

## SEASONAL VARIATIONS IN PROTEIN CONTENT IN MUSCLE AND INTESTINE OF *PENAEUS INDICUS* (H. milne Edwards 1837)

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**Abstract:** The present investigation focused on the monthly variations in protein content in two selected tissues i.e. muscle and intestine of *Penaeus indicus* was studied during the year 2016. It is evident from the present findings that the maximum protein content in muscle tissue was recorded all around the year compared to the intestine. The highest protein content in muscle and intestine tissues of *Penaeus indicus* were recorded as  $138.58 \pm 0.89$  mg/g,  $97.59 \pm 0.42$  mg/g respectively.

**Keywords:** Protein, Muscle and intestine and *Peanaeus indicus*

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### Introduction

Malnutrition is one of the biggest problems in India with special reference to slum areas where the poor sanitation and other prevailing conditions make them without proper nutrition diet. Hence cheaper protein rich sources like fish meal and other by products are suitable to minimize this problem little extent. Several studies were conducted on proximate composition of the different fin fishes and shell fishes from various parts of the world, but there is limited literature available on seasonal changes in protein content of the tissues of Muscle and Intestine of *Penaeus indicus*. Narasimhan *et al.*, (2013) studied on seasonal changes of total protein content in three different body parts of the shrimp namely muscle, gut and intestine in two prawns i.e. *Litopenaeus vannamei* and *P. monodon*. Hala Ali Abdel-Salam (2013) investigated on nutritional parameters of cultured *Penaeus indicus*. Ravichandran *et al.*, (2009) carried out biochemical

composition of two body parts i.e. (shell and flesh) of *Penaeus indicus*. In context of the above, the study was undertaken to find out the seasonal variations of the protein content of marine shrimp *Penaeus indicus*.

### Material and Methods

The fresh and healthy samples were collected from local markets of Gudur and brought to the laboratory of Sandor Life Sciences Private Limited, Hyderabad for the analysis and immediately washed properly under running tap water, followed by distilled water to remove unwanted material. Then the shrimps were dissected carefully with sterile stainless scissor and wash the intestine with water and store the muscle and intestine samples in  $-4^{\circ}\text{C}$  until biochemical analysis. To perform protein content in the selected tissues of the shrimps Lowry *et al.*, (1951) method was employed.

### Statistical Interpretation of the data

Seasonal variations in protein content in two different tissues the recorded mean values were subjected to the mean and standard

deviation using SPSS packages for the statistics (SPSS, 1990).

### Results and Discussion

The protein content in muscle and intestine tissues were recorded (in mg/gm) and presented in graphs (Figure 1 and 2).



Figure 1. Monthly variations of protein content in muscle tissue of *Penaeus indicus* during the year 2016



Figure 2. Monthly variations of protein content in intestine tissue of *Penaeus indicus* during the year 2016

Shrimps contains very good nutritional substances like fish, contains 8-20% protein. Yanar and Celik (2006) and Sriket *et al.*, (2007) revealed that the protein content of the shrimp may ranged between 17-21% and it alter from species to species. The protein content in *Penaeus indicus* was ranged from 44.62-80.87% reported by Sambhu and

Jayaprakash (1994). Achuthan Kutty and Parulekar (1984) reported the protein content was maximum in muscle tissue of *Penaeus monodon*. In this investigation the recorded protein content was maximum in muscle followed by intestine tissue of *Penaeus indicus*. Ali *et al.*, (2006) reported difference in protein content of two species namely

*Penaeus monodon* and *Litopenaeus vannamei*.

Narasimhan *et al.*, (2013) recorded the highest protein content in muscle tissue and intestine of *Penaeus monodon* and *Litopenaeus vannamei* were  $149.00 \pm 0.65$  mg/g,  $114.40 \pm 0.97$  and  $101.19 \pm 0.06$  mg/g,  $102.19 \pm 0.54$  respectively. In our observations highest protein content in muscle and intestine tissues of *Penaeus indicus* were recorded as  $138.58 \pm 0.89$  mg/g,  $97.59 \pm 0.42$  mg/g respectively. It is evident from the results that the observations were following the trends of results reported by Narasimhan *et al.*, (2013).

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