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Pepper transformation by disease defense related genes

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Objectives

To develop disease resistant peppers against pathogens

Materials and Methods

1. Material : Pepper inbred lines

Agrobacterium strain EHA105, EHA101, LBA4404

2. Methods : *Agrobacterium* mediated transformation by CIT (Callus induced transformation)

Results and Discussion

Peppers were transformed with several genes related to pathogen resistance. Those genes are *CMV-CP*, *CMV-CP::PepMoV-CP*, *PPI1*, *CaWRKY114*, *CaWRKY1244*, *CaSAR8.2*, *CaPF1*, *ICS*, *GLP*, *PRI0* and *PLC1* (RNAi vector). The transformation has been successfully performed with a rate of 0.5-1%. T₁ generation of those transgenic peppers was tested for the resistance. For example, around 600 T₁ peppers transformed with *CMVCP-P0* gene were exposed to CMVP1 pathogen and the transgenic peppers resistant to CMVP1 pathogen were selected. Similarly, a numbers of T₁ peppers with *CaWRKY114* gene were also selected as resistance to PMMV or bacterial leaf speck.



CMVP1 Resistant Susceptible

The distinct difference between resistant and susceptible to CMVP1 is the height: the susceptible peppers are shorter and grow slower with less seeds.

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