

SECTION D

EFFECT OF GAMMA-IRRADIATION ON THE MALE GERM CELLS IN THE PRE-IMAGINAL STAGES OF THE FILARIASIS MOSQUITO *CULEX QUINQUEFASCIATUS*, SAY

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The mutational response of the male germ cells in pupae, larvae and eggs of *Culex quinquefasciatus* to gamma-irradiation was tested. The percentage dominant lethality in the males emerging from irradiated pre-imaginals was used as the measure of mutational response. The studies also involved a brood analysis for separate screening of the different germ cell stages in the testes.

Pupal irradiation experiments showed that the pupae can withstand gamma-ray doses above 8,000 R and when they were screened for mutations it was observed that the mutation frequency was highest in the first brood and takes a mid value in the second and was at the spontaneous level in the third brood. The induced dominant lethality and the gamma-ray dose was found to be linearly correlated in the first two broods.

The LD₁₀₀ for larvae and eggs were found to be 3,000 R and 2,000 R respectively. Brood analyses of males irradiated below these levels obtained from both these stages did not show significant mutation frequencies in any of the broods.

In adult males the dominant lethality was relatively higher in the first two broods and was almost halved in the third brood¹. All these observations can be explained by hypothesizing that the different germ cell stages in the spermatogenesis respond differently to gamma-irradiation.

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Reference

1. Everard, J. M. D. T. and Ratnayake, W. E. (1980). *Proc. Sri Lanka Ass. Admt. Sci.* 36 (1), 47.