ABSTRACT

EFFECT OF SEVERAL FACTORS ON CULTURE MEDIUM TOWARD GROWTH AND PRODUCTION OF CGT-ASE FROM LOCAL AMYLOLYTIC BACTERIA LTI-3-A2.4

By

Muhamad Ramdhan Nugraha

Commonly, amylolytic bacteria degrading starch into glucose by it amylase. Another extracellular enzyme such as CGT-ase that enable to convert starch into cyclodextrins is produced by these class of bacteria. This research was aimed to obtain optimum conditions for producing high specific activity CGT-ase. A local isolate named as strain LTi-3-A2.4 which has been isolated by previously researcher was used. In this research, the optimization of CGT-ase production was conducted by varying of carbon's source (cassava starch, soluble starch, corn starch, sweet potato stach, sago starch, and a mixture of maltose and cassava starch), nitrogen's source (pepton, yeast extract, urea, NH_4Cl), metal ions ($MgSO_4$, $CuSO_4$, $ZnSO_4$, $FeSO_4$, $CaCl_2$) and the pH (from pH 7 to 11) on modified Horikoshi's II culture medium.Based on results, the optimum condition for producing the CGT-ase of strain LTi-3-A2.4 showed the best in culture medium composed with cassava starch, NH_4Cl, $MgSO_4$, and on pH 7. In this condition, activity and specific activity of the enzyme are 472.72 U/mL dan 639.42 U/mg, respectively. Compared to the control medium, the specific activity of the enzyme increased three fold.

Key words: *Bacillus sp. strain LTi-3-A2.4, CGT-ase, β-cyclodextrin, cassava starch*