Huanglongbing detection, gene sequencing and cell wall thickness modification in infected Citrus reticulata after chemical treatments.

ABSTRACT

Huanglongbing (HLB), also known as the citrus greening disease, is a destructive disease that has affected citrus plants in more than 40 countries worldwide. HLB is very difficult to control when the vector is spread in the citriculture areas. As presently there is no effective treatment for the citrus plants infected by the HLB disease, this study investigates chemical treatments using GA3, an antibiotic (Oxi-tetracycline), a foliar fertilizer and a combination of these chemicals to stimulate resistance to HLB in citrus plants. It employs a RCBD design with three replications. Aqueous solutions of the treatments were prepared and sprayed on whole trees and a small dose of antibiotic was injected into the trunks of the trees. Conventional PCR was not able to detect HLB bacteria in T7 but it was detected in all treatments using second conventional PCR. A comparison of the mean thickness of treated plants showed that thick cell walls were found in T4 and T7. A new strain of HLB was identified and registered in the NCBI gene bank database (GU133055) from Terengganu.

Keyword: Huanglongbing; GA3; Antibiotic; Citrus greening disease; Cell wall thickness.