

7.11 Response of Asian citrus psyllid to aromas emitted by the flushing shoots of their rutaceous host plants in a Y-tube olfactometer.

Sétamou M.¹ and Patt J. M.²

¹Texas A & M University at Kingsville Citrus Center, Weslaco, TX; ²USDA-ARS, Weslaco, TX

The Asian citrus psyllid (ACP), *Diaphorina citri* Kuwayama, relies on the young, flushing shoots of its rutaceous host plants for its reproduction and development. Given the importance of flushing shoots to its life cycle, it is likely that ACP utilizes olfactory cues emitted by different shoot stages in host plant detection, location, and acceptance. Here we provide preliminary results of Y-tube olfactometer tests that indicate that both male and female ACP were attracted to the aromas of flushing shoots. Aromas from the following host plants were tested: grapefruit (*Citrus paradisi* MacFadyen) cv Rio Red, sweet orange (*C. sinensis* L.), lemon (*Citrus limon* (L.) Burm. f.) cv Eureka, and orange jessamine (*Murraya paniculata* (L.) Jack). For these tests, a Y-tube olfactometer (ARS Inc., Gainesville, FL) was oriented vertically with the arms facing upwards. The olfactometer was illuminated with fluorescent lights positioned 30 cm above the olfactometer. Aromas for testing were generated from freshly cut sprigs of flushing shoots placed within a flask connected to the airline system of the olfactometer. To maintain turgor, the cut ends of the sprigs were placed in plastic tubes filled with hydroponic solution. As a control, charcoal-filtered air was passed through the blank arm of the Y-tube. ACP used for the tests were obtained from a colony maintained on orange jessamine at the TAMU-K Citrus Center in Weslaco, TX. ACP were sexed prior to testing and were tested individually. After their introduction into the base of the olfactometer, the insects were given 300 seconds to move into one of the arms of the Y-tube. ACP that did not select one of the arms were scored as unresponsive and discarded. For each host plant-ACP gender combination, insects were tested until at least 30 responded. Male ACP exposed to the aroma of grapefruit sprigs showed the highest response (100%) while the lowest response was observed with female ACP exposed to grapefruit aroma (71%). Of those responsive individuals, 90% of males and 46% of females selected the aroma arm of the Y-tube over the blank arm. For the other host plants tested, the percentages of individuals selecting the aroma arm of the Y-tube were as follows: lemon: 87% male and 73% female, orange jessamine: 77% male and 60% female, and sweet orange: 70% male and 57% female.