BP-5

Functional Expression and Characterization of Recombinant Chitinase from Antarctic Psychrophilic Bacterium *Sanguibacter antarcticus* KCTC 13143

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A psychrophilic *Sanguibacter antarcticus* KCTC 13143 has been previously isolated from sea sand on King Sejong Station in Antarctica. An cold-active endochitinase gene, designated *chi21702*, from KCTC 13143 was PCR- amplified, cloned into pEXP5-CT/TOPO vector, and overexpressed in *Eschrichia coli* BL21(DE3) without its signal-peptide and with an C-terminal His-tag. The recombinant chitinase (R-Chi21702) was approximately 56 kDa in size, most of which was converted to inclusion body having no chitinae activity against oligomers of N-acetylglucosamine. In next step, refolding experiment for the inert chitinase was carried out using optimized refolding conditions. The refolded R-Chi21702 was then purified using a Ni-NTA column, which restored its chitinase specific activity (5.0 U/mg). The optimal reaction temperature and pH of R-chitinase were determined to be 40 ℃ and pH 8.0, respectively.

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