CITRUS ADVANCED TECHNOLOGY PROGRAM

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

▶ INSTRUCTIONS

(●) *Quarterly Report* ( ) *Annual Report* ( ) *Final*

Required: What is the "headline" for this report (e.g. a one-sentence "newspaper headline" describing what you accomplished)

•RNAi-mediated gene knock-down of Citrus transcriptome

Proposal Title

•RNAi-mediated gene knock-down of selected members of 'Candidatus Liberibacter asiaticus' induced citrus transcriptome with CTV based silencing vector to prevent HLB infection of young citrus

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
7/18/14	Citrus Research and Development Foundation	Pathogen/Disease Detection

REPORT UPDATE (500 words; summarize your accomplishments)

Citrus plants showing symptoms of Huanglongbing (HLB) have revealed extensive phloem plugging because of the increased amounts of callose and phloem proteins, potentially interfering with phloem transport. Transcriptome studies of citrus plants with HLB have shown abundant accumulation of transcripts for callose and phloem protein genes compared to healthy plants. Down-regulation of these over-expressed genes responsible for phloem-plugging by RNA interference (RNAi), potentially would negate the disease severity. Towards this end we have cloned a truncated callose7 and phloem protein genes into the CTV silencing vector individually, and in tandem and generated Citrus macrophylla plants expressing RNA against endogenous callose and pp2 genes. Preliminary studies have indicated no accumulation of callose in these plants similar to healthy plants. However, these plants should elicit less callose in the phloem compared to healthy plants. Presently we are using real-time PCR for quantitatively determine the amounts of RNA for callose and PP2 in Citrus macrophylla RNAi plants. In addition, we graft inoculated sweet orange plants with bark patches from C. macrophylla RNAi plants, to determine HLB symptoms in sweet orange RNAi plants upon challenge inoculation HLB.

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Organization IFAS-CREC

Contract Number CATP12 proposal # 728

Project Duration (years) 2 *Year of Project* 1

Total Funds (current year) $96,356.00

SUBMIT REPORT

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.