# QUANTITATIVE ANALYSIS OF TOTAL PROTEIN CONTENTS IN CESTODE *STILESIA* SP. AND ITS HOST *OVIS BHARAL*

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## ABSTRACT

Proteins are fundamental units for all metabolic activities; they are most important agents for expression of the genetic material. Proteins are the most abundant organic molecules in cells constituting 50 percent or more of their dry body weight. The main significance of the proteins is their role in structural make up of the body rather than in the yield of the energy. In parasitic helminthes, protein usually constituents between 20 and 40% of the dry weight, but values as high as 70% of the dry weight. Proteins are absorbed by the parasites by diffusion and transmission. It is naturally available from host tissue as there is no media to acquire proteins in parasites these proteins are naturally available from the host tissue.

Present study deals with quantitative analysis of total protein content in cestode *Stilesia sp.* and its normal and infected intestinal host tissue of *Ovis bharal*. Obtained result indicate that 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).

**Key words-** Cestode, *Ovis bharal*, *Stilesia sp.*, Total Protein Content.

## INTRODUCTION

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. 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.

## MATERIAL AND METHODS

For the collection of Cestode parasites, the intestine of *Ovis bharal* were collected from Some sites of 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 *Ovis bharal* was identified as *Stilesia sp.* Proteins were measured according to the method (Lowry et al., 1951; Bhure and Nanware, 2020.)

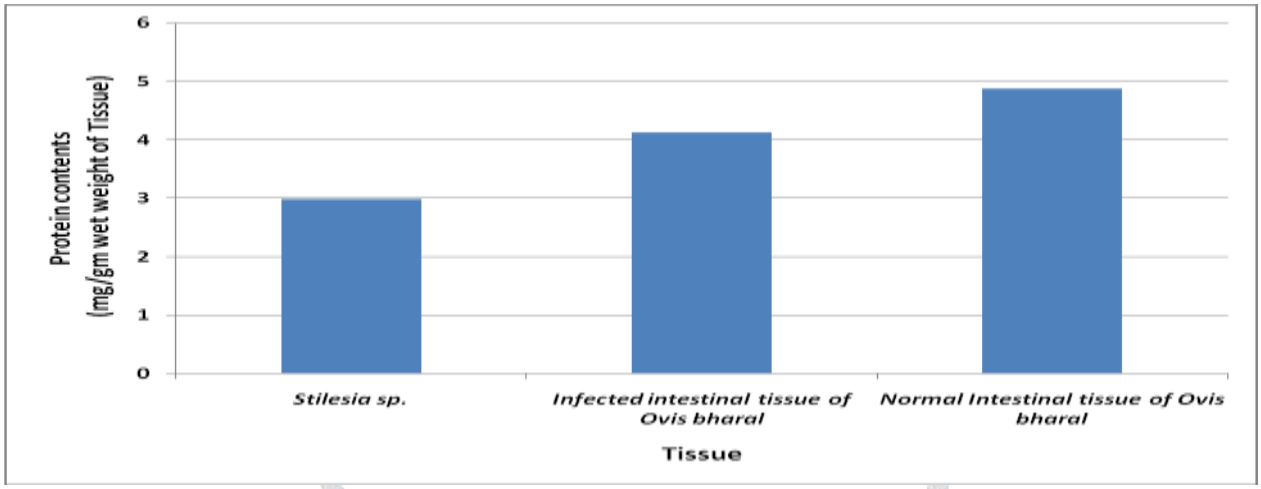
## RESULTS AND DISCUSSION

The total concentration of proteins in the intestines of normal and infected *Ovis bharal* with *Stilesia sp.* as well as in *Stilesia sp.* itself presented in Table and graph. Result obtained in present study indicates that amount of proteins 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).

**Table: Protein content in *Stilesia sp.;* infected intestinal tissue and Normal intestinal tissue of *Ovis bharal*.**

| Protein contents (mg/gm wet weight of Tissue) | | |
|---|---|---|
| ***Stilesia sp.*** | **Infected intestinal tissue of *Ovis bharal*** | **Normal Intestinal tissue of *Ovis bharal*** |
| 2.98 | 4.12 | 4.88 |

**Graph: Graph showing protein content in *Stilesia sp.;* infected intestinal tissue and Normal intestinal tissue of *Ovis bharal*.**




A lot of work has been done on the biochemical composition of cestodes. Some recent studies include Jadhav et.al., 2008; Nanware et. al., 2012; Bhure et. al., 2012,2013; Pallewad et al., 2014; Bhure et.al., 2015; Nanware and Bhure,2019.

Finding of present study are in agreement with previous study of Nanware and Bhure,2019 who reported proteins content in *Ptychobothrium sp.* is lower (2.87 mg/gm) as compared to protein present in infected intestinal tissue of *Mastacembelus armatus* (3.78 mg/gm) as well as in normal host intestinal tissue of *Mastacembelus armatus* (4.24 mg/gm). 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). 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.,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). 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). 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). Jadhav et.al., 2008 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.

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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