
COMPARATIVE STUDIES ON THE
NUTRITIVE VALUE OF FISH
AND PRAWNS MUSCLE

IN Bombay coastal waters, along with different varieties of fish (vertebrates) prawns (invertebrates) also are caught and utilised by the public in abundance. The fish are seasonal in their availability while the prawns are found throughout the year. As the prawns contain a high percentage of protein and form a staple food for the poor class in Bombay and along Konkan coast, it was thought desirable to study the comparative nutritive value of the prawn and fish. Four varieties of fish and four of prawns were undertaken to study their nutritive values. In addition to the determinations of the biological values of the proteins of prawns and fish some of the other constituents, viz., fat, calcium, phosphorus and iron, have been estimated. Biological value was determined according to the method adopted by Mitchell,¹ and Chick *et al.*² The amount of fat was determined by extraction of the dried material with ether. The ash was estimated by Stolte's method described by Peters and Vanslyke.³ Phosphorus was estimated by Brigg's⁴ modification of Bell and Doisy method, and calcium by the volumetric permanganate method described by McCrudden,⁵ and iron according to Kennedy.⁶

In Table Ia and Ib are given the analyses of the fresh fish and prawns and in Table IIa and IIb their biological values and digestibility coefficients.

TABLE Ia

Analysis of the fresh fish

Name	Scientific Name	Edible Portion	Contents per 100 grammes of the edible portion							
			Moisture	Protein	Fat	Ash	Calcium	Phosphorus	Iron	Insoluble Inorg. matter
Surmai	Cybium	87.2%	63.0	19.86	1.37	—	92.54	161.75	2.031	—
Ghol	Sciænea	91.7%	69.7	18.39	0.898	2.37	88.57	153.2	2.059	0.035
Mushi	Scoliodon	94.95%	76.46	14.86	2.860	1.026	58.64	168.86	2.06	0.028
Ravas	Polynemus	92.60%	70.86	20.60	0.56	2.18	96.08	162.6	2.56	0.068

TABLE Ib

Analysis of the fresh prawns

Tendli	Metapeneus	100%	72.60	19.60	3.08	1.86	82.0	157.8	1.31	0.086
Sode I	Parapeneus	100%	73.89	21.41	2.68	1.26	92.0	176.0	2.30	0.060
Sode II	Parapeneus	100%	19.41	2.08	2.08	1.86	72.86	166.9	3.60	0.080
Golim	Acetes	100%	19.6	2.86	2.86	1.86	106.0	128.0	2.10	0.09

TABLE IIa

Biological value and digestibility coefficient of fresh fish

Name	Scientific Name	Level of Intake	Biological Value	Digestibility Coefficient
Surmai	Cybium	5%	75.56	84.96
		10%	67.97	81.18
		15%	59.37	76.14
Ghol	Sciænea	5%	81.45	83.03
		10%	71.30	83.35
		15%	58.83	76.23
Mushi	Scoliodon	5%	72.88	82.18
		10%	62.14	84.19
		15%	53.26	70.75
Ravas	Polynemus	5%	79.5	85.87
		10%	67.96	85.16
		15%	52.20	67.52

TABLE IIb

Biological value and digestibility coefficient of fresh prawns

Name	Scientific Name	Level of Intake	Biological Value	Digestibility Coefficient
Tendli	Metapeneus	5%	71.80	86.39
		10%	65.67	85.81
		15%	59.62	73.19
Sode I	Parapeneus	5%	75.96	84.23
		10%	66.51	85.47
		15%	58.77	72.57
Sode II	Parapeneus	5%	78.19	85.72
		10%	74.85	87.09
		15%	60.84	73.22
Golim	Acetes	5%	75.64	83.66
		10%	60.74	86.03
		15%	54.46	71.87

The results show that both fish and the prawn muscle constitute cheap sources of animal proteins and essential minerals such as phosphorus, calcium and iron. Further, the

proteins are found to possess high biological value and digestibility coefficient.

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¹ Mitchell, *J. Biol. Chem.*, 1924, **58**, 905.

² Chick *et al.*, *Biochem. J.*, 1935, **29**, 1702, 1712.

³ Peters and Vanslyke, *Quantitative Clinical Chemistry*, 1932, **2**, 70.

⁴ Brigg, *J. Biol. Chem.*, 1922, **53**, 13.

⁵ McCrudden, *Ibid.*, 1909, **7**, 83 and 1911, **10**, 187.

⁶ Kennedy, *Ibid.*, 1927, **74**, 385.
