抗真菌轉基因甜瓜之溫室評估

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摘 要

台灣地處於亞熱帶及熱帶地區，農作物多元而複雜，甜瓜 （ Cucumis melo L.）是廣為栽種的重要經濟作物，由於全年 盛行種植的結果，病蟲害的發生率也相對提高，其中以真菌、 病毒感染最為嚴重，為了減少農藥之使用造成環境危害的疑慮，因此利用轉基因策略加強植物抗病蟲害特性實為一項不錯的 策略。抗真菌蛋白基因之構築體Bo-AFP3-HB-GFP 與 Cp-AFP3-HB-GFP，由中央研究院蕭介夫博士提供，經胺基酸序 列比對，發現其結構類似於植物防禦素(plant defensins) 中的AFP3 蛋白的基因。本研究室之前已構築出23 個具有 Bo-AFP3-HB-GFP 基因之轉基因甜瓜株系(銀輝品種)及 9 個具 有 Cp-AFP3-HB-GFP 基因之轉基因甜瓜株系，本試驗將進一步 做相關之分子分析與病原真菌接種試驗。在溫室中利用立枯病原 Rhizoctonia solani 接種，結果發現接種兩天後，非轉基 因植物均已產生病徵或罹病死亡，而轉基因甜瓜 line B28、 line C14 及 line C25 則展現了相當不錯的抗性 ，有50%以上仍未染病，除line B29 外，其餘的轉基因植株與 非轉基因植物相較之下，也有較佳的抗性。於RT-PCR 分析 與 GFP 蛋白質觀察後，發現抗性較高之轉基因植株，產生之轉基 因mRNA或蛋白質量也相對較高。因感染甜瓜之真菌種類繁多， 故在以立枯病接種評估後，繼續以其他種類真菌進行初步測試 ，目前發現afp3轉基因甜瓜，同時也對白粉病菌 Sphaerotheca fusca 具有抗性。

關鍵詞 : 抗真菌蛋白、轉基因甜瓜、立枯病

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