

Studies on protein profile of *Ascaridia galli* and its host *Gallus gallus domesticus*

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Abstract

The present investigation deals with the protein content in nematode parasite *Ascaridia galli* and its host tissue i.e. normal and infected intestinal tissue of *Gallus gallus domesticus*. The result obtained an amount of protein content in the present study indicates that the amount of proteins present in nematode parasites is low as compared to protein present in infected intestine as well as in normal intestine.

Keywords: *Ascaridia galli*, *Gallus gallus domesticus*, Protein Content.

INTRODUCTION

Parasitology has developed in to a multi-dimensional approach in helminth research. They serve as valuable models for the study of fundamental biological phenomena, since many species of parasites during their life cycle undergo remarkable morphological and biochemical adaptations related to different environments. *Gallus domesticus* (Linn, 1758), i.e., domestic fowl an important economic source of human population, is at danger due to *Ascariasis*. It infects the intestine in such large numbers to cause the complete stoppage of the bowel as reported by Sprehn, (1930). The presence of even 4-5 worms in chicken and 15-20 worms in adults is of considerable pathogenic importance as reported by Mocsy, (1931). Much of the interest in parasite biochemistry comes from the way in which the various pathways have been modified to suit the highly specialized parasitic mode of life. In addition to this intrinsic interest parasite biochemistry has great practical importance through different production. As the production of vaccines against the nematode parasites necessitates routine in various cultures and for this the biochemistry knowledge is very important. Livestock animals like domestic fowl, *Gallus domesticus* have a great Socio-economic importance than other animals domesticated by humans. It is an important item of human food as well as the source of income due to the production of meat, fiber and other substances. 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 parasite. The main significance of the proteins is their role in the structural make up of the body rather than in the gaining of the energy. Proteins play a very important role in the production of energy by acting as catalysts for various metabolic processes. The importance of proteins held in their specificity in differentiating an enzyme with other or functionally differentiating an organ from another. Yet they are important in the structural body make-up

MATERIAL AND METHODS

Some intestines of *Gallus gallus domesticus* were brought and these intestines were dissected for the infection of parasites. The nematodes were collected washed thoroughly in distilled water, few of them fixed in glycerol for identification. The taxonomic observation turns then to *Ascaridia galli*. The Protein content was determined by the Lowery's Method.

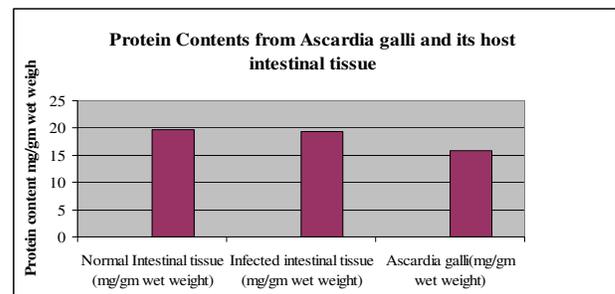
RESULTS

Proteins are the most abundant organic molecules in cells constituting 50 percent or more of their dry body weight. They are found in every part of every cell. The main significance of the proteins is their role in structural make up of the body rather than in the yield of the energy.

Table. Comparative chart of protein content in Normal host intestinal tissue, Infected Intestinal tissue and their parasite.

Protein Content (mg/gm wet weight)		
Normal Intestinal tissue	Infected intestinal tissue	<i>Ascaridia galli</i>
19.77	19.33	15.88

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



Graph. Graph showing protein content in Normal host intestinal tissue, Infected Intestinal tissue and their parasite.

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DISCUSSION

The amount of proteins present in nematode parasites is lower as compared to protein present in infected intestine as well as in host normal and infected intestine.

The similar result also reported by Jadhav et.al. from *Davainea shindei* amount of protein present in *Davainea shindei* 13.20 mg/mg wt. of tissue where as in host intestine is 15.42 mg/mg of tissue. The distribution of protein content shown in the present study is an agreement with the result of Jadhav et.al. (2007), Nanware et.al. (2010), and Bhure et.al. (2011).

In parasitic helminthes, the protein usually constitute between 20– 40 % of the dry weight (Sharma 1979) but values, as high as 70% of the dry weight have been reported for *Macranchorhynchus hirudinaceus* and the infective larvae of *Nippostrongylus brasiliensis* (Barrett 1997) the female parasites showed higher level of amino acid than the males (Barus 1998) the total protein content of Acanthocephalon parasites *Pallisentis nagpurensis* shows the female parasites were having higher protein content than males.

They also determine soluble, insoluble protein and free amino acids in adult *Pallisentis nagpurensis* that is soluble protein in female body 40.1 ± 4.2 where as in male is 20.2 ± 3.0 , in soluble protein is 54.2 ± 4.2 in female and 30.2 ± 3.0 in male and free amino acid is $4.05 \pm .05$ in female where as 3.10 ± 0.42 in male body.

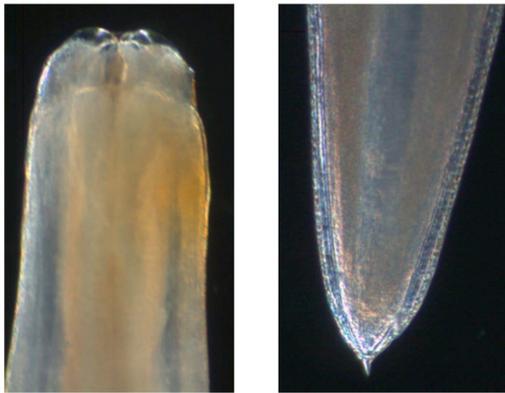


Fig. Microphotograph of *Ascardia galli*

CONCLUSION

The present study concluded that, the amount of protein is low in nematode parasite than infected intestine and normal intestine of host. As well as the difference in the protein content of the parasite is due to the difference in diet.

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