Kaplan, W. D. and R. Seecof. City of Hope, Duarte, California. The mutagenic action of Aramite, an acaricide.

Aramite is frequently used in Drosophila laboratories for control of mites. Before embarking upon its use we decided to test it for possible mutagenic action. The results indicate that this acaricide is, indeed, mutagenic.

Fourteen males which developed as larvae on standard Drosophila food containing 0.6% Aramite were mated to 5 M-5 ♀♀ each over a period of three days. From these 14 males 620 F1 cultures were set up, of which 20 were sterile. Twelve lethals were recovered among the 600 chromosomes tested, giving a mutation rate of 2%. The control rate was 0.2%.

Aramite is made by the Naugatuck Chemical Co., Naugatuck, Conn. The active ingredient is 2-(p-tert-butylphenoxy) isopropyl-2-chloroethyl sulfite. (Supported by Public Health Service grant #AI 05038 to R. L. Seecof and #GM 10260 to W. D. Kaplan.)

Seecof, R. and W. D. Kaplan. City of Hope, Duarte, California. The failure of irradiated DNA to produce mutation in Drosophila melanogaster.

Om Parkash reported, Nature 205:312 (1965), that radiated DNA was mutagenic when fed to D. melanogaster. We repeated this experiment, following his reported procedure as closely as possible. We subjected herring sperm DNA (Calbiochem) to 100,000 r of X-rays at 644 r/min at 100 keV, 7 m amp, with filtration equivalent to 0.6 mm of Al. The irradiated DNA was added to a final concentration of 18 mg/ml into a food medium containing sucrose (5%), agar (1%), corn meal (6%), bran (1.5%), and propionic acid to pH 4.5.

In series 1, 1-3 day-old Oregon-R flies (5 pairs) were introduced to treated food in a half-pint bottle and allowed to lay eggs for 12 days at 20°C. Series 2 was the same except that 20 pairs were used and were changed to fresh treated food every 2 days. Adult Oregon-R males, offspring of flies fed upon treated food were mated, each to five M-5 females, for detection of sex-linked lethals.

Series 1 repeats the technique used by Parkash. Series 2 was designed to distinguish between mutations induced in the X-chromosome of the adult females feeding upon treated food for 12 days, and effects upon larval germ cells. Table 1 summarizes the data and shows that the rate of mutation was not elevated above the control rate which is at about 0.2% for our stock. A high sterility characterized the F_1 matings. This, however, is attributable to the males of the Muller-5 stock in use at that time, rather than to an effect induced by the irradiated DNA upon the Ore-R chromosomes. (Supported by Public Health Service grant #AI 05038 to R. L. Seecof and #GM 10260 to W. D. Kaplan.)

Table 1

	Number F_1 matings	% sterile	No. chromosomes tested	Number lethals	% lethal
			Series 1		
	1045	31.3	718	0	--
			Series 2		
Day 1-2	1050	27.7	757	0	--
3-4	1049	8.2	959	2	0.20
5-6	1051	10.6	939	1	0.10
7-8	1095	6.9	1019	2	0.19
9-10	1055	8.0	970	1	0.10
11-12	1050	9.0	956	1	0.10