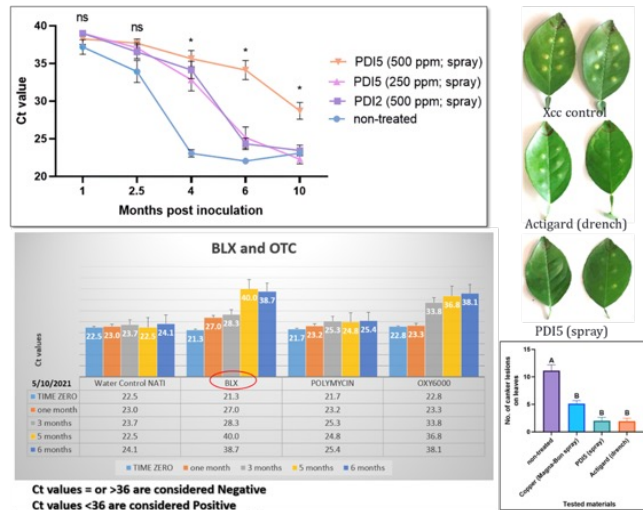


# A Collaborative Approach to Discover, Develop and Commercialize Therapies for Huanglongbing

**Researchers:** Ozgur Batuman, Denise Manker, Kranthi Mandadi, Cristina Davis

**Contact:** Ozgur Batuman, obatuman@ufl.edu

UF/IFAS SWFREC



## Take Home Message:

- The screening pipeline established in this collaborative effort is effectively identifying potential therapeutics for HLB.
- A number of compounds identified were effective in preventing HLB and canker, and some were curative.
- Metabolomic studies allowed us to develop an early and more sensitive detection technique for HLB.

**Effort Statement:** We identified a few more PDIs and antimicrobials that are effective on HLB and citrus canker control.

**Summary:** Researchers from UF/IFAS, Texas A&M, UC Davis, and Bayer Crop Science, situated in Lyon-France, Mannheim-Germany, and California, USA, continue developing effective

therapies for huanglongbing (HLB). A therapeutic screening pipeline was established where thousands of compounds with the potential to control HLB are being screened first in silico and later in laboratory, greenhouse, and field conditions, respectively. In this process, we have already identified compounds of interest that include a class of synthetic plant defense inducers (PDI) and natural antimicrobial extracts that are now being tested for their efficacy in preventing HLB infection of young shoots and slowing HLB infection of new trees. Although some compounds were phytotoxic when used in high concentrations, we utilized the hairy root (laboratory) and greenhouse screening assays to determine non-phytotoxic concentrations. By applying PDI treatments before Asian

citrus psyllid (ACP) colonization to activate plant defense (priming) and prevent bacterial infection, we observed that young flushes were protected from HLB. Some of the preliminary experimental results were encouraging and indicated a substantial delay in HLB infection (approximately 3-7 months) after 2-3 applications. Moreover, some PDIs also were significantly effective in citrus canker control. We are now testing some of these compounds on 2-4-year-old citrus trees in 4 different grove sites in Florida. By analyzing leaves from these treated plants for the metabolomic response, we developed an early and more sensitive HLB detection method, which is now allowing us to better assess the efficacy of our applications without any lengthy delay.

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