Toxicity Analysis of Multiple Paraben Exposure on Drosophila melanogaster

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Our experimental purpose was to test a combination of paraben types on the pupation and eclosion rate of Drosophila melanogaster. We hypothesized that in Drosophila melanogaster samples exposed to a combination of two paraben types, there would be an observable difference in the rates of pupation and eclosion as compared to single paraben exposure. Our null hypothesis was that there would be no difference in mean rate of pupation and eclosion. To test these hypotheses we performed three trials of a twenty-one day in vivo toxicity analysis using D. melanogaster and four paraben types: methylparaben, ethylparaben, propylparaben, and benzylparaben. We tested each paraben type alone and each combination of two paraben types at a concentration of 100 ug/L, and we added 15 mL of the respective paraben combinations to 15 mL of D. melanogaster medium. We introduced 3 female and 2 male flies to each vial and we allowed them to reproduce for 72 hours, and we then removed them. We recorded the number of pupae and number of flies for 21 days. Our data shows that the difference in the number of flies between the methylparaben and methyl/propylparaben, methylparaben and methyl/benzylparaben, and the propylparaben and the methyl/propylparaben is statistically significant. We can fully reject our null hypothesis and conclude that these paraben combinations cause a different effect on the rate of eclosion of D. melanogaster as compared to single paraben exposure.

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