F322 Cloning and nucleotide sequence of a *Peanibacillus* sp. KCTC 8848P xylanase gene and its expression in *Saccharomyces cerevisiae.*

So Yeon Shin*, Hye Jin Lee, Dong Jun Shin, Soon Bai Chun and Suk Bai
Department of Microbiology, Chonnam National University

The xylanase gene(*xynA*) from *Paenibacillus* sp. KCTC 8848P has been cloned in *Escherichia coli* and its complete nucleotide sequence was determined. The structural gene of *xynA* revealed 636 bp encoding a mature protein of 184 amino acids and a signal peptide of 28 amino acids. The amino acid sequence of the *xynA* gene showed high homology to the xylanase of *Aeromonas caviae* with 83% identity and the xylanases of other *Bacillus* spp with 79% identity, and belonging to family G xylanases. Crude xylanase from *E. coli* transformant was endoxylanase to degrade xylan to xylose, xylobiose and xylotriose. The *xynA* gene containing its own signal sequence was introduced into yeast expression vector. The *Saccharomyces cerevisiae* transformants harboring the recombinant plasmids secreted xylanase into culture medium.

F323 Molecular cloning and nucleotide sequence of an endo-β-1,4-glucanase gene from *Paenibacillus* sp. KCTC 8848P and its expression in *Saccharomyces cerevisiae*

Jeong Nam Park*, Dong Jun Shin, HwangHee Blaise Lee and Suk Bai
Department of Microbiology, and Biology, Chonnam National University

An endo-β-1,4-glucanase(*Egl*) gene from *Paenibacillus* sp. KCTC 8848P was cloned in *Escherichia coli*, and its complete nucleotide sequence was determined. The *Egl* gene had open reading frame(ORF) of 1191bp encoding 397 amino acids with calculated molecular weight of 44539 Da. The proposed signal sequence consisted of 32 amino acid residues. The deduced amino acid sequence revealed 94% identity to endo-β-1,4-glucanase of *Bacillus polymyxa*, and it belongs to the cellulase family A. To examine whether the signal sequence of *Egl* can act functionally in a yeast, the *Egl* gene containing its own signal sequence was introduced between *ADC1* promoter and *CYC1* transcription terminator of the yeast expression vector. The *Saccharomyces cerevisiae* transformants harboring such recombinant plasmids secreted endo-β-1,4-glucanase into culture medium.