Florida Citrus Advanced Technology Program

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

Instructions Complete the fields based on your project specs. When finished, save the form to your local disk using a unique name. Then, go to **http://research.fcprac.com**, and log in with your user name and password using Researcher Login in the lower left. Find this project title and click on **Submit a Report**. Update your profile information if needed, then upload this report as directed.

2009-2010 REPORT	CATEGORY (drop-down)	TODAY'S DATE (m/d/yr)
(●) *Quarterly Report* ( ) *Annual Report* ( ) *Final*	HLB Pathology	6/30/09

WHAT IS THE "HEADLINE" FOR THIS REPORT (e.g. a one-sentence "newspaper headline" describing what you accomplished)

Potential hosts and inoculum reservoirs of HLB

TITLE and CONTACT INFORMATION

Proposal Title Alternative Hosts of HLB to Assist in Disease Management

Principal Investigator R. H. Brlansky	*PI Last Name* Brlansky
Email rhby@crec.ifas.ufl.edu	*FDACS Contract Number*
Phone 863-956-1151	*Project Duration (years)* 3 *Year of Project* 1
Organization University of Florida, CREC	*Total Direct Funds (current year)* $205,000

REPORT UPDATE (650 words; provide details about your headline)

The objectives of this work are to 1) investigate the susceptibility of various rutaceous plant species to Candidatus Liberibacter asiaticus (Las), Ca. L. americanus (Lam), and Ca L. africanus (Laf) and the transmission from these hosts to citrus and 2) using a limited number of these hosts determine if passage through alternative hosts affects the biology (pathogenicity) of the pathogen. This work also will determine if certain alternative hosts are better hosts for the suspected HLB bacterial pathogen and can serve as a reservoir for infection to citrus.

During this quarter work was performed at all four investigator locations. At the University of Florida, CREC, alternative plant materials were obtained and PCR tested for Las infection. HLB infected citrus materials to be used for inoculum were propagated in the greenhouse and verified as PCR positive for Las . The materials were used to graft inoculate Severinia buxifolia, Zanthoxylum clava-herculis, Citrus jambhiri and Murraya paniculata. The Murraya (Bergera) koenigii materials were not large or woody enough to graft and were therefore inoculated using infected psyllids. Successful inoculations were done with S. buxifolia, and C. jambhiria. Grafts were not successful with Z. clava-hericulis and are being repeated and there is no data to date on psyllid transmission to B. koenigii. Citrus jambhiri produced symptoms different than those seen in other citrus species. Psyllid transmissions from S. buxifolia to sweet orange and results with the receptor plants is pending. Z. clava-hericulis is not listed as a host of the Asian citrus psyllid, however we have found that the psyllid does feed on this host plant. A graduate student has joined Dr. Brlansky's research program and will focus his research in this area.

At the Texas A&M Citrus Center, Weslaco a collection of eight rutaceous species has been established which include two Amyris species (torch wood), Zanthozylum fagara (lime pricklyash), Helietta parvifolia (baretta), Esenbeckia berlandia, Casimiroa tetrameria and two Choisya species (Mexican orange) and will be tested as hosts for the psyllid. Since HLB is not in Texas some of the plant materials will be shipped to the USDA, ARS, Beltsville, MD for inoculation tests with HLB infected citrus materials.

At the USDA, ARS, FDWSRU, Ft. Detrick, MD Murrraya paniculata, M. exotica and M. koenigii were established in quarantine. Two isolates of Las (from Taiwan and Florida) were obtained from J. S. Hartung at the Exotic Citrus Diseases Collection, USDA, Beltsville, MD and were used in experiments to infect the the plants species listed above. In psyllid transmission tests Asian citrus psyllids transmitted Las to M. paniculata and M. exotica, but not M. koneigii. Disease symptoms rarely developed in Murraya plants, and positive infections were determined by PCR. Back-inoculations from M. paniculata to sweet orange was successful however there was some variability was in infection rates, titer, and persistence of the Las bacterium in M. paniculata. A publication is in preparation.

Work will continue acquiring other rutaceous plants and testing them for susceptibility to Las, Lam and Laf.