'RESEARCH JOURNEY' International E- Research Journal
Impact Factor - (SJIF) – 6.625 (2019),
Vol. 7, Issue 1
Peer Reviewed Referred & Indexed Journal
E-ISSN : 2348-7143
Jan. Feb. March. 2020

Glycogen Content of Some Cestode Parasites of Marine Fishes From Ratnagiri District (West Coast of India)

R. R. Dandawate
Department of Zoology
Arts,Commerce and Science College Sonai
Dist.Ahmednagar, M. S., India drajendra2006@gmail.com

Abstract:

Cestode when live in host intestine they utilize food from gastrointestinal tract Glycogen is the most abundant organic molecules in cells constituting 60 percent or more of their dry body weight. They are found in every part cell; since they are fundamental in all aspects of cell structure and function. The glycogen is absorbed by the parasites by diffusion and transfusion. The present study dealt with the glycogen analysis of cestode parasite Tylocephalum ratnagiriensis and Tylocephalum mirakarwadensis its host Trygon sephen from west coast of India. The result obtained an amount of glycogen content in the present study indicates that the amount of glycogen present in cestode parasites is lower as compared to glycogen present in infected intestine as well as in normal intestine.

Keywords: Biochemistry, Glycogen, Cestodes, Tylocephalum Scolex

Introduction:

The glycogen content of various helminthes fluctuates considerably and there is variation in habitat Among the large number of organism, parasitism is a natural way of life, and parasitic diseases are the major public health problem, which results into morbidity and mortality in tropical countries, particularly in the socio economically under developed societies in the world. A fundamental unit for all metabolic activities is Glycogen; they are most important agents for expression of the genetic material. Glycogen is the most abundant organic molecules in cells constituting 50 percent or more of their dry body weight. They are found in every part cell; since they are fundamental in all aspects of cell structure and function. The glycogen is absorbed by the parasites by diffusion and transfusion. Cestodes completely lack alimentation in all stages of life history. The cestode parasites utilize the food from the intestine of host. The metabolism depends on the feeding habits and the rich nourishment available in the intestine of the host.
The parasites use this nourishment for their normal development and growth. The present paper deals with the estimation of glycogen from cestode parasite genus parasite Tylocephalum ratnagiriensis and Tylocephalum mirakarwadensis from the host Trygon sephen

Material and Methods:

Intestines of Trygon sephen were brought to the laboratory of Dr B.A.M.University Aurangabad,(Marine research center Bhaty during January 2012 to December . The collected intestines were dissected to find out the infection of cestode parasites. The tapeworms were collected washed thoroughly in distilled water, few of them fixed in 4% formalin for identification. The glycogen content was determined by method of Kemp et al., 1954 as follows.Intestine of cestodes as well as host were found to be heavily infected with the cestode parasites, identical worms are separated and kept at one place by observing under microscope and few out of them were fixed in 4% formalin for taxonomical studies. Small pieces of infected

intestine were also collected for estimation of glycogen. The collected worms were kept on blotting paper to remove excess of water from the body of cestodes. Then the material weighed on sensitive balance. The weighed material was grounded in to homogenous paste and in this paste 1 ml 30% KOH was added.This mixture was taken in centrifuge tube and digested in a hot water bath for 20 minutes, followed by 15 ml of ethanol and stirring with glass rod. This mixture kept in hot water bath and after cooling again centrifuged for 15 minutes at 3000 R.P.M. Supernatant was drained on filter paper and 5 ml of test solution, 5 ml standard glucose solution was taken and control was separately in 3 test tubes. Freshly prepared 10 ml Anthrone reagent was added in each test tube mixed well and heated for 10 minutes and immediately cooled. Reading was taken with the help of Erma's calorimeter, by setting blank at 100 mu. The amount of the glycogen in worms and host, calculated by the formula

Percentage of glycogen = 100 x0.53 /1.11 XSXU

Where , U= OD of the unknown test solution . S= OD of 100 mg of glucose to glycogen

1.11= conversion factor of glucose to glycogen

Results and discussion:

The result obtained an amount of glycogen content in the present study indicates that the amount of glycogen present in cestode parasites is lower as compared to glycogen present in infected intestine as well as in host normal and infected intestine. This is summarized in table.

Table.1.Glycogen content of cestode parasite Acanthobothrium abhayii , Acanthobothrium keshavravii and Host Mastacembelus armatus.

Name of cestode parasite	% of Glycogen in parasite	% of Glycogen in host body	Name of host
Tylocephalum ratnagiriensis	21.71 Mg	25.04 mg	Trygon sephan
Tylocephalum mirakarwadensis	22.80 Mg	26.10 Mg`	Trygon sephan

The glycogen content from parasites Tylocephalum ratnagiriensis and Tylocephalum mirakarwadensis and host Trygon sephan in the present study indicate that the amount of glycogen present in cestode parasites is lower as compare to host

Acknowledgement:

The authors are indebted to Principal, Arts, Commerce and Science College Sonai for their kind help, inspiration and providing necessary laboratory facilities

Conclusion:

From above data shows, it can be concluded that the cestode parasites Tylocephalum ratnagiriensis Tylocephalum mirakarwadensis could maintain good balanceIn glycogen content and also maintain histopathological relation with host. Trygon sephen in infected intestine as well as in host nor infected
intestine

References:

KEMP R S ,1954
Principalles of biochemistry,Lehniner,234

GINETSINHAYAANDUSPONSKAYA(1965)
The charactertic of glycogen and fat,store in the tissue of some fish helminthes regarding their localization in the body of Host,Helminthologia,6319-333
1 ARMEC.(1966)
Histochemical and biochemical studies on some enzymes of Lingula intestinalis (cestoda :Pseudophyllidea) J.parasit;52 62-68
CULLING CFA(1974)
Text book of Histochemical and Histopathological techniques,3rd Edition Butter worth and Co,ltd Londan
HIWARE C.J. JADHAV B.V.(1994)
Quantitative studies on Glycogen in some cestode collected from different localities of westran Maharashtra,Dr C.B.srivastva coo.vol.1994 ,219-222
WANKHEDE H. AND JADHAV B.V.(2003)
On a new species of the genus Tylocephalum Linton (1890) from Trygon sephen I.J.Comparative animal physiology vo.21,24-27
JADHAV BV BHURE DB,(2008)
Biosystematics studies ondavainea n.sp. Bio.sci.5(1) :32-34
BHURE DB. AND NANWARES. S.,(2011)
Effect of coper sulphate on protein contents of Channa punctatus J.Expt.Sci.2(7
LONUNEM.B.(2014)
Glycogen content of some Parasites (Cestodes) from west coast of India J.Bio.Sci.Discovery 5(1) :32-34) :36-37
HUSAIN F.HASSAN,(2016)
Identification of some Iraqi fish parasites by using Biochemical and Molecular Protocol Int.J.Curr.Res.Aca.Rev.2016 4(1):54-64