Greenhouse Evaluation of Transgenic Watermelon with an Untranslatable Chimeric Construct Carrying Parts of the Coat...

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ABSTRACT

Watermelon is an economically important crop of the tropics and subtropics. Virus disease often causes serious economic loss of watermelon and there is still no chemical to control the virus disease. Watermelon silver mottle virus (WSMoV), Zuchini yellow mosaic virus (ZYMV) and Papaya ringspot virus Type-W (PRSV-W) are the most hazardous species among all kinds of viruses infected in watermelon. Transgenic watermelon lines carrying ZYMV and PRSV-W coat protein (CP) double fusion gene were previously generated in our laboratory. Therefore, this study was discussed to evaluate resistance of independent transgenic watermelon lines against ZYMV and PRSV-W under greenhouse conditions. Line 9 and line 10 showed immunity against ZYMV and PRSV-W after challenge inoculation. No virus was detected by indirect ELISA, western blotting, RT-PCR, and northern blotting in the immunity transgenic watermelon lines. Line 1 was highly resistant to ZYMV and PRSV-W 30 days postinoculation, showing no symptom. The expression of the transgene in the all transgenic lines was not detected by northern blotting before challenged inoculation. For this reason we consider that the virus resistance is RNA-mediated.

Keywords : transgenic watermelon, coat protein, resistant assay, RNA-mediation resistance.

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