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Nutritive Value of the Crab *Podophthalmus vigil* (Fabricius)

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Among the edible crabs, *Podophthalmus vigil* occupies a distinct position in Porto Novo coast. Though the fishery is seasonal, *P. vigil* supports an additional crab fishery from August to October. An attempt has been made to evaluate the nutritional status of different size groups of *P. vigil*. It has been observed that protein and moisture values are more in smaller crabs, corresponding with a drop in carbohydrate and fat. In bigger size groups, the values of fat and carbohydrate are found to be higher, while protein and moisture contents decreased slightly. The total meat content varies in different crabs of the same size group and the average value of the total consumable part is found to be only less than 30% of the total weight of the animal.

De Man (1887) first described the genus *Podophthalmus*. *Podophthalmus vigil* was first collected by Dc de Daldorff from the east coast of India. Srinivasagam & Natarajan (1976) described the early development of *P. vigil* in the laboratory with a note on the importance of its fishery in Porto Novo. This species exhibits sexual dimorphism; the males are with larger bluish violet chelae. Since they are highly preferred as food, an attempt has been made to estimate the protein, carbohydrate, fat and water contents in relation to size.

Materials and Methods

Fresh crabs of various size ranges were collected and grouped into five, based on the carapace width. Protein was estimated by the Biuret method (Raymont *et al.*, 1964), carbohydrate by Dubois method (Dubois *et al.*, 1956), fat according to Folch & Stanley (1956) and moisture content by gravimetric method. For the determination of total meat content, the crabs were boiled, meat separated and weighed. Ovigerous females, moulting crabs and crabs with regenerating limbs were not included.

Results and Discuisson

Protein, carbohydrate, fat, water and total meat contents are given in Tables 1 and 2. Crabs with carapace width 51–60 mm recorded higher protein values while fat and carbohydrate were found to be lower. In 61–70 and 71–80 mm groups there was an initial fall and subsequent rise in protein values, while carbohydrate and fat were on the increase. The moisture was maximum in the 51–60 mm group, but lesser in 61–70 and 71–80 mm groups. In the 81–90 mm group protein value declined along with that of carbohydrate and fat while moisture content increased. In 91–100 mm group the protein and moisture contents were found to be minimum while carbohydrate and fat registered the highest.

Regarding the higher protein content during young stage, similar observation has been made by Selvaraj (1977) in the Indian shad *Euplatygaster indica*. This observation is also in agreement with that of Ferguson & Raymont (1974) who reported an increase in the lipid content and fall in protein content in *Euphasia superba* with an increase in body weight.

Maximum moisture content was found in 51–60, 61–70 and 81–90 mm group with lower lipid contents. Minimum moisture contents were observed in the crabs of the 71–80 and 91–100 mm group. The presence of more carbohydrate and fat in full grown crabs (91–100 mm) may be due to the storage of these materials in tissues and the low frequency of moulting. During the period of active growth possibilities of large scale storage of fat and glycogen are less. No relationship between body size and the total meat content was observed in the present

Table 1. *Protein, carbohydrate, fat and water contents in different size groups of P. Vigil*

Carapace width mm	Protein %	S. E.	Carbohydrate %	S. E.	Fat %	S. E. %	Water %	S. E
51–60	19.58	±1.78	0.30	±0.05	4.30	±1.54	74.46	±2.28
61–70	18.04	±2. 3	0.52	±0.03	5.13	±2.63	72.14	±1.48
71–80	20.16	±1.45	0.63	±0.07	6.88	±2.55	70.23	±1.82
81–90	18.95	±2. 6	0.45	±0.05	5.72	±1.79	72.30	±2.73
91–100	15.75	±1. 8	0.58	±0.04	9.73	±1.66	69.54	±2.86

Table 2. *Total meat content in various size groups of P. Vigil*

Carapace width mm	Total animal weight g	Meat content %
95.00	73.00	23.08
96.20	73.40	17.85
104.00	71.00	28.24
96.50	75.00	14.33
95.00	58.73	12.77
84.24	45.60	9.43
66.42	28.71	14.61
96.30	60.10	13.97
86.00	45.61	8.77
83.00	56.60	10.93
80.01	48.47	12.34
74.20	36.22	9.58

study. The reason for this variation is not known. Chinnamma George & James (1971) observed a linear relationship between the meat weight and the body length in the crab *Scylla serrata* during full moon and new moon periods. Increase in meat content was observed at new moon time compared to the full moon. However no such variations could be observed in the present study on *P. vigil*. It has been observed that the actual consumable part in the *P. vigil* to be less than 30% of the total weight.

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