

Bacterial cellulose production by *Gluconacetobacter hansenii* in a fermenter equipped with a spin filter

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Bacterial cellulose (BC) produced by *Acetobacter xylinum* has various possible applications as a new functional material as well as diet food. BC has been produced traditionally by a static culture that has a low productivity, because a shear stress in the shaking culture converts microbial strains into non-cellulose-producing (*Ce<sup>t</sup>*) mutants during cultivation, resulting in the decrease of BC production yield. In our previous reports, we found an optimum culture condition for maximizing BC production in an agitated culture in a medium containing ethanol without *Ce<sup>t</sup>* mutants, however, the productivity of BC is not far enough advanced for industrialized production. Until now, it is well known that a membrane recycle system that can increase the concentration of cell during fermentation is more suitable for improving the productivity than any other system.

In this work we have tried to develop a fermentation system using a spin filter for the BC production by investigating effects of hydrodynamic and culture environmental factors able to maintain the separation efficacy of the membrane without filter cake.