



EFFECTS OF OCTOCRYLENE INGESTION IN A *D. MELANOGASTER* MODEL

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The purpose of this study is to determine if the ingestion of the organic UV-filter Octocrylene affects fitness and brain function using *Drosophila melanogaster* as a genetic model. Octocrylene is an ester formed by the reaction of *o*-3-diphenyl cyanoacrylate with 2-ethylhexanol, and it is widely used in cosmetic products and sunscreens due to its UVB-UVA ray absorption qualities. Octocrylene traces have been found around the world in soil, seawater and fish tissue, and a previous study found Octocrylene in the majority of analyzed breast milk samples. Past research in other models found 2-ethylhexanol vapors to induce nervous system depression in mice and Octocrylene to impair brain genes related to development and metabolism of zebrafish. However, there is little research on Octocrylene ingestion and none using *Drosophila melanogaster* as a model. If the possibility of Octocrylene ingestion is imminent for certain groups of humans, as these past investigations suggest, it thus becomes necessary to assess the possible toxicological risks it could imply. We hypothesize that Octocrylene ingestion will negatively affect fitness and fertility of adult fruit flies. For this, we will examine the effects of Octocrylene ingestion of a range of environmentally relevant Octocrylene concentrations in *D. melanogaster*. We are presently following two objectives, 1) assessing fly mortality through quantifying survival rate and (2) assessing fly fertility by quantifying egg laying rate. Due to the COVID-19 pandemic the project proposal and design was developed remotely during the summer. As on-site lab activities have resumed, we are currently performing the experiments and awaiting for the preliminary results. In view of the scarcity of past Octocrylene research, the character of this study is exploratory but it will focus on genetic and cellular mechanisms that are highly conserved between humans and flies. In conclusion, our project represents the first study to use *Drosophila* as a powerful genetic model to understand the effects of Octocrylene ingestion on fitness and behavioral performance.