

Expression and characterization of α -glucosidase from *Thermus caldophilus* GK24 in *Saccharomyces cerevisiae*

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Abstract

α -Glucosidase (EC 3.2.1.20) is amylolytic hydrolase that releases α -glucose from the disaccharides, oligosaccharides, and alkyl (aryl)- α -glucopyranosides. The α -glucosidase from *Thermus caldophilus* GK24 was reported to show preference for sucrose, nigerose and turanose hydrolysis. It has 1587 bp DNA and 529 of amino acid corresponding 58190 Da. The α -glucosidase gene from *T. caldophilus* GK24. was cloned into the pVT-103U vector, a constitutive expression vector, and integrated into the genome of *Saccharomyces cerevisiae*. SDS-PAGE and zymogram analysis showed that the molecular weight of recombinant α -glucosidase produced by *S. cerevisiae* is about 60 kDa. The enzyme activity which is measured by *p*-nitrophenol release from *p*-nitrophenyl- α -D-glucopyranoside (*p*-NPG) and various specific character of the thermostable α -glucosidase was similar to α -glucosidase produced by *E. coli*. Our result is the first report on the gene expression of *T. caldophilus* GK24 origin in yeast. Thus, it is suggest that the yeast system represents an attractive means for expression of other genes from *T. caldophilus* GK24.

References

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2. Oyekanmi Nashiru, Sukhoon Koh, Se-Yong Lee and Dae-Sil Lee (2001), Novel α -glucosidase from extreme thermophile *thermus caldophilus* GK24. *J. Biochem. Mol. Biol.* 13 (4), 347-354.
3. Genbank accession number of *Thermus caldophilus* GK24 α -Glucosidase: AF096282