Reverification of transgenic resistance of trigonal cactus (*Hylocereus trigonus*) to cactus virus X(CVX)

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Trigonal cactus (*Hylocereus trigonus*) is used as a support part of grafted-cactus. The infection of cactus virus X (CVX) is resulted in drop of grafting success to below 50% and change of the ball cactus color to unfavorable. We have applied RNAi for coat protein gene of CVX to trigonal cactus, and developed CVX-resistant transgenics. The transgenic resistance had been verified on the fourth generation cactus. In this research, the fifth generations have been used to re–verify the resistance of transgenic cactus to CVX. The virus was amplified in *Chenopodium album* and confirmed by electron microscopy. For promoting viral infection efficiency, the virus stock was freshly prepared from leaves of chenopodium. The trigonal cacti (transgenics and non–transgenics) were cut into top and middle fragments, and their bottoms were robbed with the virus stock for 1 minutes, then planted in the pots. After four months, transgenics showed normal growth with long–segments, but non–transgenics showed growth retardation with short–segments. CVX was identified in non–transgenic cacti by electron microscopy, but not in transgenics. The CVXcp–RNAi gene was detected in only transgenic cactus by genomic PCR. The results suggest that transgenic cactus should acquire the resistance to CVX, and its resistance and CVXcp–RNAi should be inherited from generation to generation. In the future, it will be examined if the RNAi gene in support may be transferred to grafted cactus. And also environmental safety will be assessed on the transgenic cactus for practical use.

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