

P95

## Isolation and Characterization of Chitinase Gene from *Bacillus atrophaeus* BM-5

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A bacterial strain BM-5 which produced chitinase was isolated from Korean traditional soy sauce. Using 16S rDNA analysis, the strain BM-5 was identified as *Bacillus atrophaeus*. The chitinase gene from a *Bacillus atrophaeus* BM-5 was cloned and sequenced. This chitinase gene consists of 2,171 bp with an open reading frame that encodes 596 amino acid. The deduced amino acid sequence showed high degree of identify with other chitinases such as *Bacillus subtilis* AF 069131(99%). The approximate molecular weight of the chitinase gene was 66.0 kDa. The antioxidant activity was increased 53% by the browning reaction products of *B. atrophaeus* BM-5. *Escherichia coli* lipopolysaccharides (LPS)-induced production of nitric oxide(NO) was reduced up to 45% by the browning reaction product in RAW264.7 macrophage. Inhibition of cell viability in the presence of LPS was recovered to normal level by the browning reaction product. These results suggest that browning reaction of *B. atrophaeus* BM-5 plays an important role for activation of immune system. The major intracellular free amino acid was determined to glutamate.