

Production of bacterial cellulose by *G. hansenii* PJK using the waste of beer fermentation broth

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Abstract

Bacterial cellulose (BC) produced by gram negative, acetic acid bacteria *Acetobacter xylinum* has excellent and easily modifiable properties such as high purity, high degree of crystallinity, high tensile strength, high water-binding capacity and greater surface area than that of conventional wood-pulp¹⁾. But an shaking culture converts *A. xylinum* into non-cellulose-producing (Cel⁻) mutants, and these mutants decreased the production yield of BC²⁾.

We found that the addition of ethanol to the medium increased the growth of cells and the production yield of BC and depressed the conversion of Cel⁺ cells to Cel⁻ mutants in a shaking culture³⁾.

Waste of beer fermentation broth contains ethanol and is an inexpensive nitrogen source. In this study, we report the utilization of waste of beer fermentation broth from beer industry for the production of BC by *Gluconacetobacter hansenii* PJK. The medium from the waste of beer fermentation broth developed in this work showed the genetic stability of cells for the BC production in a shear stress condition and exhibited the amount of BC production equivalent to that carried out in the basal medium for BC production.

References

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