

A study on restraint of conversion of *Gluconacetobacter hansenii* PJK into non-cellulose-producing (Cel⁻) mutants

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Abstract

Cellulose is the most abundant polymer in nature and can be found in certain algae, fungi, and prokaryotes. And it is an indispensable raw material for many industries. Bacterial cellulose (BC) produced by *Acetobacter* strain has unique properties such as high mechanical strength, purity, and young's modulus that plant cellulose cannot provide ¹⁾. However, attempt to produce BC in agitated culture cause the conversion of the cellulose-producing (Cel⁺) cells into non-cellulose-producing (Cel⁻) mutants, resulting in a decrease in a BC production yield ²⁾. It was reported that Cel⁻ mutants of *Acetobacter xylinum* were due to insertion of IS(insertion sequence) element ³⁾.

We isolated a Cel⁺ mutant from *G. hansenii* PJK in an agitated culture. In this study, we report on the factors that restrain occurrence of Cel⁻ mutants and improve BC production yield by wild-type and a Cel⁺ strain from agitated culture broth in a shear stress field.

Reference

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