Does Using L-PFOS as a Stressor Modify the Effects of Imidacloprid on *Drosophila melanogaster*?

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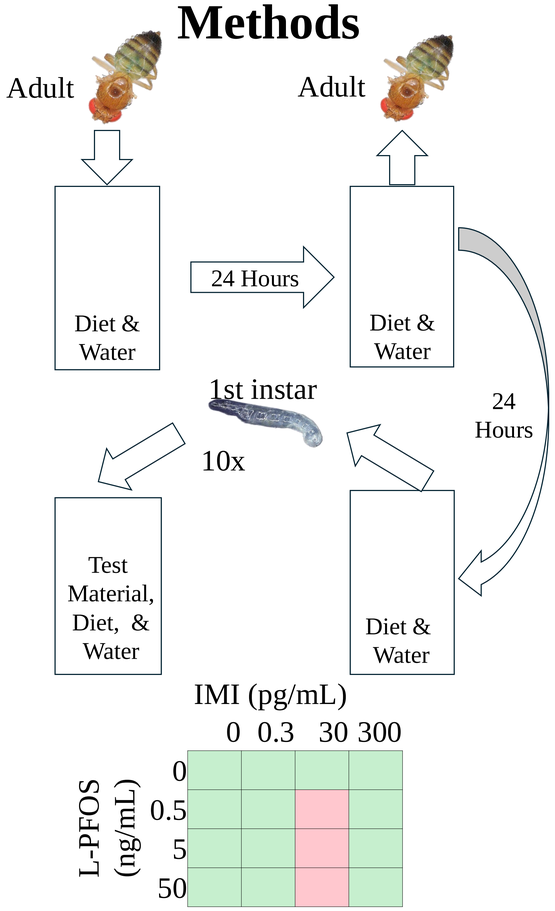
Introduction

- L-PFOS are also called as forever chemicals and are used in nonstick cookware and for waterproofing. It was tested in this study because there is very little research reported on their effects are on living organisms.[1] Imidacloprid(IMI) is an insecticide commonly used in the Red River Valley area.[2]
- *Drosophila melanogaster* was used as the test subject because of their short lifespan and are excellent model organisms.[1]
- **Hypothesis:** IMI will have a modified effect on the larval development in drosophila under stress due to L-PFOS exposure.

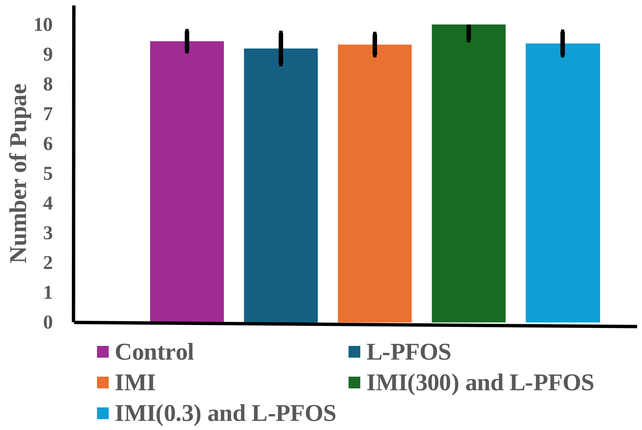
Methods



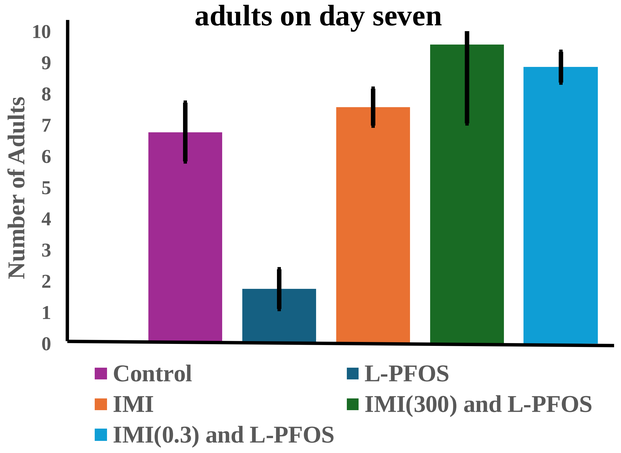
- Green boxes represent the test mixtures that were used and red boxes those that weren't used.
- Excel was used for graphs and Stata/IC v.16.0 was used for data analysis.

Results

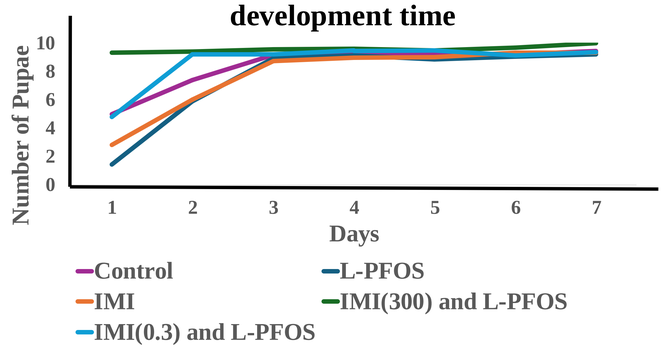
IMI(300) with L-PFOS had the most *Drosophila* that developed to pupae on day seven



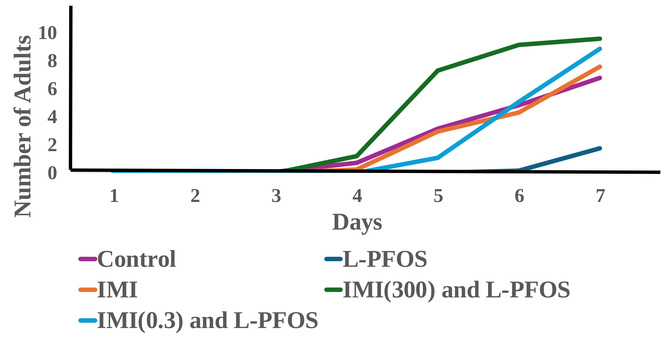
L-PFOS had a significantly smaller number of *Drosophila* adults on day seven



IMI(300) with L-PFOS accelerated the pupal development time



The L-PFOS treated *Drosophila larvae* developed into adults much slower than the other groups



Conclusion

- L-PFOS treated *Drosophila* had a much smaller number that survived to adulthood.
- *Drosophila* treated with both IMI and L-PFOS had a higher survival rate than all the other groups.
- L-PFOS may protect *Drosophila* from the effects of IMI.

Literature Cited

1. Kim, J. H. and all. 2021. Maternal preconception PFOS exposure of *Drosophila melanogaster* alters reproductive capacity, development, morphology and nutrient regulation. *Science Direct* 151: 112153
2. Charpentier, G. and all. 2014. Lethal and Sublethal Effects on Imidacloprid, After Chronic Exposure, On the Insect Model *Drosophila melanogaster*. *ACS Publications* 48:7, 4096-4102

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