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PANAN RERNGSAMRARN : CONSTRUCTION OF RECOMBINANT PLASMID(S) TO INCREASE XYLANASE PRODUCTION. THESIS ADVISOR : ASSO. PROF. PAIROH PINPHANICHAKARN, Ph.D. 103 pp. ISBN 974-581-582-9

The present work reported an attempt to costruct recombinant plasmids with efficient expression of xylanase gene. DNA fragment of 5.4 Kb, an insert expressing xylanase from Streptomyces sp. 42-9, was excised from plasmid pPT6C by digesting with HindIII or XbaI. The fragment was then inserted into plasmids carrying strong promotor which were pUC19 or pT7-7 with Escherichia coli DS941 or E. coli JM109 as a host and pIJ4083/3 or pIJ4090 with S. lividans TK64 as a host.

Recombinant plasmids obtained from transformants using S. lividans TK64 as a host showed no difference in size when compared to those of corresponding vectors. Furthermore, no clone with comparable or higher xylanase activity than that with pPT6C was observed. With E. coli DS941 as a host, recombinant plasmids p19C-1 , p19C-2 and p19C-3 were obtained when pUC19 was used as a vector and p7C-3 was obtained with pT7-7 as a vector. All of these constructed plasmids carried 5.4 Kb insert. However, with E. coli JM109 as a host and pUC19 as a vector, recombinant plasmid p19C-4 was obtained with shorter insert size of 5.2 Kb. Slight modification of the insert was also observed as it lost one restriction site by XbaI. All clones carrying constructed plasmids showed no xylanase activity. SDS-PAGE analysis of the products from these clones also confirmed no expression of xylanase gene.