STUDIES ON BIOCHEMICAL ANALYSIS OF TIGER PRAWN (*Penaeus monodon*)

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ABSTRACT

The purpose of the current study was to determine the biochemical composition of Tiger prawn (*Penaeus monodon*). The analysis of biochemical composition of the species showed that in *Penaeus monodon* the amount of protein, carbohydrates, minerals and moisture content were 2.0638±0.0044, 1.2044±0.0037, 54270±100372.5 and 84.66% respectively. The analysis of the tabulated data was carried out by using statistical tool to evaluate the mean and standard deviation.

KEYWORDS: *Penaeus monodon*, protein, carbohydrates, minerals, moisture.

INTRODUCTION

Aquaculture has been declared as an important underwater agriculture in recent days. The world aquaculture continues to grow very rapidly than all other animal food producing sectors (Devi *et al.*, 2015). Due to the cheaper price, the prawns and shrimps are good source of animal protein for low earning people (Adeyeye, 1996).

Penaeus monodon belongs to arthropoda phylum, crustacean class, decapoda order and penaedea family. It bears a well developed rostrum extending to the to the first antennular segment (Burkenroad, 1934).It has mostly 7 dorsal and 3 ventral teeth as well as a sigmoid shape of body (Motoh, 1985).It color distribution as follows carapace and abdomen are transversely banded with red and white color with a grayish brown antennae .Its color changes when entering shallow brackish water or kept in ponds i.e color changes to dark brown and often blackish.

Penaeus monodon are found in all cost of India especially in Andaman Sea (Chanda, 2017).

These prawns are good source of organic and inorganic constituents and proximate constituents are protein, carbohydrates, lipids, with the minerals like Ca, Mg, P, Cl, in good proportions with vitamins like A, C, and D (Abulude *et.al.*, 2006). Due to all nutritional availability the economic values of these has been increased in both national and international market.

MATERIALS AND METHODS

The prawns were collected from Railway market of Jatani, Khurda District, Odisha. The experiment was carried out in Zoology laboratory of Centurion University of Technology and Management, BBSR. The specimens were washed thoroughly with distilled water to remove dust and microbial particles. After grading, the exoskeleton was peeled out and flesh were grinding. That sample were weighed and kept in the hot air oven in 100^{0}C for drying and made powders for further biochemical analysis.

The concentrations of total protein present in muscles of the prawns were estimated by using Lowry's method (Lowry *et al.*, 1951). Similarly the total carbohydrate content was estimated by the anthrone reagent method (Hedge and Hifreiter, 1962).The elements composition was carried out by the help of XRF method and estimation of moisture carried out (Rajendran, 1973)

RESULT AND DISCUSSION

During aquaculture activity any species for agriculture, determination of length –weight relationship data is most appreciable which will provide very important information about market related farm management (Primavera *et al.,* 1998). Some researchers emphasized that the protein contents varies in different stages of penaeid prawn (Garg, 1977).Carbohydrate are also considered as the important nutrient for generation of energy. The increase of carbohydrate content was gradual among the size groups and bigger size content more carbohydrate compared to young ones. There are other factor were also responsible for change in carbohydrate level in prawn such as gonad development stage, starvation, feeding rates (Achutankutty, 1984). The average dry weight of the species correspondingly implies its muscle content constituting carbohydrate, protein, lipids and fatty acids exempting the moisture which varies greatly between species (Shakthi priyadarshini *et al.*, 2015).

Moisture content of *Penaeus monodon*

Original weight =68.54gm, Powder weight =10.51gm and Moisture (%) = 84.66%

Table-1 Elements content in *Penaeus monodon*

Sl no.	Compound	Concentration unit (ppm)
1	P_2O_5	164310
2	SO_3	177440
3	Cl	8602
4	K_2O	245090
5	CaO	304080
6	TiO_2	601.4
7	MnO	680.1
8	Fe_2O_3	12280
9	CuO	2420
10	ZnO	2950
11	As_2O_3	78.2
12	Br	1490
13	Rb_2O	81.6
14	SrO	2130
15	CeO_2	337.6
16	PbO	13.1
17	ZrO_2	9.6

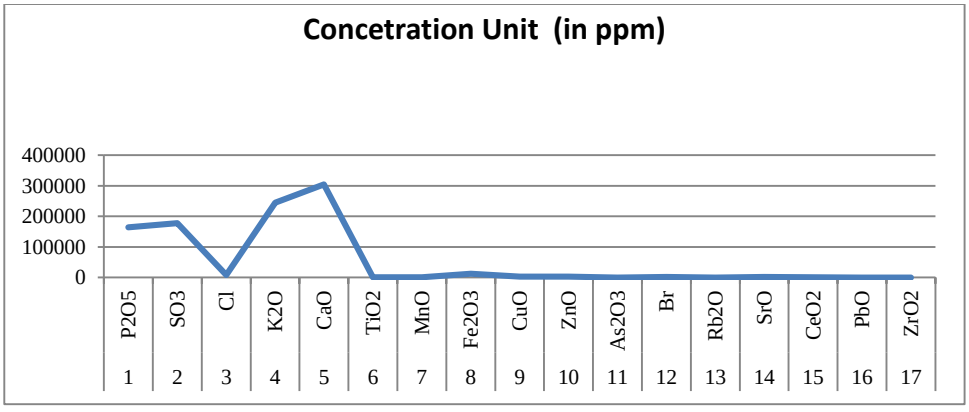

Figure-1 showing the concentration of compounds in *Penaeus monodon*

Table-2 Analysis of different biochemical component of *Penaeus monodon*

Species Name	Protein (µg/ml)	Carbohydrate (µg/ml)	Moisture (%)
P. monodon	2.0638±0.0044	1.2044±0.0037	84.66

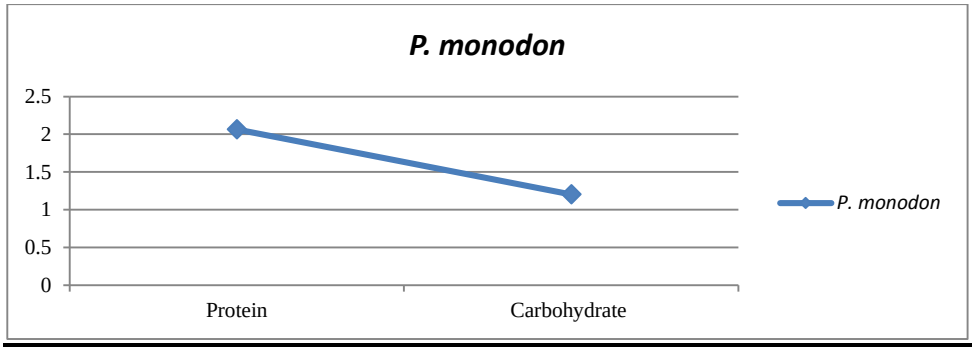

Figure 2 showing the mean ± SD of protein and carbohydrate contain in *Penaeus monodon*

CONCLUSION

The nutritional quality of prawn were significantly different that could have been influenced by several factors of their habitat. However, our experiment concluded that prawn are good sources of proteins and can serve as an alternative source of high quality protein for human consumption and a full source of carbohydrate , lipids, moisture, minerals and vitamins. Not only nutritional benefits but also these prawns are highly appreciable for invasion of different diseases. Seeing all these beneficial activities it can predict that the prawn culture will be the backbone of aquaculture in future.

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