ISOLATION AND IDENTIFICATION OF POTENTIAL CELLULOSE BACTERIAL DEGRADER

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ABSTRACT

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The cellulolytic bacteria can produce cellulase that degrade the cellulose and have the low possibility in causing environmental pollution and can be used in bioconversion technology to produce energy from biomass waste. The aims of this study are to isolate and screen the potential cellulose bacterial degrader. It is also to determine the optimum pH, temperature and incubation period for the growth of bacteria and to characterize the isolated bacteria by using biochemical test. The results of this study showed that 4 bacteria were isolated from soil of hotspring and able to growth on the carboxymethyl cellulose (CMC) agar. All the 4 bacteria show positive results which show the clearing zone around the colonies. However, only two of the bacteria which are ST2 and ST3 that shows high cellulase activity. Biochemical test revealed that both bacteria ST2 and ST3 were facultative anaerobic, gram variable and positive for citrate test. The optimum temperature, pH, incubation period for ST2 bacteria were 40°C, pH 10 and 6 days respectively. On the other hand, the optimum temperature, pH, incubation period for ST3 bacteria were 40°C, pH 8 and 6 days respectively. As a conclusion, ST2 and ST3 bacteria can be classified as mesophilic rod bacteria and have potential to degrade the cellulose.

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