

Bria Smith

Junior Division Animal Sciences

The Effects of Hydroxymethylfurfural on the Reproduction of Fruit Flies

This project was designed to determine how different levels of hydroxymethylfurfural (HMF) affect the reproduction of fruit flies. Both the numbers of offspring who make it to the adult stage within two days of the first adult to emerge in that particular group and life cycle growth rates were recorded. High-fructose corn syrup was heated at three different temperatures for 18 days, combined with the food prepared for the flies, and added to eight generation 1 cylinders, two cylinders per group. Two male and two female adults were added to each cylinder. They reproduced, and two days after the first generation 1 adult appeared in each group, these adults were mixed among their group and divided into new generation 2 cylinders. Two days after the first generation 2 adult appeared in each group, the adults in that group were counted, ending experimentation for that group. All others ended on the 40th day of experimentation. The generation 1 control group produced adults in the shortest amount of time. All groups finished with similar numbers of adults; however, their growth time in the larval stage varied in direct proportion to the amount of HMF given to the group. In generation 2, the control group produced adults at least four days before all experimental groups with similar reproduction rates as in generation 1. This data indicates the possibility that HMF slows the life cycle growth of fruit flies, but may or may not affect the number of adults eventually produced.