Section IV
Biological & Cultural Control

VOLATILE INFOCHEMICALS UTILIZED BY THE RUSSIAN WHEAT APHID PARASITOID, *APHELINUS ALBIPODUS* HYATT & FATIMA (HYMENOPTERA: APHELINIDAE) FOR HOST-HABITAT AND HOST LOCATION

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It has been shown that herbivorous insects use plant odors when foraging for their host plant species. Recent studies in the chemical cues utilized by predators and parasitoids have also shown that these organisms implement plant volatile infochemicals to locate their respective host-habitats and hosts. This interaction proves to be quite novel concerning the reliability of the chemical cues provided. The inductive defenses against herbivore damage of some plants result in the production and release of volatile compounds, such as terpenoids. These compounds are believed to have a direct effect on the fitness of the herbivore. Additionally, since the third trophic level uses these induced chemicals as a cue, there is also an indirect defense associated with interaction.

*Aphelinus albipodus* is an introduced parasitoid released in the state of Washington to control the Russian wheat aphid. The objective of the following investigation was to gain insight into the foraging strategies of *A. albipodus*. The working hypothesis is that the wasps use aphid-induced plant chemicals as a reliable cue in foraging for their host. To study this interaction, we implemented a Y-tube design for the olfactometer.

We found that *A. albipodus* does perceive wheat odors and is able to distinguish aphid-infested plants from non-infested plants. Whether this is a response to induced plant chemicals is not yet clear; for when the aphids are removed from the plant after 48 hours of feeding, the parasitoids could not distinguish this from a non-infested plant. Additionally, the parasitoids could not perceive any aphid kairomone when tested in the olfactometer. In collaboration with the Institute of Biological Chemistry, we are currently isolating the volatile chemical profiles of the aphid-wheat complex to determine the circumstance that elicits a response from the wasp.