



“STUDIES ON PROTEIN CONTENTS IN CESTODE OF THE GENUS *AVITELLINA SP.* AND ITS HOST *CAPRA HIRCUS*”

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ABSTRACT

Present study deals with quantitative investigation of protein content in Cestode of the genus *Avitellina sp.* and its normal and infected intestinal host tissue of *Capra hircus*. Obtained result indicate that amount of protein present in *Avitellina sp.* is lower (12.88 mg/gm) as compared to protein present in infected intestinal tissue of domestic goat *Capra hircus* (15.96 mg/gm) as well as in normal host intestinal tissue of *Capra hircus* (18.48 mg/gm).

Key words- Cestode, *Capra hircus*, Protein Content, *Avitellina sp.*

INTRODUCTION

The Cestodes are a group of endoparasitic helminths which almost exclusively occupy the alimentary canal in preference to other common sites like the bile duct, the gall bladder or the pancreatic duct. The elongated tape-like body of the cestode enables it to live in its tubular habitat (Smyth and McManus 2007). As an alimentary canal is absent, the worm derives its nutrition from the host's gut across its highly specialized, metabolically active body surface or tegument (Smyth and McManus 2007). Proteins are fundamental units for all metabolic activities, they are most important agents for expression of the genetic material. The occurrence of proteins in the body of parasites is a universal phenomenon but the occurrence of polypeptides as stored food material is a less common feature compared to carbohydrates and fats, The main significance of the proteins is their role in structural make up of the body rather than in the yield of the energy. However, they take an important role in the production of energy by acting as catalysts for various metabolic processes. Further, the importance of proteins lies in their specificity in differentiating an enzyme with other or functionally as stored food material is very less yet they are important as they form the basic framework of the body. Parasitic helminths are capable of efficient protein synthesis and incorporation of labeled amino acids into proteins has been demonstrated in several species. The proteins are absorbed by the parasites by diffusion and transfusion. Tapeworms completely lack alimentation in all stages of life history. 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.

MATERIAL AND METHODS

For collection of Cestode parasites, the intestine of goat *Capra hircus* were collected from different localities of Nanded. Collected worms were washed; preserved in hot 4 % formalin; stained in Borax carmine; Stained specimens were dehydrated through ascending alcoholic grades i.e. 30%, 50%, 70%, 90% and 100%, cleared in xylene and mounted in DPX. Drawings are made with the aid of camera lucida for taxonomic identification. The Cestode parasites collected from intestine of *Capra hircus* was identified as *Avitellina sp.* Protein content was determined by the Lowery's Method (1951).

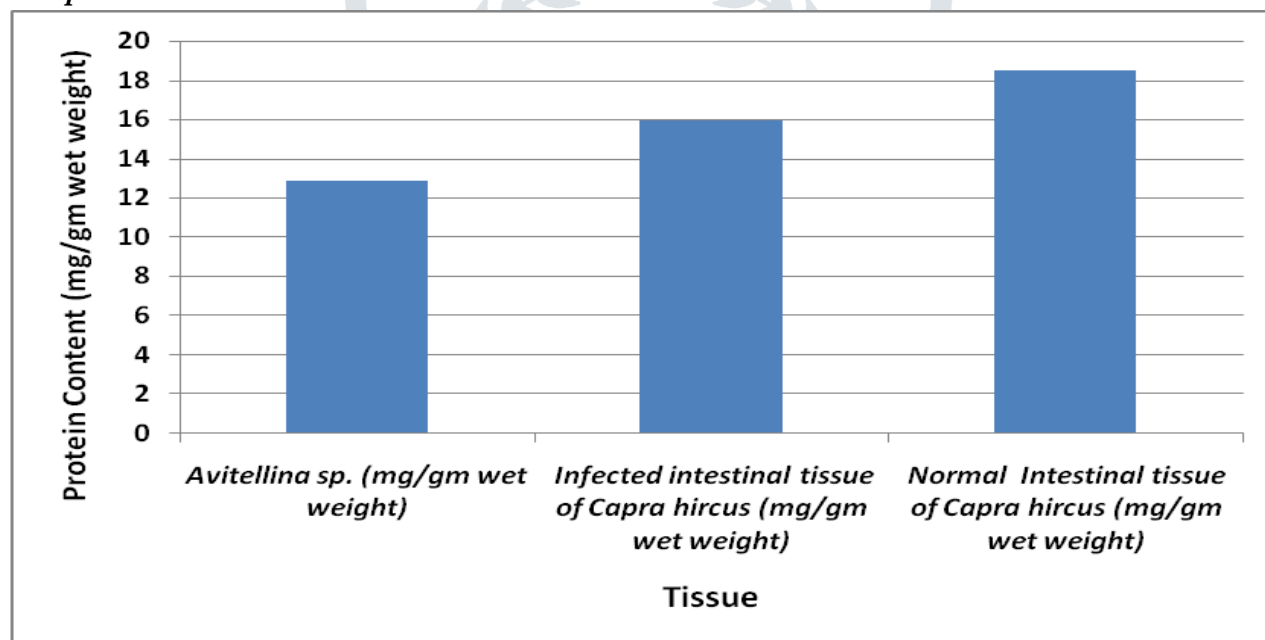
RESULTS

Result obtained in present study indicates that amount of proteins present in *Avitellina sp.* is lower (12.88 mg/gm) as compared to protein present in infected intestinal tissue of domestic goat *Capra hircus* (15.96 mg/gm) as well as in normal host intestinal tissue of *Capra hircus* (18.48 mg/gm). This is summarized in table and graph.

Table: Comparative chart of protein content in *Avitellina sp.*, infected intestinal tissue and Normal intestinal tissue of *Capra hircus*.

Protein contents (mg/gm wet weight of Tissue)		
<i>Avitellina sp.</i>	Infected intestinal tissue of <i>Capra hircus</i>	Normal Intestinal tissue of <i>Capra hircus</i>
12.88	15.96	18.48

Graph: Graph showing protein content in *Avitellina sp.*, infected intestinal tissue and Normal intestinal tissue of *Capra hircus*.



DISCUSSION

Finding of present study are in agreement with previous study of Jadhav et.al., 2008 who reported amount of protein in *Davainea shindei* is 13.20 mg/mg wt. of tissue where as in host intestine is 15.42 mg/mg of tissue. Nanware et.al., 2012 studied amount of proteins in *Cotugnia sp.* is lower (5.77mg/gm) as compared to protein present in infected intestine (6.66 mg/gm), in host normal intestine (16.22 mg/gm). Bhure et. al., 2012 recorded lower (15.88 mg/gm) amount protein in *Ascardia galli* as compared to infected intestine (19.33 mg/gm) and normal host intestine (19.77 mg/gm). Bhure et. al.,2013 reported low amount of protein in *Moniezia expansa*(2.72 mg/gm wet weight) as compared to infected intestine of *Capra hircus* (3.63 mg/gm wet weight) and normal intestinal tissue of *Capra hircus* (4.09 mg/gm wet weight). Pallewad et al., 2014 studied Protein contents in normal intestinal tissue of *Capra hircus L.* is 31.27 mg/100 mg; in infected intestinal tissue is 28.36 mg/100mg where as in *Cotylophoron sp.* is 23.60 mg/100gm. Bhure et.al.,2015 recorded proteins in *Spinitectus indica sp.* (2.55 mg/gm) is lower to infected intestinal tissue of *Mastacembelus armatus* (3.11 mg/gm) as well as normal

intestinal tissue (4.22 mg/gm). Bhure et.al.,2021 reported amount of protein present in *Stilesia* sp. is lower (2.98 mg/gm) as compared to protein present in infected intestinal tissue of *Ovis bharal* (4.12 mg/gm) as well as in normal host intestinal tissue of *Ovis bharal* (4.88 mg/gm). Manoorkar et.al.,2022 determined protein content in *Polyoncobothrium* sp. is lower (2.37 mg/gm) as compared to protein present in infected intestinal tissue of *Mastacembelus armatus* (3.53 mg/gm) as well as in normal host intestinal tissue of *Mastacembelus armatus* (4.12 mg/gm).

According to the findings of this study, the amount of protein in helminth parasites is lower than in infected intestines and normal host intestines. The difference in protein content of the parasite can also be attributed to dietary differences.

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