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Molecular cloning and Characterization of the gene CMCase of *Bacillus subtilis* A8-8

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The pathogenic *Bacillus subtilis* A8-8 secretes multiple isozyme of plant cell wall degrading enzyme CMCase. We got to about 1.5Kb *Cel* gene by PCR. The PCR product was ligated into the pGEM-T vector and the *Cel* gene was expressed the *E. coli* JM109. The activity of CMCase showed on CMC-LB-plate by cleared zone around of colony. The 1.5Kb fragment was designated pTA150. The pTA150 gene had an open reading frame (ORF) of 1584bp, starting with an ATG start codon and follwed by a TAA stop codon, encoding 528 amino acids. The signal peptide of 29 amino acids located on the N-terminal region. The CMCase gene has a typical catalytic domain, cellulose binding domain. The molecular mass of pTA150 protain from *E. coli* JM109, appeared approximately 35KDa by a carboxymethlycellullose sodium dodecyl sulfate-polyacrylamide gel electrophoresis (CMC-SDS-PAGE).