Isolation and Characterization of γ-PGA-Producing Bacillus Strains

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ABSTRACT

In this thesis, two γ-polyglutamic acid (γ-PGA) producing bacterial strains TPX 110A and TPX-108 were screened from soil samples. These two strains of bacteria were identified by 16S rDNA sequencing and revealed that they are similar to Bacillus subtilis. The production of γ-PGA of TPX 110A was better than TPX 108 and reached 35 g/L after crude extraction, therefore TPX 110A was chose for further analysis experiments. In order to increase the purity of bacterial produced γ-PGA, the products were dialyzed after ethanol precipitation, and then dried under vacuum. Further identification were proceeded to analyze the precipitants, TLC, GC/MS and protease K analysis experiments were done. Results showed that the product were similar to standard γ-PGA on TLC analysis, however, LC/MS identification was uncleared. In GC/MS results, the acid hydrolyzed TPX 110A product was identical to L-glutamic acid. Comparing to bovine serum albumin, and protease K analysis also showed that the product can resist to protease K cleavage. Our results confirm that TPX 110A can highly produce γ-PGA.

Keywords : γ-polyglutamic acid、Bacillus subtilis、LC/MS、GC/MS、TLC

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