

1977

Amino acid analysis of *P. monodon* muscle

Catedral, Francis Fred

Aquaculture Department, Southeast Asian Fisheries Development Center

Catedral, F. F., & Dy-Peñaflorida, V. A. (1977). Amino acid analysis of *P. monodon* muscle. SEAFDEC Aquaculture Department Quarterly Research Report, 1(4), 1-2.

<http://hdl.handle.net/10862/2302>

Downloaded from <http://repository.seafdec.org.ph>, SEAFDEC/AQD's Institutional Repository

Amino acid analysis of *P. monodon* muscle

Francis Fred Catedral and Veronica A. Dy-Peñaflorida

Knowledge of the amino acid pattern of *P. monodon* is necessary in ascertaining whether the feed meets the optimum amino acid pattern requirements for growth. This study was undertaken to gain benchmark information on the protein quality of the feeds to be used.

Two adult female prawns weighing 33.84 g (Prawn I) and 38.71 g (Prawn II) were used for the analysis. The muscle tissue was chopped, dried at 110°C to constant weight and ground. A 20 mg sample was taken for protein analysis by the micro-Kjeldahl method and another 20 mg was hydrolyzed under vacuum in 6N HCl for 24 and 48 hr for amino acid assay. A separate 20 mg sample was hydrolyzed in 6N NaOH for 24 hr for tryptophan analysis. The Yanaco Model LC-5S amino acid analyzer was used for the analysis.

Values obtained for white tuna meat are also shown for comparison (Table 1). The results show that amino acid values of Prawn I and Prawn II are fairly close, with some differences obtained for proline, alanine and lysine. However, on the whole, the analysis shows similar patterns. Comparing with tuna meat which is used as feed for *P. monodon* postlarvae, significantly lower values were obtained for arginine, proline, lysine and aspartic acid. Cystine has low concentration in tuna meat and is not detected in prawn. Ammonia is derived from glutamine and asparagine. Thus, the total concentration of glutamic acid and aspartic acid, in micrograms per 100 micrograms of protein, is 11.12 for tuna, 18.63 for Prawn I and 18.58 for Prawn II.

Table 1. Amino acid composition of muscle protein of *P. monodon*. Prawn 1 = 33.84 g; Prawn II = 38.71 g. Values for white tuna meat are also shown.

Amino Acid	Concentration in microgram per 100 micrograms of protein		
	Prawn I	Prawn II	Tuna (white meat)
aspartic acid	7.66	8.02	5.86
threonine	2.51	1.76	4.04
serine	3.13	2.66	3.87
glutamic acid	12.22	11.58	13.50
proline	6.20	9.87	3.71
glycine	6.45	5.53	5.34
alanine	3.22	5.49	5.28
cystine	N.D. ^{1/}	N.D. ^{1/}	0.57
valine	4.48	3.55	6.37
methionine	3.43	2.33	3.66
isoleucine	3.63	3.20	5.10
leucine	6.95	6.14	8.64
tyrosine	3.99	3.23	3.69
phenylalanine	2.44	2.28	3.03
tryptophan	<u>2/</u>	<u>2/</u>	N.D. ^{1/}
lysine	14.86	17.18	10.96
histidine	2.66	2.46	3.31
amonia (NH ₃)	1.25	1.02	8.24
arginine	14.62	13.68	4.84

^{1/}Not detectable

^{2/}Not analyzed

