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Development of Transgenic Peppers Resistant to A New CMV Pathotype

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Objectives

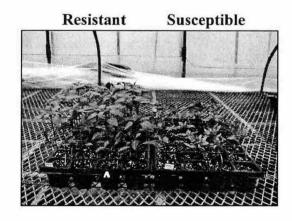
To develop a pepper transgenic line resistant against a new CMV pathotype

Materials and Methods

- 1. Material: Several pepper inbred lines were transformed by a CMVPo-CP gene.
- 2. Methods: For transformation, the callus induced transformation (CIT) method was used with *Agrobacterium* strain EHA105.

Results and Discussion

Thanks to a brilliant breeding method, pepper breeders had been able to develop CMV resistant pepper against CMVPo pathotype and consequently produced many different pepper varieties. Those varieties have been commercially available for last several years in Korea. Very recently, however, those CMV resistant varieties have become susceptible by a new CMV strain, called CMVP1 pathotype that has not been identified officially yet. In other words, the peppers that have been resistant to the Po type are now susceptible by P1 type pathogen. The CMVP1 outbreak has been so rapid during last a couple of years and this has raised a concern that the outbreak could affect the pepper industry in Korea. Since there is no resistant pepper plant, a *CP* gene was cloned from CMVPo pathogen and subcloned into pCambia vector. Using CIT method for pepper transformation, we have obtained 10 different To plants transformed by a *CMVPo-CP* gene. Around 600 T1 peppers were exposed to CMVP1 pathogen and the resistant transgenic peppers were selected. A total of 19 peppers were found as immune to CMVP1 infection. Currently, transgenic peppers resistant to CMVP1 were self-crossed for further research and these materials would be used in breeding program for biosafety assessment.



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