Use of Response Surface Methodology to Optimize Culture Medium for Production of Poly(γ-glutamic acid) by Bacillus lich

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ABSTRACT

In this study, optimization of medium E composition for γ-PGA (poly-γ-glutamic acid) production by Bacillus licheniformis CCRC 12826 with response surface methodology (RSM). The factors chosen for optimization were glutamic acid, glycerol, citric acid and NH4OH. The maximal yield of γ-PGA (35.33 g/L, average of four repeats) appeared at the region where the respective concentrations of glutamic acid, citric acid, glycerin and NH4Cl were around 34 g/L, 26 g/L, 146 g/L and 11 g/L, respectively. The predicted optimal composition derived from RSM regression was 34.07 g/L glutamic acid, 27.00 g/L citric acid, 145.45 glycerin and 10.49 g/L NH4Cl. With this composition, the predicted maximum γ-PGA production was 35.51 g/L.

Keywords : Poly(γ-glutamic acid), Bacillus licheniformis, γ-PGA, Response surface methodology.

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