

Can We Use an Insect Virus to Control Asian Citrus Psyllid in the Groves?

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Take Home Message:

- Insect specific viruses are present in ACP populations in Florida.
- We are yet to know if any of these viruses are pathogenic to ACP.
- Characterizing the viruses will provide better insight on which one can be used in biological control of ACP in citrus groves.

Effort Statement: We have identified additional new ACP viruses and started to develop insect cell lines to characterize these viruses.

Summary: There is an increased need to reduce growers' dependence on environmentally harmful and non-specific insecticides by switching to more biologically focused control options for Asian citrus psyllid (ACP).

Insect-specific viruses have been proposed as natural and biological alternatives to control ACP or reduce disease transmission to citrus trees. This research project focused on detecting and monitoring the prevalence of previously identified viruses of the ACP throughout Florida. To do that, we utilized molecular techniques (e.g., PCR) for surveying the *Diaphorina citri* associated C virus (DcACV), the *Diaphorina citri* flavivirus (DcFLV), the *Diaphorina citri* reovirus (DcRV), the *Diaphorina citri* picorna-like virus (DcPLV), and the *Diaphorina citri* densovirus (DcDENV) in ACP populations from 21 of Florida's major citrus-producing counties grouped into six regions (A through F, see the figure). These surveys showed

the significant prevalence of DcACV throughout all the regions in Florida, followed by DcPLV. DcRV was the least prevalent virus detected in Florida ACPs. Nevertheless, most of these viruses were consistently detected throughout the year, indicating their persistent presence in this insect. This information can be valuable for choosing which virus to use as a future biological control. That's why we are now studying to learn more about these viruses, better understand why they are there and know if they are pathogenic or specific to the ACP, thus avoiding beneficial insects such as honeybees. Next, we will better characterize these viruses with the help of the ACP cell line we are now developing.

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