

Composition and Amino acid Content of Meal from Some Commercially less Important Fishes of Maharashtra

About 35–40% of the fish landed in Maharashtra are miscellaneous type and these are converted into fish meal or allied products. The meat from these fishes can be separated and used for human consumption. The waste from filleting or meat picking is a good source for fish meal production. This communication details the yield and composition of dried waste from the filleting wastes of three commercially less utilized fishes of Maharashtra coast and their amino acid composition.

Three commonly available species, namely, chorbombil (*Saurida tumbil*), kala bangada (*Caranx sexfasciatus*) and ghalse (*Sphyraena jello*) were procured from local landing places in Bombay in fresh condition. The offal is comprised of head, tail, fins, guts, skin and bones. This was finely chopped and dried in an air oven maintained at $60 \pm 1^\circ\text{C}$ for 24 h. The material can be also sun dried. The chemical composition of the offal meal was determined as per AOAC (1975) method and the amino acid profile by standard microbiological assay methods (Kavanagh, 1963).

The percentage yield of dried offal and its chemical composition are presented in Table 1.

Table 1. Yield and chemical composition of dried offal

	Kala bangada	Ghalse	Chorbombil
Yield of dried offal meal%	25.90	17.67	12.32
Moisture%	6.72	5.88	5.13
Crude protein% (TN x 6.25) DWB	59.00	61.18	62.03
Fat %	6.81	6.50	8.86
Total ash %	34.12	32.28	29.06
Acid insolubles %	0.16	0.17	0.09
CaO %	15.22	13.96	11.78
P ₂ O ₅ %	16.07	15.12	14.31

The value of crude protein (on dry weight basis) ranged between 59–62.03% which is as good as grade 2 fish meal. The fat content varied from 6.5–8.86%, and the problem of oxidative rancidity during storage was not observed. Acid insolubles in all the three species were in the range of 0.09–0.17%, which is very low and hence can be incorporated in poultry feed. Total ash content ranged between 29.06–34.12%. This was basically due to bones which reflected in high calcium content of the meal.

Table 2. Amino acid composition of kala bangada, ghalse and chorbombil (g/100 g of protein)

Amino acid	Kala bangada	Ghalse	Chorbombil
Arginine	4.98	4.53	4.75
Histidine	1.83	2.13	2.43
Lysine	6.83	7.16	7.33
Tyrosine	2.11	1.71	1.98
Phenylalanine	4.81	5.11	5.33
Methionine	2.94	2.46	3.01
Cystine	2.11	2.74	2.06
Threonine	4.37	4.18	4.81
Leucine	5.09	5.30	5.62
Isoleucine	4.11	4.38	4.19
Valine	6.83	6.91	6.33
Glutamic acid	11.21	12.31	12.62
Aspartic acid	8.33	7.61	9.11
Glycine	3.81	4.11	4.47
Proline	4.13	3.98	3.74
Serine	4.37	5.11	4.83
Tryptophan	0.76	0.71	0.69

The amino acid pattern after acid hydrolysis is shown in Table 2. Among those the most abundant are aspartic acid, glutamic acid, lysine, valine, leucine and tyrosine. However it should be noticed that amides of asparagine and glutamine are converted into corresponding acids by acid hydrolysis. The essential amino acid profile of the dried

offal is comparable to that from other marine fishes (Mukundan & James, 1978; Mukundan *et al.*, 1981; Mukundan *et al.*, 1986).

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