Silvernano Toxicity in D. melanogaster

Gu, Karen

Nanobiotechnology is a relatively new science field, and today silver nanoparticles are the most common nanoparticles used in industry. Recently, the safety of such materials has been questioned. This study examined flies consuming three different dosages of silvernano (x0.5, x5, x50) in their food and a control group (x0) in two experiments. One experiment (Exp1) tested the effect of silvernano over two generations of flies while the second experiment (Exp2) tested the possible long term effects when the previous generation had grown on food containing silvernano. The hypothesis stated if groups of flies grew on food with different concentrations of silvernano, then the different fertility rates of those groups would indicate which dosages are toxic. Groups of flasks were distinguished by dosage level, and each flask had five pairs of adult flies. Data was collected on the number of emerging pupae and flies until the end of the first generation. For the second generation, Exp1 kept with the same procedure while Exp2 only had normal food. For Exp1, the fertility rate of the x50 group was significantly lower (p-value 0.02) than the control group. The x0, x0.5, and x5 groups had no statistically significant differences. When comparing the fertility rates between Exp 1 and Exp 2, the difference were statistically significant for both the x5 (p-value 0.00085) and x50 (p-value 0.039506) groups. The null hypothesis was rejected since the data supported that higher dosages (x5 and higher) of silvernano had a negative impact on the fertility rate of flies.

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