

New technique has potential to protect oranges from citrus greening

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Citrus greening, also called Huanglongbing (HLB), is devastating the citrus industry. Florida alone has experienced a 50 to 75 percent reduction in citrus production. There are no resistant varieties of citrus available and limited disease control measures.

Some scientists think it is possible that orange juice could one day become as expensive and rare as caviar. In an effort to prevent this, three plant pathologists at the University of California-Berkeley and United States Department of Agriculture conducted research into ways to boost citrus immunity and protect the valuable fruit against citrus greening.

Because the bacteria that causes citrus greening cannot be grown in a lab, scientists have to find novel ways to conduct experiments. The University of California-Berkeley/USDA team looked at many different strains of the bacteria that cause citrus greening to see if they could identify peptides (a compound of two or more amino acids) that would trigger immune responses.

"This was a long list, so we narrowed it down by selecting [small peptides](#) that were a bit different in their peptide sequence, which might imply that the bacterium had made those sequence changes so that they wouldn't be recognized by the plant [immune system](#)," explained Jennifer D. Lewis, group leader of the research team. "Then we further narrowed that list to peptides from strains that caused disease in citrus."

Through this research, they showed that two peptides could trigger immune responses in multiple plant species, including citrus. These peptides may play a role in preventing or reducing yield loss from [citrus greening](#).

According to Lewis, "We thought it was particularly interesting that some of the peptides predicted to elicit a response, could actually trigger immune responses in multiple plant species. This suggests that the [immune response](#) to these peptides is conserved across species."

More information: Yuan Chen et al, Comparative Genomics Screen Identifies Microbe-Associated Molecular Patterns from 'Candidatus Liberibacter' spp. That Elicit Immune Responses in Plants, *Molecular*

Plant-Microbe Interactions (2019). [DOI: 10.1094/MPMI-11-19-0309-R](https://doi.org/10.1094/MPMI-11-19-0309-R)

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