LD50 Investigation With Brine Shrimp: Comparing the Effects of COVID Disinfectants With Water Dilution and Brine Shrimp

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In the last two years, COVID 19 has drastically increased the use of household disinfectants across the world. Is the increase of chemicals negatively affecting our environment more than we know? I conducted a toxicity test on Brine Shrimp exposing them to various concentrations of bleach, Lysol, and hand sanitizer. I used 48 petri dishes using 10 brine shrimp in each dish, and different water dilutions for each type of chemical, using 3 petri dishes for each dilution and 4 control group dishes. Every five minutes I checked the death rate of the brine shrimp and documented my results. I continued for 25 minutes. The data collected supported my hypothesis: bleach used as disinfectant was more harmful than the other chemicals tested. Using my data, I created several “dose- response” curves. The Lethal Dose for 50% of the brine shrimp was at around 15 minutes for each chemical but at different chemical doses. The overall average death rate with bleach was 9 brine shrimp, 8.3 brine shrimp for Lysol and 7.4 brine shrimp for hand sanitizer. This experiment is significant because it proves that the COVID chemicals we are using are harmful to our environment and we need to be careful what type of products we are using. Not only will it help save our environment, ecosystems, terrestrial environments, exposer to humans, and potential impacts to human health and safety. There have been studies that bleach and other chemicals can lead to an increase in health issues such as respiratory damage and asthma. Long-term health risks should be furthered studied.

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