Paik, Yong K. and Y. Choi. Yonsei University Seoul, Korea. The mutagenic effect of formaldehyde sodium sulfoxylate on male germ cells of D. melanogaster.

The fantastically common use of FSS($HCHO.HSO_2Na$) in processing confectionaries and sugars in this country, and the controversy regarding its use, led us to test its radiomimetric effects. Additionally, it is of general interest from the theoretical view point to compare the spectra of genetical changes induced by FSS with that induced by its parental compound, formaldehyde.

Oregon-R males of Oak Ridge strain which had been made free of pre-existing lethals in the X, 2nd and 3rd chromosomes were taken within a two-hour hatching period, and then were aged one day before treatment. These males were injected intraperitoneally with 0.0004ml of a sublethal concentration of FSS(0.06 M) in a 0.5% NaCl saline solution with the help of an Agla Micro-meter syringe. The treated males were crossed with Ins y^3P;Cy/Pm;D, InCXF/Sb females one day after injection. This stock permits one to test simultaneously for lethals in the X, two major autosomes, as well as for translocations involving either the 2nd or 3rd chromosome or the Y and 2nd and/or 3rd chromosomes. The differential cell stage response was also investigated in the sex-linked lethal test by the 3-day brood technique over a 16-day test period.

The rate of sex-linked lethals were 0.75% in 1095 tested sperms in brood A, 0.48% in 629 sperms in brood B, 0.47% in 638 sperms in brood C, 0.46% in 655 sperms in brood D, and 0.17% in 592 sperms in brood E. The spontaneous rate of sex-linked lethals in the Oregon-R stock is known to exceed 0.04% rarely. The response pattern of developing germ cells to FSS is thus similar to that induced by the injected formaldehyde by Auerbach (1952) and Sobels (1956, 1963) although the absolute rates appear to be considerably lower. The pronouncedly increased rate of lethals in the mature sperms and the significant drop of lethal rate in the spermatogonia are particularly noticeable. The test for lethals expressed as mosaics in the F_3 was also performed for late post-meiotic cells, and the lethal rates were 0.36% in 845 tested sperms and 0.64% in 776 sperms for brood A and brood B respectively.

The frequencies of autosomal recessives tested in mature sperm were 2.3% in 174 sperms and 2.9% in 174 sperms for the 2nd and 3rd chromosome respectively. The control rates of lethal mutations were estimated to be 0.9% in 212 tested sperms for the 2nd chromosome and 1.4% in 212 sperms for the 3rd. When these control ratessare considered, the induced rate of 1.4% is observed for the 2nd chromosome and 1.5% for the 3rd. When the comparisons are made using the present data for sex-linked and autosomal lethals, autosomal rates are approximately twice the comparable sex-linked rate, and this difference corresponds to the cytological length of two types of chromosome.

There were no translocations recovered in 1154 mature sperms tested.

These results indicate that FSS when injected into adult males is weakly mutagenic in Drosophila. With this consideration in mind, the common use of FSS in food processing may be thought to be genetically hazardous in man as well. The results also suggest that adequate utilization of FSS may be of interest at least to some extent in studies on the mutagenic action of formaldehyde, when the possible oxidation-reduction system between the sodium sulfinite part of FSS and hydrogen peroxide.

Rey, Beatriz Molinari. Atomic Energy Commission, Buenos Aires, Argentina. The culture of Drosophila embryonic cells in H-5 medium.

Although various laboratories have now successfully cultured Drosophila embryonic cells according to the method of Horikawa and Fox (Science 145(3639): 1437-1439, 1964), Kakpakov and Gvosdev (DIS 43:142), reported failure to get growth in the H-5 or H-6 media. In fact, their cells failed to live. It was thought of interest, therefore, to report that we have been using H-5 medium in this laboratory with very good results. Growth curves obtained by us for Oregon R cells are quite comparable to those obtained by Horikawa and Fox. The only modifications of the technique concern the egg collecting and handling. For collecting, we use a simplified version of the "ovitron," which is described in Technical Notes of this issue. A device for washing and sterilizing eggs was described earlier (Kirschbaum and M. de Rey, DIS 43: 194).