

Comparison of α -Amylase activities by immobilization using TEOS in the sol-gel process

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As the environmental problems have been increasing nowadays, a biological catalyst which is a renewable resource with little pollutants has been important since it could be applicable to various areas of chemical Engineering. A bio-catalyst loses its activity generally due to heat, strong acid, strong base, organic solvents, etc.; its activity is different depending on the structure of protein constituting the bio-catalyst. Therefore, it would have many advantages by immobilizing the enzyme in appropriate ways.

In this study, the activities of free and immobilized enzyme were compared. First, the activity of free α -Amylase was measured at various temperatures. Then, the pore size distribution of TEOS depending on the amount of phosphate buffer was observed by BET. The α -Amylase was immobilized using TEOS in sol-gel process and the fixed amount of α -Amylase was calculated by absorbance of UV-vis. Finally free and immobilized α -Amylase were compared.