Dose of a plant-derived volatile cue affects *Arabidopsis thaliana* defense phenotypes

Plants are able to chemically respond to volatile cues from nearby plants experiencing a stress such as herbivory or pathogen invasion. For example, the specific odors of freshly mown grass, called “Green Leaf Volatiles” (GLV), are known to trigger defense responses in undamaged plants. However, little is know about how the dose of the volatile affects the severity of the response. We hypothesized that the degree of defense would be directly proportional to the concentration of the volatile cue. To test this, we used the GLV *cis*-3-hexenyl acetate (z3HAC) and the model plant *Arabidopsis thaliana.* We grew *Arabidopsis* in a growth chamber and performed a factorial experiment with seven different concentrations of z3HAC, where half of each concentration group was given oral secretions of *Spodoptera exigua,* the beet army worm. The oral secretions were intended to generate an induced resistance response. Then, we measured the relative growth rate of a naive cohort of *S. exigua* caterpillars. Volatile dose had an inconsistent effect on caterpillar growth rates that did not reflect our predicted dose-dependent resistance profiles. However, oral secretions did generate resistance in the form of reduced growth rates overall. Our results suggest that dose of a cue is important, but the relationship between dose and response deserves further study.