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Biochemical estimation of protein and lipid profile of *Aliezia hircusae* sp. Nov. from *Capra hircus*

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Abstract
The present communication deals with the study of protein and lipid content of the cestode *Aliezia hircusae* sp. Nov. infecting the *Capra hircus* from Kaij, District Beed, M.S., India. The protein content of the worm is estimated from the whole body by Gornall *et al*. (1949) method whereas the lipid content of the worm is estimated from the entire body by Barners and Black Stock method, 1973.

Keywords: Protein, lipid, *Aliezia hircusae*, *Capra hircus*

Introduction
It has been observed that the normal diet of vertebrate contains a part of the protein in the intestine, which provides nourishment for the cestode. The process of diffusion and transfusion takes up proteins. These worms utilize different protein degrees to produce energy like nature and are eligible to adapt themselves to the protein metabolism. These parasites excrete amino acids as their end product. Protein metabolism as a factor of adaptation of helminthes to parasitism was studied by many researchers and worked on serum proteins in animals, naturally infected with parasitic helminthes. The lipid metabolism in cestode has been worked by gas chromatography and column chromatography. In cestode the synthesis of lipid is only studied in *H. diminuta.* The lipids are generally divided into simple lipids comprising the fats and waxes.

The cestode of fatty acids comprising the phospholipids and glycolipids are also included in this. There is considerable variation in lipids from species to species and the degree of lipid content. The lipid content of some species that grows in the different host may vary substantially. *H. diminuta* (Ginger and Fairbairn, 1966) [2] from Hamessten contained 9.5% lipid (dry weight), and those from lungs even rats 16.5% lipid (dry weight). In *H. diminuta* the lipids tend to be more abundant in the most posterior proglottids

Vykhrestyuk, Yorygina and Nikitenko (1877) worked on *R. tetragona* and concluded that helminthes are capable of manufacturing specific lipids from the hosts fatty acids Nigam and Premvati (1980) worked on the effect of the host diet on the fatty acid composition of *C.sdigonopora* and R. *fuhrmanni*. The other scientists who have worked are Barrett, Korting, lipid percentage varations according to the seasons of *Stilesia luperi* from *Ovis bharal* were worked out by Jadhav *et al.* (1985) [9].

Material and Methods
Five intestine s of Capra hircus were brought into the laboratory and dissected carefully. The small pieces of infected tissue of the intestine were made to find out the protein content of it. The cestodes from the infected intestine were collected and observed under a microscope. The identical worms were sorted out, a few of them were fixed in 4% formalin for identification. These worms were later stained with Harris haematoxylene stain & identified as *Aliezia hircusae* sp. Nov.

The estimation of the protein content of the cestode parasites was carried out by Gornall *et al.* (1949) [3] method. For the lipid estimation parasites of various hosts were kept separately and intestines of various hosts were also kept separately in previously weighed watch glasses. This material was taken on a blotting paper to remove excess of water and then it was weighed on a sensitive balance to obtain the wet weight of the tissue. The tissue was then kept in the oven at 80^0c, till it dried completely.

The tissue is then powdered in a mortar and pestle and preserved for further studies. Lipid content was estimated by Barners and Black stock method, 1973.

Discussion and Result

Protein: The identical worms were dried on the blotting paper and taken the wet weight of the tissue. Then the material was transferred in a previously weighed watch glass and kept at 100^0c for three days. Then taken a dry weight of the material and prepared the powder. The material was weighed at 350 mgs on a sensitive balance and was grinded in mortar and pestle to form fine homogenate 5 ml of 10% TCA solution was added to the solution and centrifuged for ten minutes at 2000 RPM, discarded the supernatant liquid and residue is taken in a test tube, then added 1 ml of distilled water and 3 ml of Biuret solution. The test tube was kept for half an hour until the lavender color developed. Then this color was observed to be red on a colorimeter with a 530 mu filter to note the optical density of colored protein from the obtained value.

The amount of protein in the worm was calculated by the formula-

$$\frac{\text{O.D. of unknown tissue}}{\text{O.D. of known tissue}} \times \frac{\text{mg of protein X 1000}}{\text{weight of tissue taken}}$$

Where-

O.D. of unknown tissue = 0.36

O.D. of unknown tissue = 0.48

Mg of protein = 10

Weight of tissue taken = 340 mg

$$\frac{0.36}{0.48} \times \frac{10 \times 1000}{340}$$

The protein present in the host intestine was 30.87 mg/ gm weight of tissue was also estimated by the same procedure. The obtained results showed that the intestine possesses 30.87 mg/gm of the weight of tissue protein. The result, when compared showed that the *Aliezia hircusae* observed 22.05 mg/gm wet weight of protein from the environment, which contained 30.87 mg/gm of the wet weight of tissue. Hence concluded that the *Aliezia hircusae* sp.nov. Could maintain a good balance of protein content.

Lipid: The lipid content of the cestode parasite and their hosts are as fallows-

Parasite	Mg/100	Host	Mg/100mg
Aliezia hircusae sp.nov.	20.56	*Capra hircus*	20.15

The lipid content of the parasite is very high as compared to their host.

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