

## **Stability and reusability of cyclodextrin glucanotransferase immobilized on hollow fiber membrane**

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### **ABSTRACT**

Cyclodextrin glucanotransferase (CGTase) is a starch degrading enzyme to produce cyclodextrin (CD), which can encapsulate compounds to remove flavors and aroma. However, the use of the enzyme is often limited due to the instability of the enzyme resulting in low production of CD. Immobilization technique has greatly improved the characteristics of the enzyme during the reaction. In this study, CGTase was immobilized on polyvinylidene difluoride (PVDF) hollow fiber membrane by adsorption method. The stability and reusability of the immobilized CGTase were studied and compared with free form of the CGTase. Thermal stability of the immobilized CGTase able to retain 50% of the initial residual activity at temperature up to 70°C. While there was an improvement in pH stability with a wider pH range from pH 5 to pH 8. The reusability of the immobilized CGTase was able to retain up to 40% of the initial CD production after repeatedly used for 10 cycles. Hence, the immobilization of CGTase shows a good physical and chemical resistance, which may be advantageous to be applied in industry.

### **KEYWORDS:**

Stability; Reusability; Cyclodextrin glucanotransferase; Hollow fiber membrane