

### Enhancement of Glucose Isomerase Activity through Efficient Immobilization Technique

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To improve the activity of covalently immobilized glucose isomerase, the effects of glucose isomerase pretreatment with D-glucose or D-xylose prior to immobilization were investigated. Glucose isomerase was pretreated with D-glucose or D-xylose to prevent loss of activity, followed by immobilization on a silica gel surface. Pretreated immobilized glucose isomerase (PIGI) with 2.0 M D-xylose (194.0 U/g matrix) had higher activity than PIGIs with D-glucose. The optimal temperature, reaction time, and agitation speed for glucose isomerase pretreatment were 60 °C, 45 min, and 200 rpm, respectively. Consequently, the activity of PIGI with D-xylose was 254.9 U/g matrix, which is about 2.5 times higher than that of non-pretreated immobilized glucose isomerase (non-PIGI). PIGI also showed better reusability than non-PIGI, with 75.2% of its original activity being retained after 10 reuses.