



## ASSESSMENT OF DEVELOPMENT AND MOTILITY OF *Drosophila melanogaster* EXPOSED TO COLLOIDAL SILVER

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### ABSTRACT

With advancements in biotechnology, new formulations have been developed for applications in medicine, industry, and the promotion of human well-being. Silver is widely used for its antimicrobial properties, especially in wound healing products. However, silver can penetrate cellular barriers and exhibit cytotoxic effects. Colloidal silver, composed of suspended silver particles, has been proposed as a complementary treatment for infections and burns. The main objective of this study was to evaluate the biocompatibility of colloidal silver, provided by Vitali Life (<https://vitalilife.com.br/>), on the development and motility of *Drosophila melanogaster*, aiming to understand potential biological impacts and its safety for future applications. The study exposed first-instar larvae (Canton S) to increasing concentrations of colloidal silver (0.0, 0.25, 0.50, 1.00, 1.50, and 2.00 µg/mL), mixed with the standard culture medium. Over a 10-day period, pupation rates, larval lethality, and daily pupa formation were assessed. Additionally, adult flies were subjected to motility assays after 24 and 96 hours of exposure to investigate potential locomotor alterations. Results indicated that exposure to colloidal silver did not cause developmental delays or increased larval mortality compared to the control group. However, depigmentation was observed in the exposed organisms concentrations at 1.50, and 2.00 µg/mL, likely due to the interference of silver in the melanization process. The motility assays showed that colloidal silver at the tested concentrations did not affect the locomotor behavior of adult flies. It is concluded that colloidal silver, under the studied conditions and concentrations, exhibits satisfactory biocompatibility in *Drosophila melanogaster*, suggesting potential for safe applications. However, further investigations are needed to elucidate the underlying mechanisms and the long-term effects of this substance.