

The effects of the chemical agent triclosan on the growth, activity, and pigmentation of the brine shrimp, *Artemia salina*

Chemical agents are found throughout aquatic environments worldwide, creating a potential harmful environment for biota. Triclosan (5-chloro-2-(2,4-dichlorophenoxy)phenol) is an antimicrobial chemical previously used in many personal care products, such as hand sanitizer, shampoo, and soap. Although triclosan is used to kill bacteria, it is known to have multiple toxic effects in aquatic environments. In this experimental laboratory study, the brine shrimp, *Artemia salina*, were exposed to three different concentrations of triclosan (0.15 µg/mL, 0.17 µg/mL, and 0.19 µg/mL). Measurements of their growth and development were collected to assess whether the chemical had positive, negative, or neutral effects. Results indicate there was a significant negative relationship in the length, arm beats, and pigmentation of *A. salina* with the concentration of triclosan, as well as the exposure time. The negative effects of triclosan on *A. salina* may lead to a low reproduction rate, a decrease in mobility, and a population decline, further impacting the *Artemia* species and associated organisms. Overall, the use of toxic chemicals in the environment is a growing concern and further research is necessary to determine future implications.

Advisor: Jessica Muhlin