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Functional analysis of xylose transporters in recombinant *Saccharomyces cerevisiae* able to produce xylitol from xylose

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Xylitol is a five-carbon sugar alcohol that has been used as a natural sweetener. In order to produce xylitol by bioconversion processes, xylose and a cosubstrate should be supplied into the cell where xylose is converted to xylitol. Sugar transport is known as one of the rate limiting steps in bioconversion of xylose to xylitol by recombinant *Saccharomyces cerevisiae* containing the *Pichia stipitis* xylose reductase (XR) gene. Sugar transporters *HXT1~6* and *AGT1* genes were analyzed by introducing those genes into an *hxt* null strain which cannot uptake xylose at all. Batch fermentations with each of the recombinant S. cerevisiae strain were performed to investigate the effects of coexpression of sugar transporter genes on xylitol production. *HXT1~6* and *AGT1* genes were found to be involved in xylose transport. However, maltose transporters Mph2 and Mph3 could not deliver xylose into S. cerevisiae.