

Effect of toxic metals on the marine amphipod *Parhyale hawaiiensis*

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Narrative Summary

Heavy metals are common industry-born pollutants that can cause a variety of mutations in aquatic life if their levels are left unchecked. The purpose of this study is to assess the use of a species of marine arthropod, *Parhyale hawaiiensis*, as a biological indicator of heavy metal contamination. The research objectives were to quantify the lowest concentration of heavy metals at which the biological marker is effective, and to establish a relationship between concentration of heavy metal and gene expression in the amphipod. We predict that higher concentrations of heavy metals would see a higher level of Glutathione-S-transferase gene expression. Additionally, it was predicted that the relationship between concentration of heavy metal and level of change in absorbance (fluorescence levels) would be proportional, therefore as one increases, the other will too. RT-qPCR was used to analyze the effect of incubating neonates of *P. hawaiiensis* in various concentrations of heavy metal pollutants on the glutathione-S-transferase (GST) and 18S ribosomal RNA gene. After trial exposures, it was concluded that diH₂O was not suitable as the medium due to high mortality of neonates. The optimal number of neonates for RNA extraction was determined to be 30.

References

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Bio

My name is Evgenia Kvitko, Eve for shortness and simplicity. I'm a senior majoring in Biology Pre-Med with minors in psychology and chemistry. I'm also a member of the Honors program. I'm originally from Russia, but I live in Ecuador, so I know three languages. Someday I aspire to become a cardiac surgeon, but for now I want to gain the experience I need to get into medical school, which includes research.