X cytology of Lefevre (Schalet, Lefevre, and Singer, 1970) has indicated that su(f) is located in hD of the mitotic X and division 20 of the polytene X. Accordingly, this locus should show a high frequency of X-ray-induced "mutation" long known for loci placed by rearrangements, close to polytene division 20. When y^+ sc^8 $su(f)^+$ mal^2 f ♂♂ were treated with 4,000r and crossed to y ac In49 v f mal^1 su(f) ♀♀, the following incidence of whole-body changes were observed among 2,900 ♀♀ offspring derived from sperm utilized during the first 6 days of egg laying: 12 $su(f)^-$; 7 y^- ac^-; 4 y^- ac^- $su(f)^-$. In addition there were 9 y^+ ac^+ v mal ♂♂ derived from a deleted X, but only 1 of these was $su(f)^+$. The use of the su(f) marker, as in the above experiment, in conjunction with y, ac, bb and the lethal loci localized to division 20, should prove to be a useful tool in the analysis of the "fine-structure" of induced breakpoints in division 20.

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Lakhotia, S.C.[1] and A.S. Mukherjee. University of Calcutta, India. Hyperactivity of the polytene X-chromosome in male D. kikkawai and D. bipectinata.

The functional morphology and the transcriptive activity of the polytene X-chromosome in male and female Drosophila kikkawai and Drosophila bipectinata have been examined. Both the species belong to the melanogaster species group and while D. kikkawai (related to D. montium, Burla, 1954) has an acrocentric X, D. bipectinata (related to D. ananassae, Patterson and Stone, 1952) has a submetacentric X-chromosome, displaying a long (XL) and a short (XR) arm in the salivary gland nuclei. In both the species, the single X-chromosome in larval salivary glands of male is pale stained and is, like that in D. melanogaster, as wide as the paired autosomes or the two X's in female. H^3-uridine autoradiography shows that in both the species, the relative rate of RNA synthesis by the single X of male is similar to that by the two X's of female. The data on grain counts are presented in Table I. The results indicate

Table I. H^3-uridine Incorporation in Male and Female Salivary Gland Nuclei

SEX & SPECIES	MEAN NO. OF GRAINS ± S.E.			MEAN GRAIN RATIO ± S.E.	
A. D. kikkawai	X	3R		3R/X	
Female (16)	233±22	141±13		0.61±0.015	
Male (18)	293±33	195±24		0.65±0.016*	
B. D. bipectinata	XL	XR	3L	3L/XL	3L/XR
Female (11)	242±25	162±27	257±27	1.05±0.03	1.56±0.07
Male (12)	115±19	72±12	113±22	0.98±0.04*	1.62±0.06*

* Ratios in male are non-significantly different from corresponding ratios in female. Numbers in parentheses indicate the number of nuclei examined.

that: (a) the enlargement and pale staining of the single X-chromosome in larval salivary glands of male is of general occurrence in the genus Drosophila; (b) despite the changes in the configuration and organization of the X-chromosome in these species (that have taken place during their evolution, see Patterson and Stone, 1952), the hyperactivity of the male X, and therefore, dosage compensation for X-linked genes (Lakhotia, 1970; Lakhotia and Mukherjee, 1970), has remained unchanged. (Work supported by UGC Fellowship to S.C.L.).

References: Burla, H., 1954 Rev. Brasil. Biol. 14: 41; Lakhotia, S.C., 1970 Ph.D. thesis, University of Calcutta; Lakhotia, S.C. and A.S. Mukherjee, 1970 J. Cell Biol. 47: 18 Patterson, J.T. and W.S. Stone, 1952 Evolution in the genus Drosophila, MacMillan & Co., N.Y.

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