

these epithelial cells (Sidhu, 1973, unpublished). No details regarding formation of the trophocyte cells could be obtained by the study of the testicular wall. The total thickness of the wall of the vesicula seminalis is 3  $\mu$  approximately.

References: Afzelius, B. 1959, *J. Biophys. Biochem. Cytol.* 5:269-278; Andre, J. 1961, *J. Ultrastruct. Res.* 5:86-108; Imms, A.D. 1951, *A General Text Book of Entomology* (Methuen & Co., London); Kiefer, B.L. 1966, *Genetics* 54:1441-1452; \_\_\_\_\_ 1968, *Genetics* 60:192; \_\_\_\_\_ 1970, *J. Cell Sci.* VI (1):177-194; Sidhu, N.S. 1963, Ph.D. Thesis, Univ. of Edinburgh; \_\_\_\_\_ 1970, *Ind. J. Hered.* 2:15-38; Sjostrand, F.S. and B.A. Afzelius 1956, *Exp. Cell. Res.* 14:268-285.

Miglani, G.S. and R. Parkash. Punjab Agricultural University, Ludhiana, India. Effect of certain chemicals on salivary chromosomes of *Drosophila*.

The effect of five chemicals, namely, ethylmethane sulphonate (EMS), methylmethane sulphonate (MMS), diphenethyl alcohol (DPA), hydroxylammonium sulphate (HAS) and maleic hydrazide (MH), was studied on salivary chromosomes of *D. melanogaster* (Oregon-K stock), through induction of

chromosomal aberrations. The chemicals were mixed with food and fed to the larvae. Chromosomes were examined for aberrations in fully grown third instar larvae. Inversions were almost the only type of chromosomal rearrangements induced and hence their frequency was considered as a measure of chromosomal damage.

Table 1 shows the number of inversions observed. Out of 35 inversions observed in larvae fed with EMS, eleven were in X, four in 2L, six in 2R, nine in 3L and five in 3R chromosome.

Table 1. Distribution of inversions induced by EMS, MMS, DPA, HAS and MH.

Chemical	No. of larvae	Total no. of inversions induced	No. of observed and expected* inversions induced										Aberrations/100 larvae		
			X		2L		2R		3L		3R				
			Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.			
Control	90	Nil	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00
EMS	113	35+1**	11	6.57	4	6.23	6	7.01	9	6.41	5	8.30	31.86		
MMS	66	16	4	3.04	0	2.88	3	3.24	1	2.96	8	3.84	24.24		
DPA	115	48	1	9.15	4	8.66	10	9.74	16	8.91	17	11.54	41.74		
HAS	84	35+1***	0	6.84	0	6.49	13	7.21	11	6.88	11	8.54	42.86		
MH	75	10	1	1.87	0	1.78	2	2.00	2	1.83	5	2.37	13.33		

\* Calculations explained in text

\*\* Translocation

\*\*\* Deletion

MMS induced sixteen inversions: four in X, three in 2R, one in 3L and eight in 3R chromosome. DPA induced 48 inversions: one in X, four in 2L, ten in 2R, 16 in 3L and 17 in 3R chromosome. HAS induced 35 inversions: 13 in 2R, 11 in 3L and 11 in 3R chromosome. MH induced ten inversions: one in X, two in 2R, two in 3L and five in 3R chromosome. Surprisingly, MMS, HAS and MH did not affect 2L chromosome and HAS did not affect the X chromosome, suggesting thereby specificity of different mutagens. One translocation and one deletion were also induced by EMS and HAS, respectively. HAS induced the highest frequency of inversions (42.86%) and it was followed by DPA (41.74%), whereas, EMS, MMS and MH induced 31.86%, 24.24% and 13.33% of inversions respectively. In addition to the number of the observed inversions induced by each chemical in a particular chromosome, Table 1 also depicts their expected numbers. The expected numbers were calculated by applying the formula  $a/b \times c$  where 'a' is length of a particular chromosomal arm, 'b' is total chromosomal length of the complement and 'c' is the total number of inversions induced by a particular chemical. Comparison of observed and expected numbers reveals that in no case these numbers coincide, indicating that induction of aberrations is not a random event.

A comparative analysis of percentages and distribution of the inversions induced by these chemicals in different chromosomal arms depicts that each chemical affects different parts of the genome differently and that a specific chromosome or its specific segments are affected differently. Mutagen selectivity refers to not only specific arms but also to specific parts in each chromosome.