Cp-AFP3-HB-GFP 之轉基因洋桔梗抗真菌之評估

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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，洋桔梗是近年來在國內發展快速的新興切花之一。真菌疾病造成洋桔梗產量極大之損失。本研究希望利用轉基因策略，以對抗疾病之危害，以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8個具有Cp-AFP3-HB-GFP基因之轉基因洋桔梗株系。經由聚合酵素鏈鎖反應、南方點漬法證明抗真菌蛋白確實併入洋桔梗染色體中。利用立枯病原Rhizoctonia solani及白絹病原Rhizoctonia solani分別各自接種，結果發現接種四天後，非轉基因植物均已產生病徵或罹病死亡，而轉基因洋桔梗line 1、 line 8、line14及line 17則展現了對Rhizoctonia solani高度的抗性，有50%以上仍未染病，而line 17則是超過了70%未出現病徵，而上述對Rhizoctonia solani有高度抗性的植株，再接種病原菌Sclerotium rolfsii後的實驗結果亦和上述相符合，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Western Bloting蛋白質分析後，亦可發現GFP報導基因的蛋白表現。因感染洋桔梗之真菌種類繁多，故在以立枯病及白絹病接種評估後，將繼續以其他種類真菌進行初步測試。

關鍵詞 : 抗真菌蛋白、轉基因洋桔梗、立枯病、白絹病。

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