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# Studies on Biochemical Contents of *Stilesia Sp.* (Cestoda: Anaplocephalidea) in *Capra Hircus* (L.) from Nashik Region

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**Abstract:** ***This study investigates the biochemical content of the parasite Stilesia sp. in the goat species Capra hircus from the Nashik region. The research reveals that the parasite has a higher glycogen percentage compared to protein and lipid. The study provides insights into the impact of the parasite on the hosts nutritive value, contributing to our understanding of host - parasite interactions.***

**Keywords:** *Capra hircus*, intestine, parasites, biochemical contents.

## 1. Introduction

Helminthes parasite is the major concern in relation to animal Helminthes parasite affects the nutrient status of host by causing increased nutrient loss, decreased food intake and nutrient absorption (Edirishinghe & Tomkin, 1995). The metabolic process of the host depends on the food, feeding habits and the rich nourishment available in the gut of the host. These parasitic worms use this nourishment for their growth and development. The worm getting nutrition from the host's gut by highly specialized metabolically active body surface (Smyth and McManus, 2007). Gastrointestinal cestodes are the most pathogenic parasites in *Capra hircus* in tropical and subtropical areas. The Parasitism, especially by helminthic parasites, impairs health by causing inappetance, diarrhea, anemia and in severe cases death (Kumar et al., 2015a). The helminth infections of gastrointestinal tract of small ruminants not only cause direct adverse effect on the health leading to morbidity and mortality but also indirectly effect economically involving cost of treatment and control of parasites (Nwosu et al. 2007). Previous investigations made in different regions along the length of the strobila of tapeworm reveal regional differences in morphological and anatomical features (Andersen, 1975; Thompson et al., 1980), chemical composition (Roberts, 1961; Mettrick and Cannon, 1970; Rani et al., 1987a, b) nucleic acid levels (Bolla and Roberts, 1971; Mettric and Cannon (1970) and gene expression (Bo et. al., 2012). Literature reveals that the parasites able to adopt 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). The higher content of lipid is found in older proglottids (Brand and Van T 1952). The present investigation deals with biochemical study of protein, glycogen and lipid content in intestine and cestode parasites like *Stilesia* of *Capra hircus*from Nashik region.

## 2. Materials and Methods

Goat intestine were brought to the laboratory and dissected carefully. Host intestine and cestodes were collected for powder. The cestodes were placed on the blotting paper for removing excess of water and the material was kept in oven for drying at 58° to 60°C for twenty - four hours. With the help of mortar and pestle the powder was prepared for biochemical estimation.

Cestode parasites from the infected intestine were collected and observed under the microscope. Identical worms were sorted out; few of these were fixed in 4% formalin for taxonomical study. These were later stained with Harris Haematoxylin and identified genus as *Stilesia.* The worm, infectedhost tissues and normal intestinal tissue were blot dried using blotting paper. After determining the weight samples were placed in hot air oven at $80^0$ C for 24 hours. Thenthe dried materials were ground to a fine powder using mortar and pestle. Dried powder of each stage was used for the estimation of protein, carbohydrate and lipid. The estimation of protein content in the cestode parasites were carried out by Lowry's method, Carbohydrate was estimated using the Anthrone reagent (Roe, 1955) and lipid estimation by Folch et al., (1957) method.


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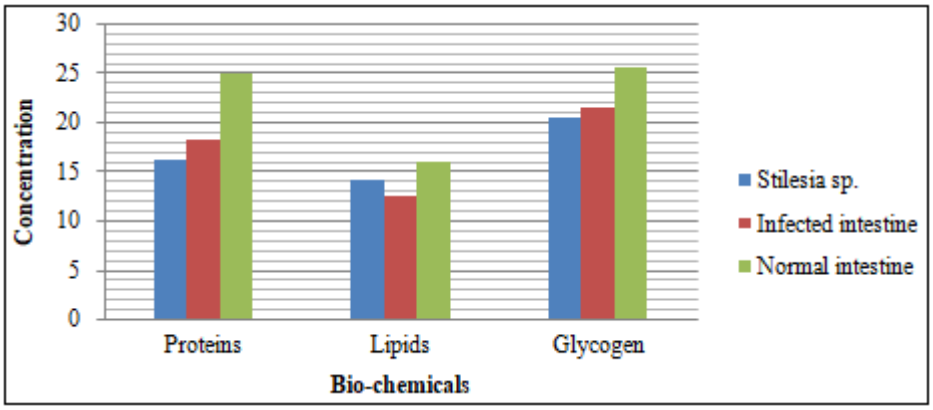
## 3. Observation Table

**Table 1:** Biochemical estimation of *Stilesia* sp. from *Capra hircus* (L.)

| Sr. No. | Name of Biochemical | *Stilesia* sp. | Infected intestine | Normal intestine |
|---|---|---|---|---|
| 1. | Proteins | 16.30 mg/gm. | 18.20mg/gm. | 25 mg/gm. |
| 2. | Lipids | 14.10 mg/gm. | 12.60 mg/gm. | 16 mg/gm. |
| 3. | Glycogen | 20.60 mg/100 gm | 21.50 mg/100 gm | 25.60 mg/100 gm |




**Graph 1:** Biochemical estimation of *Stilesia* sp. from *Capra hircus* (L.).

## 4. Result and Discussion

Biochemical estimation in cestode parasites i.e. *Stilesia*, Infected host intestine, Normal intestine are shown in table no.1. The protein content was very high in normal intestine 25 mg/gm as compared to infected intestine 18.20 mg /gm. And in *Stilesia* worm it was 16.30 mg/gm. The lipid content was very high in normal intestine 16.00 mg/gm as compared to infected intestine 12.60 mg /gm. And in *Stilesia* worm it was 14.10 mg/gm. The Glycogen content was very high in normal intestine 25.60 mg/100 gm as compared to infected intestine21.50 mg /100 gm. And in *Stilesia* worm it was 20.60 mg/100 gm.

From this biochemical study we observe that the percentage of protein is high in *Stilesia* parasites as compared to lipid and glycogen. Protein content in worm16.30 mg/gmwt of tissue, Lipid content in worm is14.10 mg/gm while Glycogen content worm is 20.60mg/100mlof solution. From the above biochemical examinations we concluded that the protein percentage is higher in parasite as compared to lipid and glycogen. The same finding has been reported by Shinde (2002), Humbe (2011) and Sonune (2012) in *Ovisbharal* and *Capra hircus* respectively These worm absorb most of nutrients from host and fulfills its regular growth needs and responsible for hindrance in the proper development of intestinal and body tissue (Jadhav et al., 2008).

## 5. Conclusion

The study reveals that the parasite Stilesia sp. in Capra hircus has a higher glycogen percentage compared to protein and lipid. This finding enhances our understanding of the biochemical interactions between parasites and their hosts, which could have significant implications for the treatment and management of parasitic infections. Further research is needed to explore these interactions in more detail and to investigate their impact on the health and wellbeing of the host species.

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