



PharmTech

International Journal of PharmTech Research

CODEN (USA): IJPRIF, ISSN: 0974-4304
Vol.8, No.10, pp 216-223, 2015

Optimization of CM Case Production by Actinobacteria strains isolated from Syrian Freshwater Habitats

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Abstract: Cellulases are a group of hydrolytic enzymes capable of degrading lignocellulosic materials and have wide range of applications. Recently discovered that one major obstacle facing the degradation of cellulosic biomass is the cellulose hydrolysis stage, so the objective of this work was focused on detecting new bacterial strains isolated from freshwater habitats with high ability in CMCase production, and determined several parameters of optimal production: time incubation, pH, carbon and nitrogen source.

Eight CMCase producing actinobacteria strains were isolated and characterized by morphological and biochemical analysis. Three strains were grown on Congo red agar and showed high degradation efficiency above 90%, these strains were used to produce CMCase, S5 and M7 strains revealed high ability in production with optimal parameters pH=8, temperature=40C, incubation period= 72-96 h, Carbon source= starch, and nitrogen source= peptone or ammonium phosphate.

Key words : bioconversion, *Streptomyces*, *Micromonospora*, cellulosic biomass, endoglucanase.

Hanady Omarayed *et al* /Int.J. PharmTech Res. 2015,8(10),pp 216-223.

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