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*Polar Ecosystems: Biodiversity and Adaptation*

## Programme and Abstracts



**BP-6****Purification and Characterization of Endochitinase from Antarctic  
Bacterium *Sanguibacter antarcticus* KCTC 13143**

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A psychrotrophic bacterium *Sanguibacter antarcticus* KCTC 13143 was previously isolated from sea sand on King Sejong Station in Antarctica. In this study we purified and characterized a cold-adapted chitinase from this bacterium. The chitinase was produced in ZoBell medium containing 0.4% swollen chitin at 25°C, and purified by two-step using a hydrophobic interaction chromatography (phenyl-sepharose) and a gel filtration chromatography. The purified chitinase had specific activities of 23.28 and 12.57 U/mg toward the substrates *p*NP-(GlcNAc)<sub>2</sub> and *p*NP-(GlcNAc)<sub>3</sub>, respectively, while had no activity for *p*NP-GlcNAc. This results indicated that the chitinase from KCTC 13143 have an endo-specific activity. Temperature and pH for the optimal chitinase activity were determined to be 37 °C and pH 7.6, respectively. Moreover, the chitinase activity at 0 °C remained approximately 40% lower than at the optimal temperature. This enzyme was stable at 10-37 °C and pH 4-10, respectively. Also it was stable in the presence of various metal ions and detergents. Thus, the above characteristics of this chitinase shows that it could be developed as a useful cold-active biocatalyst in commercial processes.