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Resistance of *Poncirus* and *Citrus* x *Poncirus* Germplasm to the Asian Citrus Psyllid

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The Asian citrus psyllid (ACP), *Diaphorina citri* Kuwayama, has spread to citrus growing regions nearly worldwide and transmits phloem-limited bacteria (*Candidatus Liberibacter* spp.) that are putatively responsible for citrus greening disease. Host plant resistance may hold promise as a control tactic for ACP, but ACP has a broad host range and resistance in *Citrus* and relatives to ACP has only recently been actively explored. Very low abundances of ACP were found on two accessions of *Poncirus trifoliata* L. in a field survey (Westbrook et al., 2011). Therefore, we tested whether 81 accessions of *P. trifoliata* and x*Citroncirus* sp. (hybrids of *P. trifoliata* and *Citrus* spp.) from the USDA-ARS National Clonal Germplasm Repository for Citrus and Dates were resistant to ACP by determining whether these accessions influence oviposition and lifespan of adults in no-choice tests. There was a higher abundance of eggs on the control (*Citrus macrophylla* Wester) than nearly all accessions of *P. trifoliata*, and zero eggs were laid on 36% of the accessions. Additionally, more eggs were laid on the control than 10 of 34 accessions of x*Citroncirus*. Lifespan of adults was ~2.5-5 times longer on 11 of the 17 trifoliates and trifoliolate hybrids we tested. *P. trifoliata* appears to have both antixenosis and antibiosis resistance to ACP. We have initiated research to identify the specific traits conferring resistance. To identify chemical mechanisms that may promote resistance, we collected volatiles from several pairs of closely related susceptible/resistant accessions of trifoliates and trifoliolate hybrids and found differences in the volatile profiles.

References

Westbrook, C. J., D. G. Hall, E. W. Stover, Y. P. Duan and R. F. Lee. 2011. Colonization of *Citrus* and *Citrus*-related germplasm by *Diaphorina citri* (Hemiptera: Psyllidae). HortScience. 46 (7): 997-1005