CITRUS ADVANCED TECHNOLOGY PROGRAM

QUARTERLY & FINAL REPORTS: Control of Citrus Greening, Canker & Emerging Diseases of Citrus

SELECT PERIOD March 2016

(●) *Quarterly Report* ( ) *Final*

Proposal Title

Application of a natural inducer of systemic acquired resistance and engineering non-host resistance in citrus for controlling citrus diseases

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
11/16/16	Citrus Research and Development Foundation	Transgenic/Metagenomic Mediation of Resistance

REPORT UPDATE (500 words-It is not necessary in this public report to disclose your institution's proprietary information or intellectual property.)

The project has two objectives:
(1) Increase citrus disease resistance by activating the natural SAR inducer-mediated defense-signaling pathway.
(2) Engineer non-host resistance in citrus to control citrus canker and HLB.

We repeated the concentration gradient experiments. A series of concentrations of the SAR inducer, including 0, 0.25, 0.5, 0.75, and 1 mM, were used to treat citrus plants by infiltration and soil drench. The infiltrated leaves and soil drenched plants were inoculated with canker bacterial pathogens 24 hours and 7 days later, respectively. Again, 5 plants were used for each treatment; three leaves on each plant were inoculated; 6 inoculations on each leaf were carried out, and a total of 90 inoculations were used for each treatment. Results confirmed that the strength of canker resistance is concentration dependent in the range between 0 to 1 mM.

We also confirmed the systemic residual resistance activated by the SAR inducer. The SAR inducer-treated plants were cut back and leaves on the new flushes were tested for resistance to canker. As observed previously, canker disease symptom development was significantly delayed on the leaves on the new flushes. This result indicated that the SAR inducer not only activates resistance in the treated leaf tissues, but also in new flush leaves not treated with SAR inducer.

In addition, experiments determining if the systemic residual resistance is conferred by the SAR inducer residue or products induced by the inducer are still ongoing.

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Project Number 754

Project Duration (years) 3 *Year of Project* 3

Total Funds (current year) $123,049.00

Form PR-12 Quarterly Reports **SUBMIT REPORT**

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.