10.2 Chemical Compounds Effective Against the Citrus Huanglongbing Bacterium, Candidatus Liberibacter asiaticus In Planta

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Citrus huanglongbing (HLB) is one of the most destructive diseases of citrus worldwide and is threatening the survival of the Florida citrus industry. Currently, there is no established cure for this century-old and emerging disease. As a possible control strategy for citrus HLB, therapeutic compounds were screened using a propagation test system with Las-infected periwinkle and citrus plants. The results demonstrated that the combination of penicillin and streptomycin (PS) was effective in eliminating or suppressing the Las bacterium and provided a therapeutically effective level of control for a much longer period of time than when administering either antibiotic separately. When treated with the PS, Las-infected periwinkle cuttings achieved 70% rooting versus less than 50% with other treatments. The Las bacterial titer in the infected periwinkle plants, as measured by quantitative real-time PCR, decreased significantly following root-soaking or foliar-spraying with PS. Application of the PS via trunk injection or root soaking also eliminated or suppressed the Las bacterium in the HLB-affected citrus plants. This may provide a useful tool for the management of citrus HLB and other Liberibacter-associated diseases.