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Effect of the infection with *Candidatus Liberibacter asiaticus* (CLAs) and or infestation with the Asian citrus psyllid (ACP) on Citrus leaf pigments content

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Huanglongbing, also known as citrus greening disease, is a destructive disease worldwide. Early symptoms of Huanglongbing include a yellowing and discoloration of few branches of the tree canopy. Chlorophylls and carotenoids are the most abundant pigments in *Citrus* leaves and vary among healthy and CLAs-infected and or ACP-infested plants. The key mechanisms of *Citrus* leaf discoloration are still unclear. In order to explore the damage mechanism of CLAs infection and or ACP infestation on *Citrus* pigments, the chlorophylls and carotenoids were studied in Valencia sweet orange (*Citrus sinensis*) leaves. Fourteen pigments belong to three different groups (carotenes, xanthophylls and chlorophylls) were detected. Detected carotenes included cis- β -carotene, α -carotene and β -carotene. Detected xanthophylls included neoxanthin, trans-violaxanthin, cis-violaxanthin, zeaxanthin, lutein, isolutien, α -cryptoxanthin and β -cryptoxanthin. Additionally, chlorophyll a, chlorophyll b and pheophytin a, were detected as chlorophylls. While, most of the citrus pigments were found to exist at lower levels in CLAs-infected plants compared with other treatments, the effect was compromised in the double-attacked plants. Zeaxanthin was found in high concentration in both CLAs-infected and the double-attacked plants. Accordingly, we hypothesize that both CLAs infection and or ACP infestation resulting in structural and functional changes to indispensable photosynthetic pigments, leading to HLB-symptom formation. This study greatly improves our understanding of physiological events associated with CLAs infection and or ACP infestation.

Biography

Yasser Nehela has earned his Master degree in Agriculture Science (Plant Pathology field) from Faculty of Agriculture, Tanta University in 2012. He is an Assistant Lecturer in the same faculty. He is currently a PhD student in the host-pathogen-vector interactions lab (Dr. Killiny lab), Citrus Research and Education Center (CREC-IFAS-UF). His main research focuses on the "Tritrophic interactions among *Citrus* plants, the bacterial pathogen *Candidatus Liberibacter asiaticus* (CLAs) and its insect vector, Asian citrus psyllid (ACP), *Diaphorina citri*".

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