operation. An increase in CA area to a normal, after reimplantation of ovary has also been reported[11].

Thus it is concluded that ovaries definitely control the activity of the corpus allatum which in turn regulates the metabolism of lipids in the fat body of *P. pictus*. Testes in males of this grasshopper have almost the same effect as ovaries in females though the rate of metabolism is slow in them. This may be due to the fact that testes require less lipids for the development than do the ovaries.

I am grateful to Prof. R. S. Saini for his valuable advice and to Dr. Y. N. Sahai for his keen interest and constant encouragement throughout this study.

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THE EFFECT OF X-IRRADIATION ON CHOLESTEROL CONTENT OF GUINEA PIG LIVER, ADRENAL AND TESTIS

THE accumulation of lipid droplets in the cytoplasm of different cells, such as hepatocytes, myocardiocytes and adrenal cells in many disease states and in different experimental conditions has been reported[1]. When related to the action of noxious agents, the accumulation of lipd droplets is referred as "fatty change"[1]. The interrelationship between the lipids and carbohydrates in the irradiated tissues is of particular interest. The increased glycogen content in X-irradiated guinea pig tissues is reported[2]. Since cholesterol alterations might reflect metabolic changes which occur following irradiation, it was thought desirable to undertake a biochemical study of the cholesterol content in normal and X-irradiated guinea pig tissues.

Normal adult male guinea pigs (*Cavia porcellus* L.) weighing 350–400 g were used in the experiments. They were maintained in temperature conditioned laboratory on standard feeds (Hindustan Lever Ltd). Since the irradiation almost eliminates feeding activity, the animals were starved for 22–24 hr before being killed. The animals under light ether anaesthesia were X-irradiated between 11 A.M. to 1 P.M. in the thoracic region by copper K alpha lines (Phillips model). The skin target distance was 20 cm, at 40 kV and 20 mA. The dosage employed was 24 R/sec. and measured with a Victoreen dosemeter. The total dose was 240 R X-irradiation. The method of Pearson *et al.*[3] was used for the estimation of cholesterol. Tne concentration of cholesterol was estimated in liver, adrenal and testis of control and X-irradiated (24, 48 and 72 hrs) guinea pigs and the values were expressed in mg/gm fresh weight of the tissue.

The results are presented in Table I. A minimum of six replicates were done for each tissue and treatment. Each group consisted of 6 animals. The data was statistically analysed and represented as ± S.E.M.

Liver : In liver, the cholesterol content increased significantly at 24 hrs ($P < \cdot001$) and tapered to normal level at 48 and 72 hrs after irradiation.

Adrenal : In adrenal, after initial reduction, the cholesterol content reached normal values by 48 hrs and again decreased as much as by 30% at 72 hrs of post-irradiation.

Testis : In testis the cholesterol content showed reduction at 24 hrs but the concentration gradually

TABLE I

Showing cholesterol (mg/gm fresh tissue weight) in liver, adrenal and testis of normal (sham irradiated) and 240 R X-irradiated (at 24, 48 and 72 hrs) guinea pigs

	Liver	Adrenal	Testis
Normal	7±0·08	6·0±0·30	5±0·13
24 hours	13±0·42*	5·1±0·28	3±0·18
48 hours	6±0·24	6·5±0·59	4±0·10
72 hours	8±0·19	4·2±0·23	7±0·47**

The values are ± S.E.M. of six replicates.
P values * < ·001, ** > ·05.

increased a 48 hrs and about 40% increase was noticed at 72 hrs after irradiation.

In the present study liver cholesterol showed marked increase at 24 hrs after 240 R X-irradiation. In liver early post-irradiation period is characterised by (i) increased lipogenesis and (ii) an accumulation of glycogen accompanied by gluconeogenesis[2, 4–6]. Enhanced lipogenesis and glycogen accumulation occur after irradiation because more substrate for these metabolic processes is made available as a result of tissue breakdown. Substrate utilization for synthesis rather than for oxidation predominates during the post-irradiation period because adaptation to the state of starvation in irradiated animals is restricted to nonoxidative enzymes.

Irradiation causes a stress response in the body and stimulates synthesis of steroid hormones *via* the hypothalamic-pituitary system. The decreased content of cholesterol after irradiation in early phases probably reflects an increased demand for cortical secretions or increased ACTH secretion by pituitary leading to decreased adrenal ascorbic acid and cholesterol content[7–8].

Testicular cholesterol serves as a raw material for the formation of important hormonal substances, and is the main substrate for androgen biosynthesis[9], the level of androgen secretion is governed by a preceding accumulation of cholesterol. Pollock[10] found cholesterol in the interstitial cells of guinea pigs, mice and rabbits and suggested a relationship to testosterone content. The present investigation has, however, shown increased cholesterol content at 72 hrs after 240 R X-irradiation. Kochar and Harrison[11] also observed increased cholesterol after 6 days in mouse testis following 1000 R X-rays. As it is known that Leydig cells secrete testosterone, it would appear that they are radiosensitive since they manifest biochemical changes due either to a direct effect of X-rays on cells, or to disturbance of gonadotrophin secretion.

The authors express their gratitude to Dr. N. M. Pandya, Department of Physics, for the use of X-ray machine. The author JMB is thankful to CSIR, New Delhi, for the financial assistance.

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FIRST REPORT OF THE MALE OF *MYLONCHULUS MULVEYI* JAIRAJPURI, 1970 (NEMATODA: MONONCHIDA)

MALES are extremely rare in the genus *Mylonchulus* (Cobb, 1916) Altherr, 1953. *Mylonchulus mulveyi* described by Jairajpuri[1] from females is a very widely distributed species in India and other regions of the world[2]. In June, 1977 in a soil sample collected from around the roots of citrus plants from Dharamsala, Himachal Pradesh, a single male of this species was recorded for the first time and it is described here.

Dimensions

L = 0·89 mm; *a* = 26; *b* = 2·9; *c* = 22; buccal cavity = 22 × 11 μm; tail = 41 μm.

Description

Body ventrally arcuate upon fixation and tapering towards extremities. Cuticle smooth, 3 μm thick