

Bacterial cellulose production by *Gluconacetobacter hansenii* PJK

정재용, 박연희, 박중곤

경북대학교 화학공학과, 생물화학공학연구소

전화 (053) 950-5621, FAX (053) 950-6615

Abstract

Bacterial cellulose produced by *Acetobacter* strains has unique properties such as mechanical strength, high purity, high young's modulus, and biodegradability.¹⁾ The production of bacterial cellulose in a large scale requires that *Acetobacter* strains should be cultivated in an agitated vessel. However it has been reported that the shear stress in an agitated vessel converts *Acetobacter* strains to non-cellulose-producing (Cel⁻) mutants and this results in the decrease in a bacterial cellulose production yield.²⁾

In the present study, we report on the key factors that affect the production yield of bacterial cellulose by *Gluconacetobacter hansenii* PJK and the restraint of occurrence of a Cel⁻ mutant in a shear stress field. By adding a little amount of ethanol in the medium and controlling the inoculum age, the growth rate of cells and production yield of bacterial cellulose were increased and the conversion of a Cel⁺ cell to a Cel⁻ mutant was depressed.

Acknowledgements

This research was supported by Kyungpook National University Research Team Fund, 2002.

References

1. Yoshino, T., T. Asakura, and K. Toda, "Cellulose production by *Acetobacter pasteurianus* on silicone membrane" (1996), *J. Ferment. Bioeng.*, 81, 32-36.
2. Valla. S. and J. Kjosbakken, "Cellulose-negative mutants of *Acetobacter xylinum*" (1981), *J. General Microb.*, 128, 1401-1408.