

ABSTRACT PREPARATION GUIDELINES AND TEMPLATE

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Theme: Innovative and novel management strategies

Integrated management strategies for mitigating citrus huanglongbing disease

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Citrus Huanglongbing (HLB), also known as citrus greening disease, is one of the most devastating diseases affecting citrus production globally. Caused by the bacterium *Candidatus Liberibacter asiaticus* and transmitted by the Asian citrus psyllid (*Diaphorina citri*), HLB leads to significant yield losses, poor fruit quality, and eventually tree death. Integrated management is crucial, focusing on psyllid control using insecticides, biological control agents, cultural practices and host resistance. Cultural practices involve regular monitoring, early detection and removal of infected trees to prevent disease spread, coupled with stringent sanitation protocols. Nutrient management, including zinc and phosphorus applications, can alleviate HLB symptoms. While antibiotics have shown some efficacy in laboratory settings, the application of antimicrobial peptides and bacteriophages presents promising avenues for directly targeting the HLB pathogen. Chemical treatments primarily focus on the use of insecticides to control the psyllid vector population. However, the development of insecticide resistance and environmental concerns necessitate the integration of alternative strategies. Biological control measures include the use of natural predators and parasitoids of the psyllid, as well as the deployment of beneficial microorganisms that can suppress the pathogen. Breeding for HLB resistance is a long-term strategy, with progress being made in identifying tolerant or resistant citrus genotypes. Rootstocks play a vital role in HLB management, as certain rootstocks can influence tree health and disease progression. Advancements in molecular biology have shown potential in the development of HLB-resistant or tolerant citrus cultivars through genetic engineering and CRISPR-based genome editing techniques. Additionally, exploring alternative citrus production systems, such as containerized protected cultivation, may offer potential benefits. Overall, while complete eradication of HLB remains challenging, a multifaceted and adaptive management approach can significantly mitigate its impact, ensuring the long-term viability of citrus production.

Keywords: Citrus greening, Citrus Huanglongbing, Citrus psyllid, HLB, Integrated pest and disease management, Rootstocks.