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ORIGINAL ARTICLE

Determination of Total Protein Content in Cestode *Gangesia striatusii* Bhure and Nanware, 2012 and its Host *Wallago attu*

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ABSTRACT

Proteins are the most abundant organic molecules in cells constituting 50 percent or more of their dry body weight. Total protein contents in parasite tissues range between 20-80% of dry weight. Parasites are a major concern to freshwater and marine fishes all over the world, and of particular importance in India. Biochemical indices have been employed in effectively monitoring the responses of organisms to stressors and thus its health status under such adverse conditions. Hence, the changes associated with Biochemical parameters due to various parasites establish a database, which could be used in diseases diagnosis and in guiding the implementation of the treatment or preventive measures. Present study deals with quantitative investigation of protein content in Cestode of the genus Gangesia striatusii and its normal and infected intestinal host tissue of Wallago attu. Obtained result indicate that amount of protein present in Gangesia striatusii is lower (3.11 mg/gm) as compared to protein present in infected intestinal tissue of Wallago attu (4.22 mg/gm) as well as in normal host intestinal tissue of Wallago attu (5.66 mg/gm).

Key words: *Cestode, Gangesia striatusii Protein Content, Wallago attu*

INTRODUCTION

Diseases caused by tapeworms are widespread globally, may influence human and animal health, and have a strong economic impact. Cestodes are endoparasitic helminths which almost exclusively occupy alimentary canal in preference to other common sites. Elongated tape-like body of cestode enables it to live in its tubular habitat. As an alimentary canal is absent, the cestodes derive its nutrition from the host's gut across its highly specialized, metabolically active body surface or tegument. The proteins are absorbed by the parasites by diffusion and transfusion. The cestode parasites utilize the food from the intestinal gut of host. The metabolism depends on the feeding habits and the rich nourishment available in the gut of the host. Parasites use this nourishment for their development and growth. Proteins are fundamental units for all metabolic activities; they are most important agents for expression of the genetic material. They are found in every part cell; since they are fundamental in all aspects of cell structure and function. Proteins enter into a number of basic functions in all tissues; they have more structural and supportive roles, an energy source, and participate in synthesis of a number of vital compounds such as enzymes, hormones, antigens and antibodies. Some proteins contain sugars, fats, or metal group such as iron in the hemoglobin. Content of protein range between twenty to eighty percent of dry weight of parasitic tissue. The proteins of tissue contain two main groups, soluble and insoluble. Soluble proteins include enzymes, hormones and antigens, while insoluble proteins are associated with cellular membrane and membranous structures within the cell and they have structural and supportive functions such as collagen, keratin-like proteins, and sclerotin. Fish is an excellent source of food. Its flesh is nutritionally equivalent to meat in protein contents, low in saturated fats and high in essential minerals and vitamins. To obtain healthy and quality meat fish, it is necessary that the fish should be free from all types of infections. Helminths are found in almost all the animals including fish throughout the world.

MATERIAL AND METHODS

For the collection of Cestode parasites, the intestine of *Wallago attu* were collected from Some sites of Hingoli and Nanded. Collected worms were washed; preserved; stained; dehydrated through

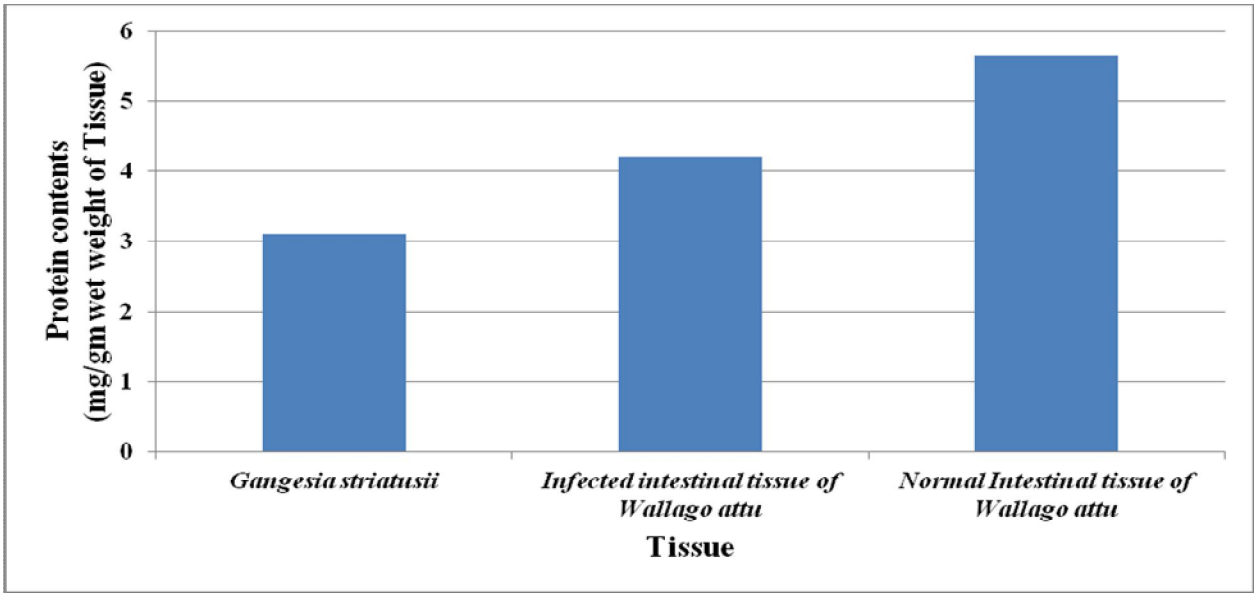
ascending alcoholic grades, cleared and mounted as per standard method. Drawings are made with the aid of camera lucida for taxonomic identification. The Cestode parasites collected from intestine of fish host *Wallago attu* was identified as *Gangesia striatusii.* Proteins were measured according to the method (Lowry, *et al.*, 1951).

RESULTS AND DISCUSSION

Table and graph shows the total concentration of proteins in the intestines of normal and infected fish with *Gangesia striatusii* as well as in *Gangesia striatusii* itself. Result obtained in present study indicates that amount of proteins present in *Gangesia sp.* is lower (3.11 mg/gm) as compared to protein present in infected intestinal tissue of *Wallago attu* (4.22 mg/gm) as well as in normal host intestinal tissue of *Wallago attu* (5.66 mg/gm).

Table 1: Comparative chart of protein content in *Gangesia striatusii* infected intestinal tissue and Normal intestinal tissue of *Wallago attu*

Protein contents (mg/gm wet weight of Tissue)		
Gangesia striatusii	**Infected intestinal tissue of *Wallago attu***	**Normal Intestinal tissue of *Wallago attu***
3.11	4.22	5.66



Graph 1: Graph showing protein content in *Gangesia striatusii* infected intestinal tissue and Normal intestinal tissue of *Wallago attu*

Finding of present study are in agreement with previous finding of (Jadhav, *et. al.*, 2008; Bhure, *et al,* 2011; Nanware, *et. al.*, 2012; Bhure, *et. al.*, 2012,2013; Pallewad, *et al.*, 2014; Bhure, *et. al.*, 2015; Nanware and Bhure, 2019) in terms of the presence of high protein concentration in the non infected host compared to the infected host, and also agree with in terms of the presence of the protein at a lower concentration in worm tissue.

The present study indicates, protein is low in Parasite than infected and normal intestinal tissue. The changes associated with Biochemical parameters due to various parasites establish a database, which could be used in diseases diagnosis and in guiding the implementation of the treatment or preventive measures.

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