

Seasonal variation in the Carbohydrate content from different tissues of *Sepia aculeata* in Pazhayar coastal waters, Nagapattinam District, Tamilnadu

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Abstract: The aim of this work was to investigate the seasonal variability in the Carbohydrate content in *Sepia aculeata* during January 2017 to December 2017. The total carbohydrate was estimated in muscle, gill, liver and gonad.

Key words: *Sepia aculeata*, Muscle, Gill, Liver and Gonad.

I. Introduction

Class cephalopoda which include the Nautilus, Cuttle fish, Squid and Octopus is the most advanced class of phylum: Mollusca, adapted to a swimming existence. There are about 80 species of cephalopods of commercial and scientific interest distributed in the Indian seas [1]. Biochemical composition of the whole body indicates the quality of cephalopods [2]. But the proximate measurement of some proximate profiles such as Protein, Carbohydrate and Lipids is often necessary to ensure that they meet the requirements of food regulations & commercial specifications [3]. However most of the previous studies concentrate on the proximate composition and nutritional evaluation of many commercially important fishes and few species of cephalopods. But at the same time limited work has been carried out in the different body parts of cephalopods *Sepia aculeata*. Therefore the present study was undertaken to evaluate the carbohydrate content of cuttlefish *Sepia aculeata*.

II. Materials and Methods

The specimen of *S. aculeata* collected from Pazhayar coastal water, south east coast of India. After collection, the animals were thoroughly washed with fresh water and put into ice box were brought to the laboratory. The different body parts such as muscle, gill, liver and gonad were dissected out. The respective tissues were used for carbohydrate estimation.

III. Result and Discussion

The carbohydrate content has been shown in the Table 1 and Figure 1 to 4 (Seasonal variations). In *Sepia aculeata* the carbohydrate content is high in female than the male [4]. Similar studies were carried out [5].

Muscle: The percentage of carbohydrate values in males fluctuated from 25.68% to 34.28% and in females from 30.60% to 32.26%.

Gill: In males carbohydrate values varied from 25.06% to 31.86% and in females from 27.31% to 35.12%.

Liver: In the Liver of male *Sepia aculeata* the carbohydrate values fluctuated from 25.08% to 30.75% and in females from 26.20% to 30.26%.

Gonad: The percentage of carbohydrate values in males fluctuated from 29.02% to 36.20% and in females from 31.68% to 38.98%.

In general carbohydrate values higher in females than the males in all the organs. Glycogen may be important for the maturation process and embryogenesis. Carbohydrates are precursors of metabolic intermediates in the production of energy and non essential amino acids and as a component in ovarian pigments [6]. In this present study total carbohydrate is decreased in summer to fall than increased slightly in monsoon [7] Similar observations have been recorded for *O. vulgaris* [8] and *L. forbesi* [9] Where the glycogens reserves are increased during maturation in the gonad and muscles.

Table 1 Seasonal Variations in the carbohydrate content of *Sepia aculeata* (%).

Period	Muscle		Gill		Liver		Gonad	
	Male	Female	Male	Female	Male	Female	Male	Female
Post monsoon	29.41	30.60	34.11	35.12	28.23	29.04	30.58	32.57
Summer	25.68	27.52	32.10	33.26	27.58	28.53	29.02	31.68
Pre monsoon	28.89	29.06	25.06	27.31	25.08	26.20	30.81	32.96
Monsoon	34.28	32.26	31.86	32.28	30.75	30.26	36.20	38.98

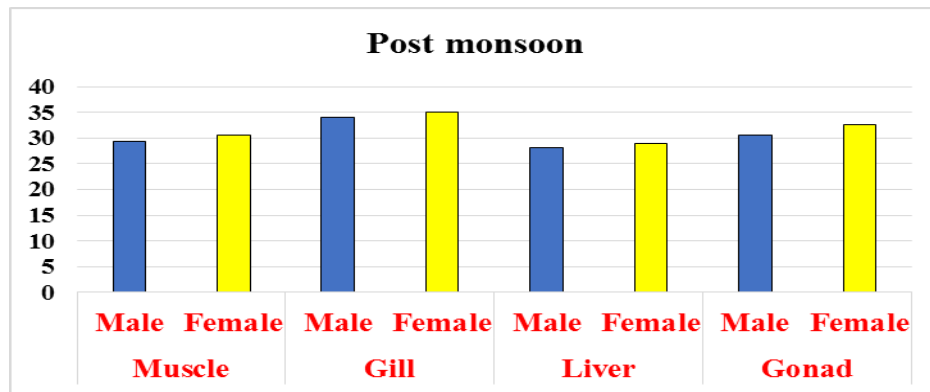


Figure 1 Seasonal variations in the Carbohydrate content (%) of *S. aculeata* during post monsoon Season.

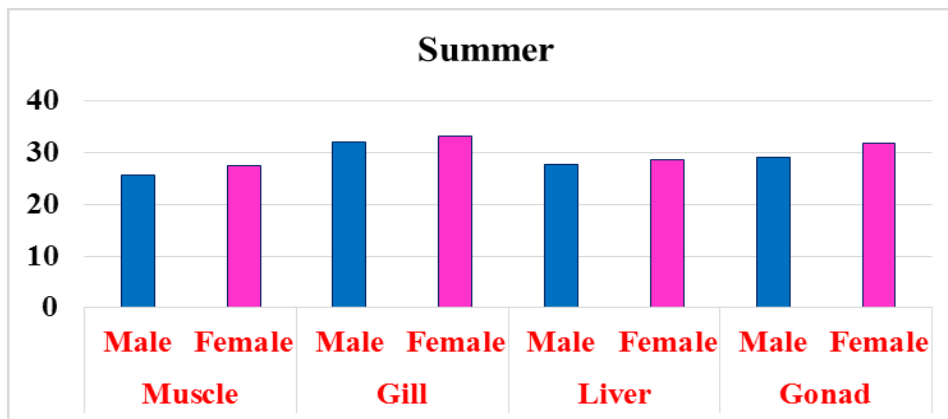


Figure 2 Seasonal variations in the Carbohydrate content (%) of *S. aculeata* during summer Season.

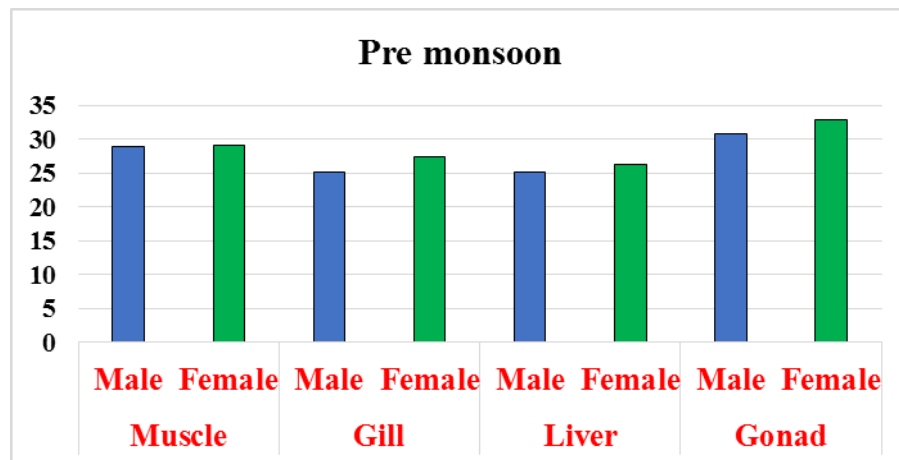


Figure 3 Seasonal variations in the Carbohydrate content (%) of *S. aculeata* during pre monsoon Season.

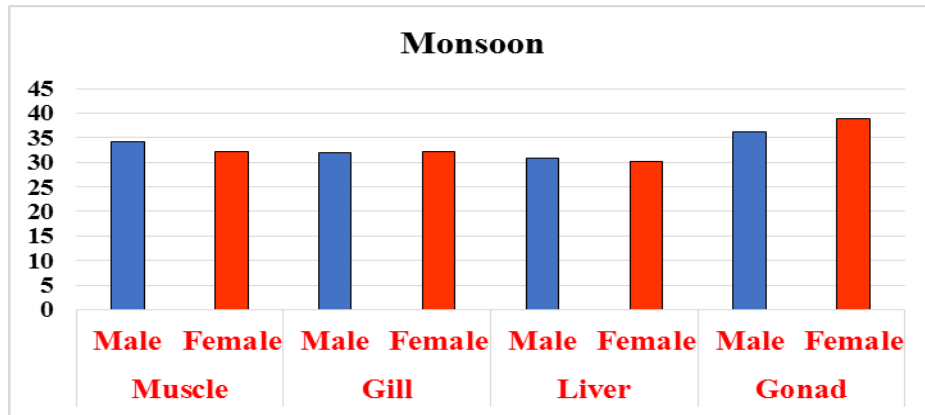


Figure 4 Seasonal variations in the Carbohydrate content (%) of *S. aculeata* during monsoon Season.

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