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Loop-mediated isothermal amplification (LAMP) assay for detection of *Candidatus Liberibacter asiaticus* causing the Huanglongbing (HLB) disease

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The HLB (Huanglongbing, Citrus greening disease), caused by bacterial pathogen *Candidatus Liberibacter asiaticus* (CLAs), is the most destructive diseases and a significant threat to citrus production worldwide. Symptoms on the HLB are varied and characterized by splotchy mottling of the entire leaf, premature defoliation, dieback of twigs, reduction in fruit size, premature fruit drop, low content of soluble acids in the juice and a bitter or salty taste of the juice. The HLB is vectored and transmitted by the Asian citrus psyllid, *Diaphorina citri* and grafting from a diseased tree. In this study, we developed loop-mediated isothermal amplification (LAMP) using primers from prophage gene to detect HLB from diseased leaves. The genomic DNA is extracted from the leaves of grape-fruit and sweet-orange infected HLB. LAMP primers were designed based on prophage sequences using the LAMP primer designing software PrimerExplorer. As a result, HLB genes were specifically amplified by using this LAMP assay. This study suggests that this LAMP assay can be applied to specifically and sensitively detect HLB and screen pathogen free seedlings for production of disease-free nursery stock.

Biography

Choi Cheolwoo has worked for Citrus Research Institute in Korea, as a pathologist. He is interested in developing a forecasting model for the occurrence of citrus pests and has been monitoring pest incidents for several years in the field for the model. In addition, he diagnoses the citrus disease with biotechnology method and provides citrus-farmers with services, such as information on citrus pest management and control method. For improving citrus production of a citrus farmer, we also research to produce disease-free nursery stock with various citrus cultivars and provide various agricultural information.

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