矮南瓜黃化崁紋病毒及木瓜輪點病毒西瓜系統之複合轉基因西瓜溫室抗病評估

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摘 要

台灣全年氣候適合瓜類栽植，栽培面積廣大且種類繁多，其 中以西瓜和甜瓜為大宗。病毒危害目前仍無任何化學藥劑可防治， 因此常造成瓜類嚴重的經濟損失， 其中以西瓜銀斑病毒 (Watermelon silver mottle virus ; WSMoV)、矮南瓜黃化嵌紋病毒(Zucchini yellow mosaic virus ; ZYMV) 及木瓜輪點病毒 西瓜系統(Papaya ringspot virus Type-W ; PRSV-W) 為危害西 瓜最嚴重之病毒種類。本研究之前已構築出11 個具有 ZYMV-PRSV-W 複合鞘蛋白之轉基因株系，本研究主要是將這些轉 基因西瓜株系，作進一步之溫室接種評估及相關之分子分析。由 結果發現line 9 及line 10 在接種後，利用ELISA、 western blotting、RT-PCR 及northern blotting 分析中，均 偵測不到ZYMV 及PRSV-W 兩病毒的存在。 因此，將line 9 及line 10 歸類為免疫性(immunity)。 line 1 在複合接種後，外觀上沒有病徵，但卻可測到 PRSV-W。 所以，將line 1 歸類為具有高度抗性(High Resistance, HR)。 而line 7 有82 %具有ZYMV 之抗性，但不抗PRSV-W。本研究發現 ，所有轉基因株系在未接種前均測不到transgene RNA 表現。因 而推測，其抗病機制應為RNA-mediated gene silencing 之方式 。但這些均不表現transgene RNA 之株系，卻表現出不同程度抗 性(從免疫到完全不抗均有)，因此， RNA-mediated 機制仍然還 有很多探討之空間。

關鍵詞 : 轉基因西瓜、抗病分析、鞘蛋白、RNA 媒介抗性

目錄

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