



**A STUDY ON CMC (CARBOXY METHYL CELLULOSE) HYDROLYZING  
NATURE OF *Bacillus megaterium***

**PANDEY C**

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**ABSTRACT**

Production of cellulase at commercial level is most actively grown area of research now a day. Cellulase is one of the several commercial enzymes which have been used in various industries like paper and pulp, textile, bio-fuel production, detergents, feed and food industry and brewing etc.

In the present study 10 bacterial isolates were isolated from decaying Gossypium-raw mahua mixture by serial dilution and agar plating method. These bacterial isolates were identified on the basis of colony morphological and named as **MJCP1501 to MJCP1510**. Screening for cellulolytic activity was done on minimal agar media supplemented with 1% CMC. MJCP1501 showed maximum cellulolytic activity and was further identified as *Bacillus megaterium* in accordance to the Bergey's manual. The production media was modified to the need of isolates. The physical and chemical factors were also optimized. Cellulase production was carried out by submerged fermentation. The maximum activity was obtained on sixth day at 37<sup>0</sup>c and pH 6. The partial purification was done by ammonium salt precipitation up to 70% followed by dialysis. Enzyme was relatively stable at wide pH range 5- 9 and temperature 10-55<sup>0</sup>C. The enzyme activity as enhanced by presence of activators like ca<sup>2+</sup>. Enzyme activity was not affected in presence of inhibitors like SDS and EDTA.

**Keywords-, Cellulase, Biofuel, Textile, Brewing, Cellulolytic, Dialysis**

**INTRODUCTION**

An enzyme is protein formed by living organism that act as catalyst to carry out certain desired reaction. Enzymes are very specific in their action. Each enzyme is designed to carry out specific action with

specific response .they are highly selective catalyst, greatly accelerating both rate and specificity of metabolic reaction, from digestion of food to DNA synthesis. In enzymatic reaction the molecule ate