

The Effect of Diet on Several Generations of Fruit Flies (*Drosophila melanogaster*) as Model Organisms for Obesity Experimental Research

by Paramita C. Kuswandi, Kartika Ratna Pertiwi, Tutiek Rahayu

ABSTRACT

Obesity is an important risk factor for the incidence of cardiometabolic diseases such as heart disease and diabetes, a major contributor to mortality and morbidity in Indonesia. The causes of obesity are multifactorial, one of which is the diet of parents which is passed on to their offspring. Fruit fly (*Drosophila melanogaster*) is an organism that has the potential to be a model for research on human disease because it has homologous genes with humans. This study aims to examine the potential of obesity model organisms by looking at the effect of variations in fruit fly food media as a variation of environmental factors on the number and sex ratio and lipid profile in several generations of fruit flies (F1 – F8). The media given was standard, control and high fat diet. The results showed that a high-fat feed medium for fruit flies (*Drosophila melanogaster*) could be made using cornmeal, brown sugar, yeast, coconut oil or palm oil and tegosept . The highest number of adult flies in the F1 generation was obtained from cornmeal media with 3% coconut oil with an average number of 83 adult flies and the lowest was 52 in banana media. More male fruit flies were found in F1 in the 4 types of media used. The highest weight of adult fruit flies in the F1 generation was found in fly samples from banana media with an average weight of 0.0043 grams and the lowest was 0.0035 grams from corn media with 3% palm oil. Further research is still needed on the F2-F8 generation and cholesterol and triglyceride tests.

Kata Kunci: *diet, Drosophila, inheritance, cholesterol, triglycerides*