Srám, R. and M. Ondrej. Institute of Hygiene, Institute of Experimental Botany, Prague, Czechoslovakia. Mutagenic activity of some drugs and pesticides.

Recently there was found that mutagenic properties are not limited only to alkylating agents and analogues of DNA bases. Therefore we tested the mutagenic activity of recently synthesized compounds with which man can get in touch.

We have evaluated the mutation frequency in Drosophila melanogaster using the Muller-5 test. The tested substances were injected into the abdomen of flies with a microsyringe. The substances have been applied immediately after solution in 0.4% NaCl in maximum concentrations, which were low or under the lethality or sterility threshold, in the quantity of 0.2 µl per fly. We used a system of two broods, each of them lasting 7 days.

The differences in comparing compounds with spontaneous mutation rate are not significant.

GROUP	COMPOUND	CONCENTRATION in %	BROOD 1	%	BROOD 2	%
drug	5-azanalidixic acid	0.01	679/1	0.15	104/0	
	6-azauracil riboside	0.01	475/0		675/2	0.30
	cyclohexyl sodium sulphamate	1.0	739/1	0.14	582/0	
	emetine hydrochloride	0.1	437/0		461/0	
	5-fluorouracil	0.01	697/0		347/0	
	2-hydroxy-5-fluorpyrimidine	0.01	664/3	0.45	279/0	
	4-hydroxy-5-fluorpyrimidine	0.1	548/1	0.18	628/3	0.48
	β-4-methaxybenzoylbromacrylic acid	0.01	614/0		539/1	0.19
	ypenyl = 5-di-2-chloroethylamino-methyl uracylhydrochloride	0.2	1409/0		491/0	
pesticide	acrylonitrile = vinyl cyanide	0.1	572/2	0.35	725/4	0.55
	diquat = 1,1-ethylene-2,2 dipyridine	0.02	917/1	0.11	404/0	
	methoxychlor = 1,1,1-trichloro-2, 2-methyloxyfenylethane	0.1	1115/0		363/0	
	spontaneous		41928/58	0.14		

Tupitsina, E. M. Institute of Medical Radiology, Obninsk, USSR. On the influence of homologous and heterologous inversions on the frequency of somatic crossing-over.

In order to check the hypothesis on the role of conjugation in mechanisms of somatic crossing-over, the frequency of mosaic spots was studied in D. melanogaster females of the following genotypic consitution: y +/+ sn; +/+, y +/+ sn; Cy/+, y dl-49 +/+ sn; +/+, y M-5 +/+ sn; +/+, and y M-5 +/+ sn; Cy/+. It was supposed, that the more drastically is the conjugation disturbed, the lower should be the frequency of mosaic spots. It was found, that rather a short inversion dl-49 caused a considerably small decrease in the frequency of mosaic spots (12.7 per 1000 in y dl-49 +/+ sn; +/+ females, as compared to 16.8 in y +/+ sn; +/+ females). While, in experiments with Muller-5 chromosome, in which case a considerably more serious disturbance to conjugation could be expected, a sharp drop in spot frequency was observed (1.2 in y M-5 +/+ sn; +/+ females, as compared to 16.8 in y +/+ sn; +/+ females). Heterozygotic inversion in the II chromosome increased the frequency of mosaicism (27.4 in y +/+ sn; Cy/+ females, and 16.8 in y +/+ sn; +/+ females), possibly, due to more favorable conjugation condition in the I chromosome. Be this supposition correct, then in case of the both I and II chromosome heterozygosity (y M-5 +/+ sn; Cy/+ females) the frequency of spots should be higher than in y M-5 +/+ sn; +/+ females. As a matter of fact, the frequency of mosaicism increased in this case from 1.2 to 4.7 (the difference being significant).