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On the fecundity and fertility of *D. melanogaster* irradiated at third instar larval stage.

It has been reported that the effect of X-irradiation on the mutation rates differs depending on the different stages of germ cells. Paying attention to this point, we investigated the fecundity and fertility of *D. melanogaster* irradiated at third instar larval stage. Using the

Seoul strain collected and established in 1954, male and female third instar larvae were irradiated with 1500 r of X-rays. The crossings were performed with the flies of 4-5 hour-old in four groups; (1) control-group A (2) irradiated female x normal male-group B (3) normal female x irradiated male-group C (4) irradiated female x irradiated male-group D.

F₁ flies whose parents were irradiated at third instar larval stage were treated at the same stage with the same dose. Also the crossings were made as described above. The results were shown briefly in Table 1. It was fully demonstrated that 1500 r of X-rays reduced fecundity, but there were no significant differences among the irradiated mating groups of parents. Observations on the rate of emergence, however, indicated that remarkable differences occurred among the X-irradiated mating groups of F₁ flies.

It is interesting to note that recovery from radiation damage in parent flies was not observed, but a certain tendency of repair processes in F₁ flies was apparent.

Table 1. The mean number of eggs laid, adults emerged and percentages of eggs to become adult per female for 30 days.

Generation Group	Parent (Treated)				F ₁			F ₁ (Treated)		
	A	B	C	D	B	C	D	B	C	D
Egg	951.49	192.12	187.00	190.60	347.34	404.96	314.16	195.08	191.98	202.77
Adult	741.97	116.86	93.70	84.07	207.64	191.94	153.30	86.28	74.82	78.92
Per cent	78.77	60.82	50.11	44.01	64.87	47.39	47.80	44.23	40.80	38.92

Chaudhuri, Anjana Rai. Department of Zoology, University of Calcutta, 35, Ballygunge Circular Road, Calcutta 19, India. Lipo-protein nature of the so-called vacuole in salivary gland cells of the mutant "fat" in *Drosophila melanogaster*.

Slizynski (1964) reported the presence of a vacuole-like body in salivary gland cells of the mutant "fat abdomen" (ft, 2: 12.0) in *Drosophila melanogaster*. Appearance of this vacuole-like body is accompanied by an initiation and increase of puffing activity in various regions of the salivary chromosomes. Slizynski has further shown

that the vacuoles appear more frequently in the distal than in the proximal cells of the gland and in salivary gland cells of larvae grown in low yeast medium than those grown in enriched medium. Both in squash preparations as well as in histological sections the vacuoles appear morphologically very much like the nucleolus, although of much larger size than the latter and like the nucleolus they are not at all or negligibly stained by aceto-carmine-acetic orcein. They appear more or less homogeneous and appear to be bound by a membrane-like structure.

Various standard staining methods have been applied in order to identify the cytochemical property of the vacuolar content in these mutant salivary glands. The reaction is negative to Feulgen and Methyl green - Pyronin Y and also to PAS, Alcian blue and Toluidine blue. On the other hand Mercury bromphenol blue technique for proteins shows definite positive reaction for these bodies, but Millon's technique for protein (Tyrosine containing) gives negligible reaction. Finally, while the Sudan Black reaction for bound lipid is reasonably positive, that for free lipids is also indicative of such lipids in these bodies. These results suggest that the so-called vacuoles in the ft salivary glands may be in fact "lipo-protein bodies" bound by a membrane-like structure.

Reference: Slizynski, B. M. 1964 Cytologia 29: 330-336.