EFFECTS OF X-RAY IRRADIATION ON THE REPRODUCTIVE POTENTIAL OF THE ADULT FRUITFLY, *Drosophila melanogaster*

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ABSTRACT

A study on the effect of x-ray irradiation of the adult fruitfly, *Drosophila melanogaster* was conducted to determine the effects of increasing x-ray dosages in bringing about a change in the reproductive potential and to determine which sex is most sensitive. Virgin females and male flies were irradiated with 0, 25, 50, 75, 87, 100kv (kilovoltage) and mated according to the following mating types: (A) irradiated female x non-irradiated male, (B) irradiated male x non-irradiated female and (C) irradiated female x irradiated male. Mating type D (non-irradiated female x non-irradiated male) served as the control. The emergent progeny was then counted for each dosage within 120 hours (5 days) starting from the emergence of the first fruitfly.

Results showed that at 0, 25 and 50kv, there was no significant difference in terms of number of emergent progeny produced after treatment. However, at 0, 75, 87 and 100kv, significant difference was observed. In addition, for each of these dosages (75, 87 and 100kv) a significant difference was also noticed between the three mating types. Irradiating only one parent fly (e.g. male) showed no significant difference when compared to irradiating one parent fly of the opposite sex. On the other hand, irradiating both parent flies showed a significant difference when compared to those wherein only one parent was irradiated. Interaction between mating types and dosages (75, 87 and 100kv) was not clearly established due to inconsistency of results. This could be due to narrowness of dosage intervals.

The reduction in the reproductive potential was interpreted as radiation damage in the germ cells leading to subfertility and eventually lowering the number of emergent progeny produced.