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UPTAKE AND RELEASE OF 1-C^{14} PALMITATE BY THE FAT BODY OF THE BEETLE *CYBISTER CONFUSUS*

SEVERAL observations on lipid release and transport add credence to the opinion that diglycerides are released from the fat body into haemolymph so that they can be absorbed by the muscles.[1–4]. However, there are also other evidences that triglycerides and free fatty acids are the lipid components released from fat body of certain developmental stages of insects[5–7]. That the fat body of the *Cybister* beetle contribues its lipid store during beetle's flight as well as during its swimming activity has been very well demonstrated[8–9]. The short *in vitro* experiments when a fat body is incubated in haemolymph, the outlined in the present experiment are meant to obtain information on the nature of lipid release into the haemolymph from the prelabelled fat body of th *Cybister* beetle.

About 400 mg of fat body collected from a number of adult male *Cybister* beetles maintained in the laboratory were used. The method of Wlodawer *et al.*[5] was followed to label the fat body with 1-C^{14} palmitate (Sigma, USA). Extraction of the labelled lipids from the fat body and haemolymph as well as their separation by thin layer chromatography into individual glycerides and free fatty acids was essentially similar to that described elsewhere[9]. Release of glycerides in different haemolymph concentration was determined by diluting the original haemolymph with a known quantity of Ringer's solution (with or without bovine serum albumin).

The results obtained in the present investigation are summarised in Tables I and II. During initial period of 30 min, the major radioactivity was recovered from free fatty acids (FFA) while moderately less from diglyceride (DGL) and triglyceride (TGL). However, in subsequent periods of incubation lasting for 120 min, the major radioactivity was obtained from the TGL. The mechanism by which fatty acids are incorporated into glycerides in insect fat body is unknown[10]. Several investigators have shown that

TABLE I

Uptake and release of 1-C^{14} *palmitate by the fat body of the* Cubister *beetle*

Lipid fraction	Uptake (cpm × $10^3/\lambda$min / μ moles equivalent radioactivity)		Release (cpm × 10^3/min)	μ moles equivalent radioactivity
MGL	2±0·018	0·05	..	..
DGL	8±0·03	0·2	5±0·02	0·125
TGL	50±0·135	1·25	31±0·3	0·77
FFA	15±0·04	0·375	12±0·12	0·3

TABLE II

Release of glycerides and FFA from the prelabelled fat body of the Cybister *beetle in different incubation medium*

Incubation medium	cpm × 10^3/min			
	MGL	DGL	TGL	FFA
Ringer sol.	..	..	0·86±0·001	2·8±0·03
Ringer sol. with bovine serum albumin	..	..	0·88±0·001	3·0±0·01
Haemolymph + Ringer sol. (1 : 1)	1·0±0·002	5·0±0·12	31·00±0·23	12·0±0·035

DGL-content of the haemolymph raises[1-4]. However, ...ea—After it is incubated in the Ringer's solution, the ...rof. Raman, Sri ...level is not observed. It may be seen from ...n, the Raman ...lts (Table II) that FFA was released more ... when the latter tissue was incubated in the K... ...d in ...ution with or without bovine serum albumin. On the other hand the labelled fat body, when incubated in the medium containing haemolymph, considerable radioactivity was obtained from TGL fraction of the medium. The requirement of specific haemolymph lipoprotien for the release of DGL has been suggested[11], although the nature of the association between released DGL and the lipoprotein is uncertain. Paled and Tietz[11] have recently reported a haemolymph protein which enhances incorporation of DGL into lipoprotein. It is possible that in the *Cybister* beetle a similar type of protein may be present in the haemolymph which facilitates the release of TGL from the fat body.

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INTERNATIONAL CONFERENCE ON POLYPLOIDY: BIOLOGICAL RELEVANCE

An International Conference on POLYPLOIDY: BIOLOGICAL RELEVANCE will be held at Washington University (St. Louis) May 24–27, 1979. Cytotaxonomists and cytogeneticists in botany, zoology, and agriculture will find a broad range of lectures and workshops by world-renowned scientists who will discuss plant and animal evolution, and agricultural crops in relation to polyploidy. Anyone desiring a brochure outlining the Conference and a registration form should contact Walter H. Lewis, Department of Biology, Washington University, St. Louis, Missouri 63130, U.S.A.

AWARD OF RESEARCH DEGREES

Andhra University, Waltair, has awarded the Ph.D. degree in Applied Mathematics to Sri Vallurupalli Balaprasad.

Kakatiya University, Warangal, ha awarded the Ph.D. degree in Chemistry to Sri P. Raghunath Rao; Ph.D. degree in Zoology to Sri C. Janaiah and Smt. M. Kameswari.

Karnatak University, Dharwad, has awarded the Ph.D. degree in Botany to Sri K. K. Joshi; Ph.D. degree in Mathematics to Sri P. S. Hiremath.

Sri Venkateswara University, Tirupati, has awrded the Ph.D. degree in Mathematics to Sri I. Chandra Mohan; Ph.D. degree in Zoology to Sri A. M. K. Mohana Rao.

Utkal University, Bhubaneswar, has awarded the Ph.D. degree in Botany to Sri Ratnakar Mohanty; Ph.D. degree in Chemistry to Sri Krishna Chandra Singh.

Tamil Nadu Agricultural University, Coimbatore, has awarded the Ph.D degree in Agriculture to Sri B. M. Eswaran and Sri R. Govinda Rao.