Murnik, M. Rengo and M.R. Bhaktual. Western Illinois University, Macomb, Illinois. The lack of mutagenicity of the herbicide 2,4,5-T in D. mel.

Phenoxyacetic acids cause chromosomal aberrations in higher plants[1], and recent studies have shown that the phenoxyacidester 2,4,5-T is teratogenic in mammals[2]. The health implications of the widespread use of this herbicide are obvious, but the genetic hazard it presents has not yet been determined. The "Muller-5" method was used to test the mutagenic activity of 2,4,5-T on Oregon-R wild type. The dosage tested was 4.8×10^{-4}g/ml in modified Carpenter's medium[3]. This approaches the highest dosage tolerable for completion of the life cycle. Very small dosages of this herbicide are teratogenic and cause chromosomal disturbances in Drosophila[4]. Treated males did not exhibit a sex-linked recessive lethal rate significantly different from that of the control. Using y^+Y^{BS} males, 2,4,5-T was also tested for the induction of chromosomal loss and nondisjunction. The rates of nondisjunction and sex chromosomal loss in the treated and control groups were not significantly different.

References cited: 1. Croker, B.H. 1953 Bot. Gaz. 114:274-283; 2. Courtney, K.D., D.W. Gaylor, M.D. Hogan and H.L. Falk 1970 Science 168:864-866; 3. Carpenter, J. 1950 DIS 24:96; 4. Davring, L. and M. Sunner 1971 Hereditas 68:115-122.

Khovanova, E.M. Research Institute of Medical Radiology, Academy of Medical Sciences, Obninsk, U.S.S.R. On some features of somatic mosaicism in two stocks of Drosophila simulans.

Somatic mosaicism was studied in heterozygous y w/y^+ w^+ females of D. simulans. In the first series virgin ♀♀ y w/y w were mated with ♂♂ y^+ w^+/Y from laboratory stock 1; in the second series ♂♂ were taken from the stock 2. Yellow mosaic spots were registered on the head and thorax, only macrochaetae were taken into consideration. In the first series 64 heterozygous females out of 7074, i.e. 0.90%, had mosaic spots. In the second series 7357 heterozygous females were analyzed; 270 of them had mosaic spots (3.67%). The difference of frequencies of mosaicism in both series were statistically significant at high level ($\chi^2 > 100$, d.f.=1).

The influence of genetic and nongenetic variables on the frequency of somatic mosaicism was found by some authors, but mostly a uniform or approximately uniform distribution of mosaic spots on different parts of the body was observed.

On the contrary, in our experiments sharply different frequencies of mosaic spots in various parts of the body were registered. Macrochaetae humeralis superior and humeralis inferior appeared yellow in 212 cases of 270 mosaic females (the second series) and in 23 of 64 (the first series), but as for the other macrochaetae, 58 non-humeral yellow spots were found in the second series, and 41 non-humeral yellow spots in the first one. So the difference of frequencies of spontaneous somatic mosaicism concerned only cells of a small imaginal disc, i. e. dorsal prothoracal, and did not concern the frequency of macrochaetae, originated from cells of other discs. In the last case differences are statistically insignificant: $\chi^2=2.287$, $0.10 < p < 0.25$.

The second interesting feature was found in our data. Mosaic by humeral macrochaetae females emerged rather uneven (the second series), while in the first one the time distribution was near to even. Non-humeral mosaics emerged uniformly in both series. As the accounting of females eclosed from pupae was not organized on an every-day basis, only the days group data are given in Table 1.

Further experiments concerning the described phenomena are in progress now.

Table 1.

days of emergence	no. of heterozygous ♀♀	humeral spots	%	other spots	%	series
1-2	3424	11	0.32	19	0.55	1
3-5	2556	6	0.23	17	0.66	1
6-9	1094	6	0.55	5	0.46	1
total	7074	23	0.32	41	0.58	1
1-2	2245	116	5.2	23	1.0	2
3-5	3923	89	2.2	28	0.70	2
6-9	1189	7	0.59	7	0.59	2
total	7357	212	2.9	58	0.78	2