Aspergillus terreus Yua-6 菌株對草莓灰黴病菌與木瓜炭疽病菌之拮抗能力分析

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摘 要

植物的根圈附近存在許多能和植物相互作用的微生物，其中有些能幫助植物對抗病原菌。本實驗從田間土壤分離微生物，並以對峙培養與玻璃紙抗生法篩選出對草莓灰黴病菌(Botrytis cinerea)及木瓜炭疽病菌(Colletotrichum gloeosporioides)有拮抗能力之菌株，其中Yua-6菌株對此兩種病原真菌具最佳拮抗能力。利用適當引子對及聚合?連鎖反應(polymerase chain reaction, PCR)，可擴增出Yua-6菌株之DNA片段約1.6 kb，經由DNA選殖、核?酸解序及進行NCBI基因庫序列比對，得知Yua-6菌株和土麴菌(Aspergillus terreus)在此1.6 kb的序列上有100 %的相同度。於PDB(potato dextrose broth)培養液培養6天的Yua-6發酵濾液經冷凍乾燥後添加於PDA培養基，結果發現含1 mg/ml及5 mg/ml的Yua-6冷凍乾燥液成分對木瓜炭疽病分別具19.29 %及70.63 %之抑制率，對草莓灰黴病菌則分別具4.93 %及51.73 %抑制率。另外，當噴灑10倍稀釋之Yua-6菌株發酵液到已接種木瓜炭疽菌病孢子懸浮液(濃度4×105/ml)之成熟木瓜果實時，亦具有明顯保護效果。以Yua-6菌株發酵液之液相－液相萃取後得到乙酸乙酯層，於2 mg/ml濃度時對木瓜炭疽病具81.92 %抑制率，對草莓灰黴病菌則具54.11 %抑制率。此乙酸乙酯層再經矽膠管柱層析分離，當中以正己烷:乙酸乙酯＝55:45所得之沖提液，調製成300 μg /ml濃度時，對木瓜炭疽病有抑制效果。將此沖提液再以高壓液相層析儀(high pressure liquid chromatography, HPLC)分析，在滯留時間5分鐘時所收集之化合物，為具較佳抗菌效果之活性成分。

關鍵詞 : 拮抗菌、草莓灰黴病菌、木瓜炭疽病菌、土麴菌、生物防治

目錄

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