

Isolation of thermophilic mannanase-producing bacteria

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Abstract

The aim of this research was to isolate the mannanolytic thermophilic bacterium useful for mannooligosaccharide (MOS) production. Thermophilic mannanase-producing bacteria were isolated from 5 soil samples collected from Roi Et Rajabhat University. The bacteria were cultured using Luria-Bertani (LB) medium containing 1% locust bean gum (LBG) and incubated at 60 °C for 1 hr before continued culturing at 37 °C for 48 hr. The mannanase activity was screened on LB agar containing 1% LBG stained with iodine solution. The colonies that showed clear zone were selected. The isolates were cultured using LB broth containing LBG at 60 °C for 72 hr. One isolates were survived and exhibited the high amount of mannanase activities were selected and named KS1. Mannanase activity at 50-100 °C was measured using DNS method using LBG (pH 7.0) as mannan source and cultured broth as crude mannanase. The results indicated that at 60 °C showed the highest mannanase activity at 4.19U/ml. The thermostability of crude mannanase at 50 °C was 4.71. For bacterial identification using partial 16S rRNA indicated that KS1 was identity with *Bacillus* sp. at 98.6%

Keywords: Mannanase, *Bacillus*, Thermophilic