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Biochemical studies of aliezia tapeworm in goat Capra hircus

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Abstract
Parasitic biochemistry is a field growing in parallel with the new surge of interest in tropical diseases. has great practical importance through chemotherapy and vaccine production and in understanding of the complex association involved in the host parasite relationship. Bio-molecules such as protein, glycogen and lipids are determined in parasites and also infected and noninfeintestine of host. Results, after comparison between cestode parasites and host intestine, the protein and glycogen concentration is lower in *Alieza* Sp. as compare to host intestine (infected) and lipid concentration is higher in *Aliezia* Sp. as compare to host intestine (infected). Present investigation deals with the biochemistry (Protein, glycogen, lipid) of parasite *Aliezia* in ruminants *Capra hircus.*

Keywords: biochemistry, cestodes, *capra hircus*, *aliezia*

Introduction
India's livestock sector is one of the largest in the world and accounting for 26.40% and goats *Capra hircus* plays an important role in economy (Anonymous, 2012) [1].
Goat rearing is a tribal profession of nomads and many other farming communities in Parbhani city. Goats contribute to the substance of small holders and landless rural poor. Goates due to improper management and unhygienic conditions are suffering from various parasitic infection ranges from acute diseases frequently with high rates of mortality.
Biochemistry is the study of structure, composition and chemical reactions of substances in living systems. Parasitology has developed into a multi-dimensional approach in helminth research. They serve as valuable models for the study of fundamental biological phenomena. The biochemistry and physiology of Cestode has been comprehensively reviewed by Smyth and McManus (1989) [16] and specific aspects have been reviewed by Barratt (1981), McManus (1987) and McManus and Bryant (1986).
Glucose is an important source of energy for cestodes, inhabiting the alimentary tract of vertebrates (Mishra *et al* 1991). Cestodes possess stored carbohydrate metabolism, with enormous amount of stored carbohydrate (Daugherty 1966, Fairbairn, Markov 1939 and Read et Rothman, 1957 b) [14]. Cestode parasites stores relatively large quantities of polysaccharides, which in most cases has been assumed to be glycogen (Read 1949b and Reid 1942) [13, 15]. Proteins have many different biological functions. They are ubiquitous in their distribution and there is really no satisfactory scheme of classifying them. The largest groups of proteins are the enzyme proteins provide rich environment for the nourishment of cestodes. The cestodes utilize different degrees of protein for producing energy. Literature reveals that the parasites able to adapt themselves to the parasitic mode of life, only due to protein usually constitutes between 20 and 40 % of the dry weight have been reported (John Barrett 1981) [8]. The higher content of lipid is found in older proglottids (Brand and Van T. 1952). It is revealed from the present study that there is high content of lipids in the parasites and also the parasites are taking advantage of host and absorbing most of the nourishing material. The present investigation deals with the biochemical studies of *Aliezia* cestode in ruminants *Capra hircus*.

Material and Methods
The worms were collected from the alimentary tract of *Capra hircus* and then washed with distilled water. Collected worms were dried on the blotting paper keeping them to remove excess water and transferred to watch glass and weighed on sensitive balance. After 50-60 C^{o} for 24 hrs, the dry weight was also taken. The estimation of protein content in the cestode parasites were carried out by Lowry's method (1951) [10], the glycogen estimation were carried out by Kemp *et al*. (1954) [9] method and lipid estimation by Folch *et al* (1957) [6] method.

Result and Discussion
In the present investigation, Cestode parasites i.e. *Aliezia* sp. was carried out for biochemical estimation of biomolecules such as protein, glycogen and lipid. It shows that the protein content of worm *Aliezia* sp. obtained 32.14 mg/g weight of tissue protein where as infected intestine of ruminant *Capra hircus* obtained 42 mg/g weight of tissue from above result it is concluded that the worm *Aliezia* maintain a good balance in protein content with the host *Capra hircus*. Protein content is lower in cestode parasites as compare to host. The glycogen content of *Aliezia* sp. obtained 24.35 mg/100 ml of solution. Where as infected intestine of ruminant *Capra hircus* obtained 32.27 mg/100 ml of solution. While the lipid content of *Aliezia* sp. obtained 36.00 mg/ gm of weight of tissue. Where as infected intestine of goat, *Capra hircus* obtained 22.12 mg/gm of weight of tissue. From the present experimental study it has been observed that the percentage of lipid is high in parasites as compared to protein and glycogen. These parasites absorbing most of nourishment from host and fulfilling its need and causing hindrance in the proper development of host (B. V. Jadhav *et al*. 2008) [7]

Table 1: Biochemical estimation of ruminant *Capra hircus* intestine and cestode i.e. *Aliezia*

Name of parameter	Host infected intestine (*Capra hircus*)	Cestode Parasite (*Aliezia* sp.)
Protein	42.00mg/gm. wt. of tissue	32.14mg/gm. wt. of tissue
Glycogen	32.27mg/ 100ml of sol	24.35mg/ 100ml of sol
Lipids	22.12mg/gm	36.00 mg/gm

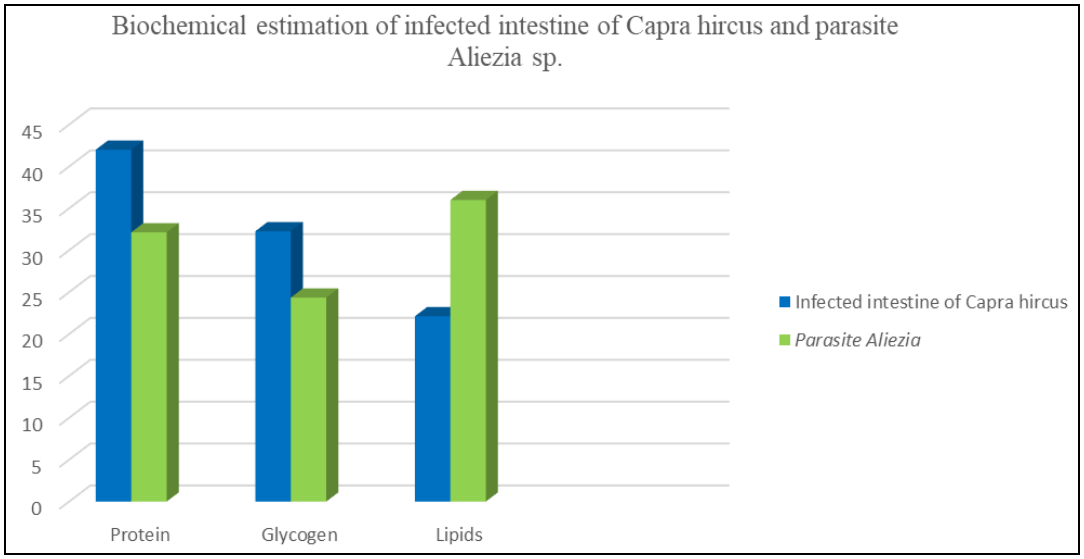

Fig 1

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