

P44

**Production and characterization of bacterial cellulose  
by *Acetobacter oboediens* JH232**

GO, SANG-HEE, BONG-SU HA AND HONG-KI JUN

Division of Microbiology,  
Pusan National University, Pusan 609-735, Korea

The *Acetobacter* strains produce a cellulose during the cell culture. Cellulose produced by *Acetobacter* strain was found to be chemically pure unlike the cellulose produced by plant which contains lignin, hemicellulose. This cellulose has unique structural and mechanical properties compared with cellulose originated from plant and is expected to be a commodity material in various field of industries. The strain producing cellulose has been isolated from vinegar and identified as an *Acetobacter oboediens* based upon its morphological, cultural, biochemical characteristics as well as the 16S rRNA sequence analysis, and named as *Acetobacter oboediens* JH232. The optimal condition for the maximum production of bacterial cellulose from *Acetobacter oboediens* JH232 were 30°C, pH 5.5, 1.5% glucose and 2% CSL 0.27% K<sub>2</sub>HPO<sub>4</sub>, 0.115% acetic acid, 0.05% MgSO<sub>4</sub> · 7H<sub>2</sub>O. Both batch and fed-batch culture were carried out to enhance the yield of cellulose production. When fed-batch culture was applied, the yield of the cellulose was much higher than batch culture. The bacterial cellulose absorbs heavy metal ions(such as Al, Cd, Pb), and releases Ca<sup>2+</sup> and Mg<sup>2+</sup>. In addition, the bacterial cellulose shows an excellent young's modulus compared with filter paper.