氯酚分解的質體核酸(plasmid DNA)量化分析

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摘 要

本研究是質體核酸(plasmid DNA)來量化微生物對難分解有機物分解的能力。結果顯示:plasmid的產生，與微生物分解目標有機物二氯酚氧基乙酸(2,4-D)有一定的關係。 微生物分解2,4-D過後，菌體中偵測出相對應的plasmid，這在許多的文獻中都已有記載。在相關的文獻討論中，僅將特定的plasmid用來代表可否分解2,4-D，並沒有對分解能力的強弱作進一步的探討。本研究的結果顯示，在微生物分解2,4-D過後，會產生90kb的plasmid，與諸多文獻中的plasmid pJP4相似。本研究的後段實驗中，便是以分解2,4-D後所產生的90kb plasmid，來量化微生物分解2,4-D的能力；量化成功在處理2,4-D的應用上，有很深的意義。 在微生物分解與處理2,4-D的過程，會遭遇不同的階段，分別是：馴化分解階段、分解能力退化階段，及再次分解2,4-D階段。研究結果顯示，單位菌體中所具有分解plasmid量越多，分解2,4-D的能力越強。在馴化分解階段結束時，菌體中具有的分解plasmid最多,但如果長時間沒有接觸2,4-D，菌體中的分解plasmid會減少，代表微生物產生分解2,4-D的能力是會消退(消失)的。Plasmid與分解能力的正比關係，當可用來作為量化的工具；本研究最後將量化的結果作實用性的討論，希望能改善2,4-D所造成的嚴重污染。

關鍵詞 : plasmid ; 馴化 ; 退化 ; 分解能力

目錄

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