

Enhancement of enzyme activity of alpha amylase used in the textile industry

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Alpha amylase is used in the textile industries for desizing. In Sri Lanka the main foreign exchange source is the textile industries. Enhancement of amylase enzyme activity will reduce the cost of production and improve our competitiveness in the world market. In this study, we have obtained alpha amylase from Multicheme Company which distributes alpha amylase to the textile companies and studied the optimisation of the enzyme activity. Studies on the effect of temperature showed that optimum activity is between 37 °C to 70 °C. The Instruction for enzyme use indicates the use at 50 °C. The decrease in temperature to 40 °C will give the same effect on hydrolysis of starch with a decrease in cost of application. The optimum pH was observed from 5 to 8. At a calcium ion concentration of 0.02mM to 0.04mM the enzyme activity increased to 142% and 180% respectively. At higher concentration, the enzyme activity was inhibited. Studies on chemical modification of the enzyme showed that modification with N – ethylmaleimide increase the enzyme activity to 243%. Modification with pentanedione had no effect on enzyme activity while modification with N – Bromosuccinimide and Carbodiimide inhibited the enzyme activity.

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