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Fungal Pathogen Protection in Lettuce by Expression of a Jasmonic Acid Carboxyl Methyltransferase (JMT) Gene

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Objectives

Methyl jasmonate is a plant volatile that acts as an important cellular regulator mediating diverse developmental processes and defense responses. Transgenic Lettuce plants were successfully obtained from hypocotyl explants inoculated with *Agrobacterium tumefaciens*, which harbored a binary vector plasmid with JMT gene, catalyzed the formation of methyl jasmonate from jasmonic acid. Here, we report that expression of a novel JMT gene in transgenic lettuce provides high levels of field resistance against *Sclerotinia sclerotiorum*, causal agent of the agronomically important fungal disease of lettuce.

Material and Methods

T1 progeny of 100 transgenic lettuce inbred lines were inoculated with *Sclerotinia sclerotiorum*.

Results and Discussion

We demonstrate that the JMT displays strong activity against the agronomically important fungal pathogen *Sclerotinia sclerotiorum*. Expression of the JMT in transgenic lettuce provides robust resistance in the greenhouse. Importantly, this resistance is maintained under field conditions.

