

Collaborative Approach Between Academics, Growers, and Agrochemical Industry to Discover, Develop, and Commercialize Therapies for HLB

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Researchers from UF/IFAS, Texas A&M, UC Davis, and Bayer Crop Science, situated in Lyon-France, Mannheim-Germany and California, USA, are continuing work on developing effective therapies for HLB. A therapeutic screening pipeline was established where thousands of compounds with potential to control HLB are being screened first in silico and later in laboratory, greenhouse and field conditions, respectively. In this process, we 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 on preventing HLB infection of young shoots and/or slowing HLB infection of new trees. Although some compounds were found to be 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 ahead of ACP colonization to activate plant defense (priming) and prevent bacterial infection, we observed that young flushes were being

protected from HLB. Some of the preliminary experiment results are encouraging and provided a substantial delay in HLB infection (~3 or more month) after 2-3 applications (see photo). We are now testing some of these compounds on newly established citrus trees in four different grove sites in Florida. We are analyzing leaves from these treated plants for metabolomic response to develop an early and more sensitive HLB detection method, which will allow us to better assess efficacy of our applications without any lengthy delay.

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