

### ABSTRACT

The study investigated the mutagenicity of non-lethal dose of mercury on the eye color of *Drosophila melanogaster* (fruit fly) by evaluating the first filial generation. Non-lethal dose was established by getting the LD50 (lethal dose of 50% of the population) of the flies to different amounts of mercury. Results showed that 0.05 grams of mercury per 100 grams of banana indicates no mortality for at least 24 hours after the administration of the food diet to the flies. The number of flies at first filial generation showing wild traits and mutant traits were counted to determine the phenotypic ratio of the flies. The expected Mendelian ratio, which was 2 white:2 red-eyed, was not obtained which could prove the possible mutagenic effect of mercury to the flies. The observed results were 3 white:1 red-eyed flies. A significant difference between the observed phenotypic ratio from the expected was analyzed through chi-square test at 0.05 level of significance. Data showed  $\chi^2 = 46.9, 6.22, 55.18$  and  $42.38$  indicating that there was significant difference between the observed and expected outcome. Thus, mercury can cause mutations that can be inherited from generation to generation.