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SEASONAL VARIATION (MONTHLY VARIATION) OF MUSCLE AND LIVER GLYCOGEN IN THE CLARIAS : BATRACHUS

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INTRODUCTION

Fishes are more nutritive and relishing than the plant food. They are also known to be the most efficient among form animals in converting feet into nutritious food. Chemical composition and nutritional quality of a fish is important in its use as food products from plants cereals and fish (mukundan & james 1978). The importance of chemical composition of fresh water fish has been elaborately emphasized by stansby (1954).

Studies on biochemical composition of fresh water fishes from India Basu and De (1938) analysis of compositions of Labeo rohita and clupea, ilisha such guha (1930) analysed some species of fresh water from Bengal Airen etal (1950) studied the chemical compositions of fishes from Inland waters of kolahapur, Natarajan, and shrinivasan (1961) studied the biochemical composition of Barbus dubinus. Jafri (1968) carried out investigation on cirrhina mrigala and mystus seenghala, Dutt and Govindan (1970) studied the variations in the glucose and glycogen content of liver and ovary in Anbas scadens during its ovarian cycle. Jafri and khawaja (1968) carried out work on seasonal changes of fresh water murrel ophiocephalus punctatus, Murthy et. al (1999) studied body composition of Tilapia vergara etal (1999) studied growth feed utilization and body lipid content of gillhead sea bream. Pawar (2003) studied the biochemical compositions of some edible fishes belonging to Gobiidae and siluridae. Bruce (1924) obsevered that variations. In the composition of herring were related to age and sexual maturation. riegol (1948) observed that the seasonal variations in fat, Moisture and protein content of sardine.

Materials and Methods :

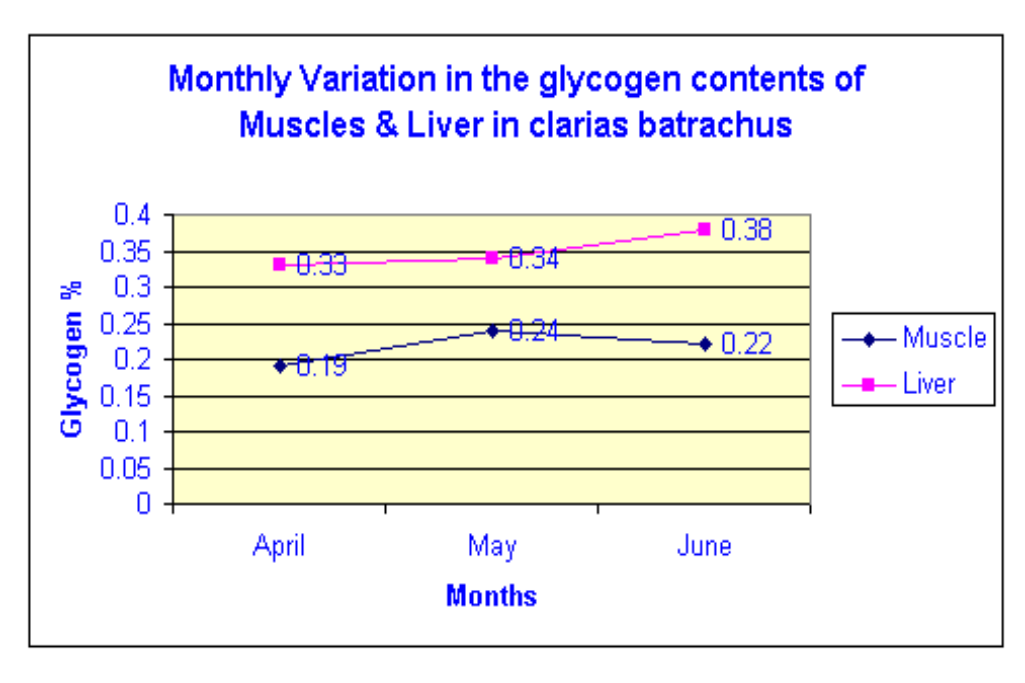
The fresh and healthy fish were collected from Godavari river near Nanded district for glycogen estimation. The freshly caught specimens were dissected immediately after bringing to the laboratory scales, skin and bones are removed and only the musles and liver was used for analysis of glycogen. Glycogen was estimated by using Anthrone method. The quantity of glycogen was calculated by using glucose standard graphs and multiplying the value obtained by the glucose factor 0.927. All values were expressed as percentages.

Month	Tissue	Glycogen %
April	Muscle	0.19
May	Muscle	0.24
June	Muscle	0.22
July	Muscle	0.35
October	Muscle	0.46
November	Muscle	0.38
April	Liver	0.33
May	Liver	0.34
June	Liver	0.38
July	Liver	0.31
October	Liver	0.38
November	Liver	0.32

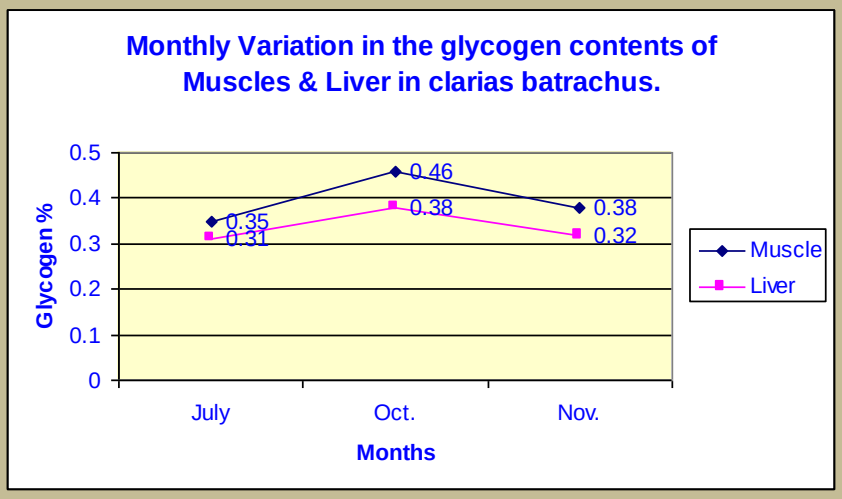
Table- Monthly variations in the various constituents of liver & muscle in male & female clarias batrachus.

Type of Tissue	Standard deviation
Muscles	0.3066 ± 0.07615
Liver	0.1466 ± 0.02800

Table - Amount of glycogen in tissues of clarias batrachus (Each value is the mean of six observation ± STD.)



Graph - Monthly Variation in the glycogen contents of Muscles & Liver in clariasbatrachus.



Graph -Monthly Variation in the glycogen contents of Muscles & Liver in clarias batrachus.

Result :

Seasonal variations in the glycogen content of liver and muscles in relation to spawning cycle and feeding cycle. The percentage of glycogen in muscles varied from 0.19 April to 0.38 in Nov. the percentage of glycogen in liver varied from 0.33 in April to 0.32 in Nov. The percentage of glycogen in muscles in male varies from 0.19 to 0.22 in April to June and in females varies from 0.35 to 0.38 in April to Nov. in muscles. in the male percentage of liver varies from 0.33 to 0.38 in April to June and in female the percentage of glycogen varies from 0.31 to 0.32 in liver. glycogen percentage in both the sense shows more are less similar relationship with spawning cycle and feeding cycle.

Carbohydrates are stored in muscles and liver in glycogen Form thus glycogen as vital source of muscular action and stored up during rest. Carbohydrate does not occur in the composition except as glycogen.

Discussion :-

Glycogen is a polysaccharide made up of glucose units and represent the carbohydrate reserve materials in animals. It is synthesized from glucose and stored in muscle and liver and kept there until required by the body, when it is broken down into glucose Bio-chemically, it is one of the most important substances in the body. It serving as the source of energy for the muscle and as a glucose reserve in the liver. The variation in the glycogen percentage shows more or less similar relationship with spawning cycle and feeding cycle the decreasing trend of glycogen was observed with the advancement of spawning season, low value of glycogen were observed till the fish starts recovering. Thus the glycogen is accumulated during the maturation period and is decreased during the spawning and post spawning period of fish. Ballard F.J. (1965) glucose utilization in mammalian liver. Barker (1971), kumthekar (1988) in respect of (C. reba and sonawane. etal (2001) in cyprinus carpio. somwanshi (1983) also made similar observation in respect of Gara mullya.

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