparent protein and amino acid digestibility coefficients (ADCs)

Table 1. Inclusions of fish meal and PEKILO®Aqua in the experimental feeds.

Ingredient (g/Kg)	Diet				
	ENI-0P	ENI-7.5P	ENI-15P	ENI-22.5P	ENI-30P
65% protein fish meal	240	180	120	60	0
PEKILO® Aqua	0	75	150	225	300

The results indicated significant differences in growth rates (but not FCR and survival, although differences were apparent) (Table 2) and the crude protein, moisture, and dry matter contents of shrimp carcasses (Figure 1). Amino acid ADCs also showed significant improvements, such as seen in the ADC of histidine, leucine, lysine, and methionine (Table 3).

Table 2. Performance results for the whole trial. Results are presented as means + SD, significance level $p < 0.05$. Different letters denote significant differences.

Diet	Performance metrics				
	Final weight	SGR (%)	Feed intake (g)	FCR	Survival (%)
0P	19.64 ^a ±0.82	3.27 ^a ±0.06	1438.75 ±73.20	1.22 ±0.09	74.16 ±6.29
7.5P	19.90 ^{ab} ±0.33	3.29 ^{ab} ±0.04	1375.75 ±161.06	1.15 ±0.14	76.25 ±8.69
15P	21.65 ^c ±0.37	3.44 ^c ±0.02	1383.84 ±118.12	1.06 ±0.09	87.08 ±6.60
22.5P	21.05 ^{bc} ±0.54	3.39 ^{bc} ±0.03	1430.81 ±166.25	1.13 ±0.12	87.91 ±8.19
30P	22.09 ^c ±0.52	3.47 ^c ±0.04	1457.46 ±59.56	1.10 ±0.06	85.83 ±3.43
p-value	0.000	0.000	0.905	0.494	0.072

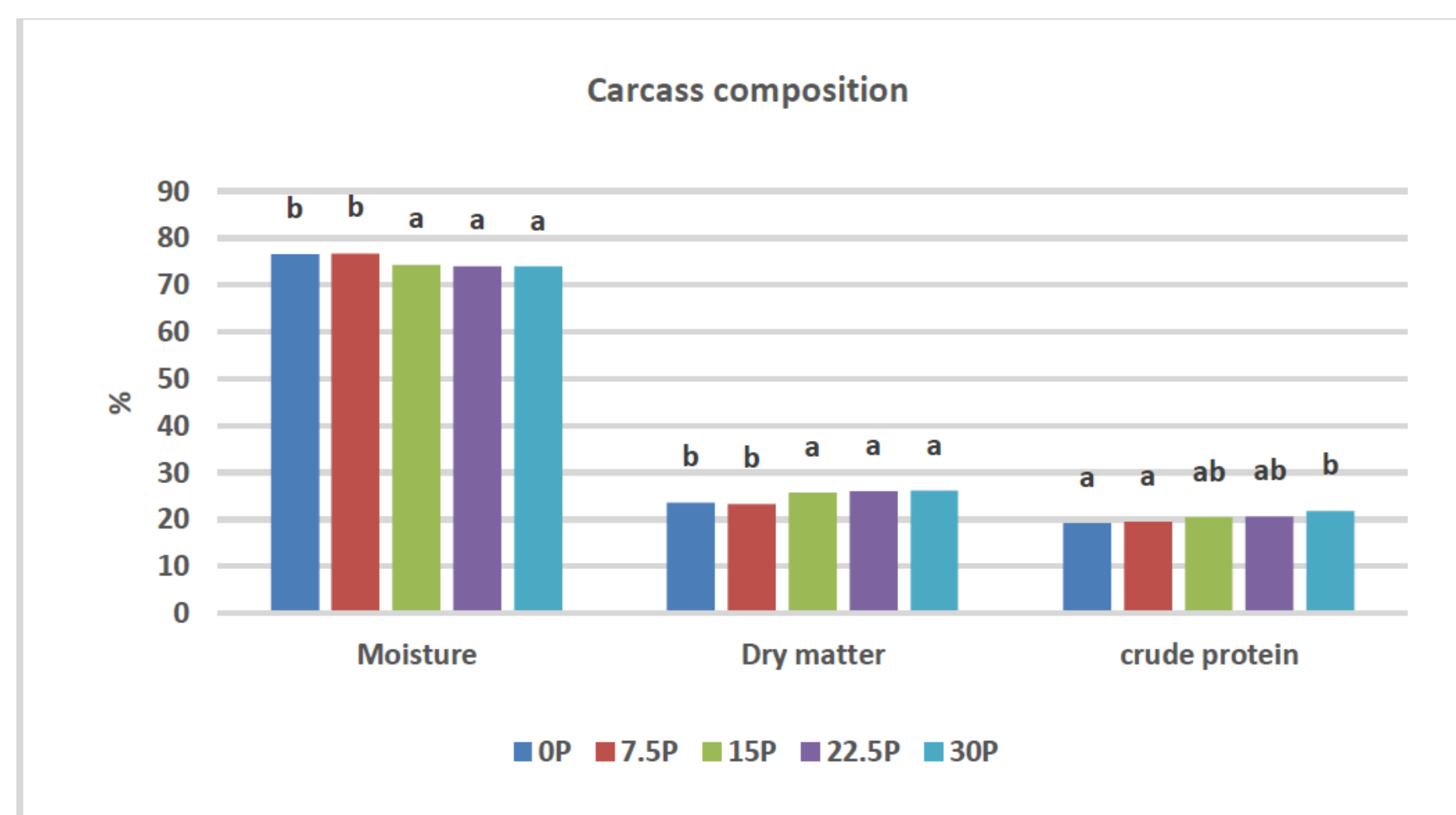


Figure 1. Final shrimp carcass composition.

Table 3. Amino acid ADCs. Results are presented as means + SD, significance level $p < 0.05$

Diet	Amino acid ADCs			
	Histidine	Methionine	Leucine	Lysine
0P	81.23 ±1.69	84.67 ±1.19	79.64 ±1.40	80.46 ±1.40
30P	85.94 ±1.70	88.19 ±1.78	84.87 ±2.38	86.64 ±2.40
p-value	0.043	0.010	0.017	0.008

In conclusion, this study clearly demonstrates the potential of **PEKILO®Aqua** as a sustainable alternative to fishmeal in whiteleg shrimp diets, with the addition of **PEKILO®Aqua** clearly increasing the average body weight and improving feed utilisation performance, survival and nutrient digestibility.