

Improvement of Xylitol Production by Fed-Batch Fermentation with Cell Recycle Using Recombinant *Saccharomyces cerevisiae*

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Abstract

Xylitol is a commercially produced five-carbon sugar alcohol. Fed-batch fermentation with cell recycling was performed to improve xylitol productivity in recombinant *Saccharomyces cerevisiae*. Cell recycling provided an increase in cell mass which acted biocatalyst in bioconversion of xylose to xylitol. The glucose-limited feeding strategy was also applied for controlling cell growth after the complete utilization of initial glucose and for cofactor supplementation. This work successfully demonstrated that overall productivity was increased by a 1.3-fold compared with conventional fed-batch fermentations.

References

1. Yun-Seung Chung, Myoung-Dong Kim, Woo-Jong Lee, Yeon-Woo Ryu, Ji-Hyeon Kim and Jin-Ho Seo, Stable expression of xylose reductase gene enhances xylitol production in recombinant *Saccharomyces cerevisiae*.(2002), *Enzyme and Microbial Technology* **30**, 809-816.
2. Jin-Ho Choi, Kwan-Hoon Moon, Yeon-Woo Ryu and Jin-Ho Seo, Production of xylitol in cell recycle fermentations of *Candida tropicalis* (2000), *Biotechnology Letters* **22**, 1625-1628.