

Biosynthesis of Bacterial Cellulose and Glucuronic Acid Oligomers by *Gluconacetobacter hansenii* using Glucose and Ethanol as the Nutritional Source

박중곤*, Taous Khan
경북대학교 화학공학과
(parkjk@knu.ac.kr*)

In our previous studies, it was found that *Gluconacetobacter hansenii* PJK can produce bacterial cellulose (BC) and water-soluble glucuronic acid oligomers (WSOS). The physical properties of the WSOS revealed that these have potentials for applications in food and/or pharmaceutical preparations and as therapeutic agent in biomedical fields.

The current study describes the production of BC and WSOS by *G. hansenii* in a 2-L Jar fermenter (1.6 L working volume) at 500 rpm, various pH ranges, and 1vvm air. For the nutritional requirements of the bacterium the basal medium containing 1% ethanol was used for the initial fermentation. A fresh medium composed of glucose (10 g/L) and ethanol (1%) was introduced from 24 h onwards at 12 h intervals till 144 h. The purpose of this work was to determine the essential ingredient(s) for the biosynthesis of BC and WSOS by *G. hansenii*. In these experiments it was observed that *G. hansenii* was capable of producing enormous quantities of WSOS but the yield of the BC was significantly depleted using glucose and ethanol as the nutritional system.