Characterization of a Cellulose and xylan Degrading Bacterial Strain Bacillus sp. MGM7

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ABSTRACT

In 21th centry, energy sources can be absent due to overusase of oil. Thus, Biological replacement should be developed. In all biological energy, biodiesel and bioethanol are two most expected bio-energy sources. Bioethanol is genterated by microbial-fermented starch or cellulose and given glucose for ethand production. The degradation of starch for bioethanol production mainly utilizes crops that can be used as food, therefore these processes will cause food shortening. In contrast, cellulose is the most aboundant organic carbon source in the world; it is composted of polyglucose that linked by ??glycan bond and stored as crystal form. The structure of cellulose is extremely stable and is difficult to digest by normal animal; however, it can be degraded by microbes. In this thesis, Bacillus sp. MGM7 was screened from soil samples by cellulolytic activity. Zymogram analysis showed that the cellulose degrading activity protein was a 100~110 kda protein. Sau3AI partial digestion of genomic DNA was proceeded after genomic DNA extraction and the fragments were ligated into phagemid vector PBCKS+. The ligates were then franeformed into E. coli DH5α , and positive clones were screened by cellulolytic activities.

Keywords : Biological energy、Bioethand、Cellulose、Zymogram

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