

Coordinated role of chitin-triggered immunity suppression mechanisms of *Podosphaera xanthii*

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ABSTRACT

Fungal pathogens are the main destructive microorganisms for terrestrial plants and pose increasing challenges for global agricultural production. Chitin is a vital building block for fungal cell walls and a widely effective inducer for plant immunity that, through chitin-triggered immunity, can defend against fungi attack. That is why the phytopathogenic fungi have developed different virulence factors that allow them to suppress the activation of this defensive response. In this study, the molecular mechanisms of chitin-triggered suppression, previously identified in the cucurbit powdery mildew *Podosphaera xanthii*, have been evaluated in detail. These mechanisms consist of the modification of chitin immunogenic oligomers (CDA), the binding to these oligomers (CHBE) and their degradation (EWCAs). For this, the RNA interference (RNAi) technology, which consists of the application of double-stranded RNA (dsRNA) designed to suppress the expression of target genes, was used. The preliminary results obtained using this strategy significantly reduces the development of the fungus and the symptoms of powdery mildew disease in melon, suggesting that chitin signaling suppression mechanisms are essential for the development of *P. xanthii*.

This work was supported by AEI (PDC2021-121373-C21).