

Voelker, R. and K. Kojima. University of Texas, Austin, Texas. Relative fitnesses of XO and XY males in *D. affinis*.

Miller and Stone (1962) and Voelker (1967) reported that XO males in *D. affinis* are viable and fertile. This indicates that no essential male fertility factors are present on the Y chromosome of this species. Since the Y chromosome is not necessary for male fertility, the

possibility exists that XO males might be as fit as XY males. To test this possibility, population cages were set up in which the O and Y conditions were permitted to compete on two independently inbred ( $F=0.8$ ) genetic backgrounds. The two genetic backgrounds were derived by eight generations of brother-sister pair matings of flies from a stock which was homosequential for all chromosomes, and carried a small Y chromosome. Subsequently, the O and large Y conditions were introduced into these backgrounds by five generations of backcrosses of males (either O or large Y) to females of the inbred backgrounds, which should have nearly restored the original degree of inbreeding. Two cages were started with each background, one with 75% O- and 25% Y-inseminated females and the other with 75% Y- and 25% O-inseminated females.

The frequencies of the O and Y conditions were determined by making larval ganglion squash preparations of male larvae taken directly from the cages. In all four cages the frequency of the O condition has decreased. This suggests that XY males are more fit than XO males irrespective of the background differences. One cage started with an O frequency of .75 became almost fixed for the Y condition at generation 10. The second cage, started with the O frequency of .75, still has the O frequency of about .10 at generation 14. Thus, there seemed to be some interaction among the backgrounds and the effect of large Y. The third and fourth cages, started with the O frequency of .25, became fixed for the Y chromosome before generation 10.

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Pelecanos, M. and A. Pentzos-Daponte. Department of Genetics, University of Patras, and Department of Biology, University of Thessaloniki, Greece. Rates of spontaneous autosomal recessive lethal mutations in *D. melanogaster* populations of Northern Greece.

The present communication provides the first data ever collected in Greece on the frequencies of spontaneous lethal mutations in *D. melanogaster* populations. It is in this sense a preliminary report of an investigation which is undertaken in collaboration with other research workers.

The data presented here come from three non-isolated places in Northern Greece, namely: firstly, from the University farm in Thessaloniki, capital of Greek Macedonia, secondly, from the village Litohoron, which lies at the foot of the mountain Olympus 117 km. distant from Thessaloniki, and thirdly from the island of Thassos, which is approximately 25 km. S.E. of the port of Kavala (a town of eastern Macedonia, situated at a distance of 163 km. from Thessaloniki). In all three cases the flies were captured during autumn (September-October). Captured males were individually mated with virgin  $Cy L^4/Pm$  females in order to detect in each case the frequencies of second chromosomes bearing lethals.

Table 1. Rates of spontaneous autosomal lethal mutations

Locations	No. of parents tested	No. of chromosomes tested	No. of lethals	% lethals	% of parents which yielded lethals
Litohoron	130	648	149	22.99	92.0
University farm (Thessaloniki)	202	1,860	286	15.37	56.7
Island of Thassos (Limin)	18	274	20	7.30	50.0

Table 1 shows significant differences between the rates of lethals in all cases. Furthermore, tests for detecting reciprocal translocations between the II and III chromosomes indicate perhaps possible differences in different populations. (Litohoron samples had no translocations out of 2,680 gametes tested, while at the University farm we found 2 translocations out of 1,885 gametes tested.) Further investigation on the causes of the differences as well as on the identity of the lethals found are in progress.