

## **Production of D-tagatose from D-galactose using equilibrium shifted isomerization by recombinant *Escherichia coli* cells containing L-arabinose isomerase**

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A rare ketohexose, D-tagatose is a potential sugar for use as a low calorie carbohydrate sweetener and bulking agent and L-arabinose isomerase mediates the bioconversion of galactose into tagatose. In order to produce D-tagatose from D-galactose, the gene of L-arabinose isomerase from *Escherichia coli* K-12 strain was transformed into the respective host cells such as galK(+) such as galK(+) (DH5 $\alpha$ , XL1-blue, MG1655, JM109, TOP10) and galK(-) strain(BL21, MC1061, ER2566). The galK(+) strain showed no activity whereas galK(-) strain exhibited activity. We select a MG1655(galK-) strain as the best tagatose producer. The bioconversion yield by the purified extracted enzyme of the strain to D-tagatose from D-galactose was estimated 30% at 37°C. The bioconversion yield by MG1655 cells to D-tagatose from D-galactose was 57% under the optimum condition of 37°C, 14h, and pH 7.0. These facts may be an equilibrium shifted isomerization resulted from the selectivities of membrane transport systems in *Escherichia coli* galK(-) strain.

### **References**

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