

Batch fermentation for H₂ production with a new bacterium *Enterobacter asburiae* SNU-1 isolated from domestic landfill

신종환, 윤종현, 안은경, 김미선¹, 심상준², 박태현*
서울대학교; ¹한국에너지기술연구원; ²성균관대학교
(thpark@plaza.snu.ac.kr*)

Recently, there has been growing interest in biological hydrogen production which is found to be environmental. Bio-hydrogen is produced by photosynthetic or fermentative bacteria. In this study, the fermentative hydrogen producing bacterium was isolated from several domestic landfill areas and identified as *Enterobacter asburiae* SNU-1. This microorganism is a new species that has not been studied for hydrogen production. The strain, *Enterobacter asburiae* SNU-1, produced hydrogen during the dark fermentation. Important factors were investigated including pH, the concentration of initial glucose, the concentration of initial yeast extract, the concentration of initial bacto peptone, and different carbon sources. The hydrogen production started when cell growth entered early exponential phase and reached maximum production rate at the stationary phase. The hydrogen production continued for a long time even after the stationary phase. This microorganism produced more hydrogen at stationary phase than at exponential phase. The maximum volumetric hydrogen production rate was estimated to be 417.2 ml H₂/l/hr on concentrations of 15 g glucose/l.