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MR Siva Sai Kumari
Department of Zoology, The
Adoni Arts & Science College,
Adoni, Andhra Pradesh, India

Lipase activity in *Allodapa suctoria* (nematode) and in *Anonchotaenia gaugi* (Cestode)

MR Siva Sai Kumari

Abstract

Lipase which hydrolyses triglycerides to diglycerides further to monoglycerides and finally to glycerol have been reported in helminth parasites. The lipase activity was demonstrated titrimetrically in *Anonchotaenia gaugi* and *Allodapa suctoria*. The results obtained showed that lipase activity was present in both the helminth parasites and were comparable to the values reported by other workers on helminth parasites. The functional significance of lipase in helminth parasites have been discussed.

Keywords: Carcass characteristics, weaner pigs, meat quality, palm kernel cake

1. Introduction

Lipids in general, but triacylglycerols in particular have a high energy content that is largely released in a utilisable form on hydrolysis. This hydrolysis is catalysed by lipases.

Triglyceride + H₂O Lipase ----- diglyceride + fatty acid

Lipases are detected in many tissues and organs of mammals, i.e., heart, brain, muscles, arteries, kidney, pancreas, adipose tissue and serum. Lipases were also reported in plants and micro-organisms, gastric and intestinal lipases are also known to occur.

The recent studies on lipases are in a number of parasitic helminths qualitatively and quantitatively are listed here in cestodes: *Hymenolepis diminuta* (Bailey and Fairbairn, 1968)^[1], *Cotugnia digonopora* and *Raillietina tetragona* (Reddy, 1981), and *Avitellina Centripunctata* and *Stilesia globipunctata* (Patwari 1981). Lipases were also reported in the intestinal tract of some nematodes (Rogerr, 1941, Carpenter, 1952, Lee, 1958)^[2, 6].

In the present investigation, an attempt have been made to study the lipase activity in two avian parasites i.e., *Allodapa suctoria* and *Anonchotaenia gaugi*.

Materials and methods

Anonchotaenia gaugi and *Allodapa suctoria* are avian parasites. They were selected for present investigation. Birds were sacrificed in the laboratory. The intestine were then cut open and the parasites were flushed into saline water to remove and adhering mucus and food particles. Generally, mature and live worms of same size and length were taken for biochemical studies.

The parasites then transferred to Whatman's Filter No. 1 to remove the adhering moisture then the parasites were weighed and homogenised for the experiment.

The enzyme activity of lipase was determined by the method of cherry of Crandall (1932)^[4].

Results

The lipase activity in *Allodapa suctoria* was 0.30 units/ml of extract while 0.48 units/ml for *Anonchotaenia gaugi*. The lipase activity of *Anonchotaenia gaugi* was slightly higher than that of *Allodapa suctoria*.

Correspondence
MR Siva Sai Kumari
Department of Zoology, The
Adoni Arts & Science College,
Adoni, Andhra Pradesh, India

Table 1: The Lipase activity in *Allodapasuctoria* and *Anonchotaeni agaugi*

S. No.	<i>Allodapa suctoria</i>	<i>Anonchotaenia gaugi</i>
1.	0.4	0.4
2.	0.3	0.5
3.	0.2	0.6
4.	0.5	0.4
5.	0.1	0.7
6.	0.3	0.3
Mean	0.30	0.48
S.E. +	0.07	0.05

Values expressed as units/ml of extract

Discussion

The results obtained showed that the lipase activity was present in both parasites. When these values were compared with the values obtained by Patwari (1981) in *Avitellina Centripunctata* and *Stilesia globipunctata* ranging from 0.990 to 0.398 units/ml extract: Also in *Cotugnia digonopora* and *Raillietina tetragona* ranging from 1.25 to 1.64 units/ml extract by Reddy (1981) and the values obtained by Geeta (1985)^[5] in *Ascaridia columbae* was 0.50 units/ml extract.

Catabolism of Lipids in parasitic helminths are less important and are also in energy source.

Cestodes and Nematodes appear neither capable of de novo synthesis of long chain fatty acids, nor they can introduce double bonds into absorbed chains. It is clearly seen that greater part of the metabolically inert lipids are stored in the parenchyma until the proglottids are shed (Lumsden and harrington 1966, King and Lumsden, 1969).

Hence, without a clear knowledge of lipid metabolism in helminth parasites it would not be possible to assess the functional significance of lipases to the parasites.

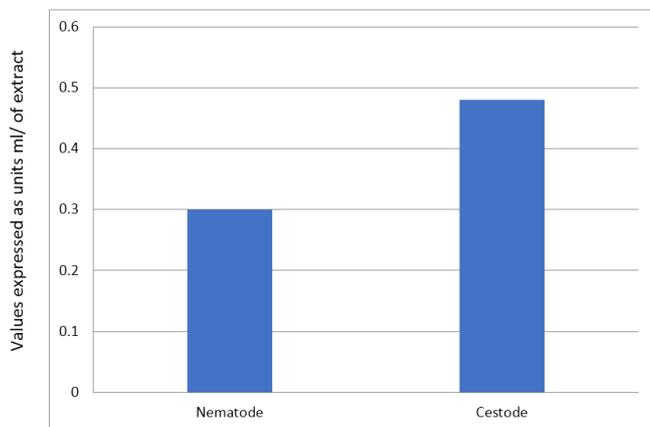


Fig 1: Lipase activity in *Allodapa Suctorid* and in *Anonchotaenia Gaugi*

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