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RESEARCH PAPER

Assay of activity levels of lipase in *Ascaridia galli*

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ABSTRACT

Lipids are heterogeneous group of related compounds. All of them are relatively insoluble in water and soluble in solvents such as ether, chloroform and benzene. Lipids are important constituents for an animal body as they serve both in structural makeup and in energy yielding. But in parasites there is good deal of difference in the mode of procurement of these important metabolites. They may be available to them in digested or semi digested state. The role of lipids and their composition in parasites is of special significance in order to suit their metabolic pathways under diverse habitats. Further study was undertaken to understand lipid metabolism in *Ascaridia galli* which is avian round worm found in Nanded(M.S.) India

Key words : Activity levels, Lipase, *Ascaridia galli*

In the light of significant importance of lipid metabolism, it has become very essential to under stand the content, composition and the fate of the lipase in the worms the present study in *A.galli.* A survey of the literature indicates that there are several references for the determination of content of lipase, lipids and their constituents by biochemical methods. Based on such methods, it is reported that the phospholipids ,unsaponifiable matter, glycerides and fatty acids constitutes major lipid fractions in helminthes the lipid content has been worked out on several parasites

It is an enzyme that takes part in the hydrolysis of lipids converting them into fatty acids and respective alcohols several workers have reported its presence from many helminthes parasites. In nematodes they have been demonstrated in the intestine by Rogers, (1941), Carpenter, (1952) and Lee, (1958). Besides, Mandlowitz, (1960) have also reported tissue lipases through with unknown significance, in the tissues of nematodes. Matssuura, (1966) reported a lipolytic enzyme from the tissues of *A.lumbricoides.* However, there is information on the content of this enzyme, which possibly will give a clue about the degradation of the lipid material and its subsequent utility to the parasite. As no information is available about this enzyme in the worms of the present study, the author attempted to estimate the enzyme content in the both the sexes of *A.galli*.

MATERIALS AND METHODS

The method of the Cherry and Crandall (1932) was followed for the determination of the lipase activity.

20% to 30% homogenates of male and female worms, prepared in distilled water, were used for the assay after two-fold dilution of the supernatants, the tests and the controls were prepared, each with 1ml of the supernatant. The enzymes in control tubes was denatured by boiling for 1 hrs at 100° C in water both after they were cooled to room temperature 0.5 ml of (0.2ml) phosphate buffer (pH7.4) and 0.5 ml of olive oil emulsion were added to both control and test samples. Both the sets were left in an incubator, at 37° C for 24 hrs. at the end of incubation the reaction was stopped by addition of 3ml of 95% ethyl alcohol (v/v) following this 2 drops of 1% of phenolphethalein was added. The test and controls were titrated against 0.05 N sodium hydroxide to a permanent pink color. The difference in the quantity of sodium hydroxide, for each set of test and controls, was noted to calculate the lipase activity. The enzyme activity was expressed in lipase units / 24 hrs / 100 mg tissue.

RESULTS AND DISCUSSION

The result of the present study are available in the table. The resuls reveal that the enzyme content in male and female worms of *A. galli.* are 0.88 ± 0.15 and 1.14 ± 0.15 lipase units / 24 hrs / 100 mg tissue, respectively. The data further indicates that the enzyme activity is more in females by 22.8% as evidenced by male to female ratio of 0.77.

Table 1 : Lipase activity (lipase units / 24 hrs / 100 mg tissue) in male and female round worms of *A.galli*

Sex	Content*	Male to female ratio	Percentage difference
Male	0.88 ± 0.15	0.77	22.8
Female	1.14 ± 0.15		

* values are mean of 6 samples