CASE STUDY 2: impact of Temperature on pesticide toxicity

**Description**

Global climate change is predicted to have significant impacts on ecological interactions such as host-parasite relationships. Increased temperatures may also interact with other anthropogenic stressors, such as chemical contaminants, to exacerbate or reduce parasite transmission. However, studies on the effects of pesticides on non-target species are typically conducted at one standard temperature, despite the toxicity of many agrochemicals being temperature-dependent. Furthermore, most studies assessing the effects of temperature on pesticide toxicity have been conducted on host organisms, limiting our understanding of how temperature affects the toxicity of pesticides to free-living parasite stages as they move through the environment in search of a host. Using the free-swimming cercariae stage of the trematode Echinostoma trivolvis [not important...just google a picture of the parasite and don't waste too much time with it], researchers examined how the toxicities of three different pesticides (a carbamate insecticide, strobilurin fungicide, and triazine herbicide) vary by temperature by monitoring cercarial swimming activity over time.

Source: Hoverman, J. T.; Billet, L. S. (2022). Data for: Temperature affects the toxicity of pesticides to cercariae of the trematode Echinostoma trivolvis. Purdue University Research Repository. doi:10.4231/0QDK-QC11 (https://purr.purdue.edu/publications/3933/1)

**Primary question of interest:** (For each of the 3 pesticides) Did the time to death of the tadpoles differ significantly by temperature?

**Data source:** https://purr.purdue.edu/publications/3933/1

**Dataset:** aquaticToxicity.csv