ABSTRACT

EFFECT OF VARIOUS FACTORS ON CULTURE MEDIUM TOWARD THE PRODUCTION OF CGT-ase FROM LOCAL ISOLATE'S AMYLOLITIC BACTERIA STRAIN LTi-21-3

By

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Microorganisms are potential resources for the production of various enzymes as well as its application on industries. Enzyme is a functional protein that enable to bind and catalyze a substrate biochemically into new compounds or products. In this research, a local amylolytic isolates named as LTi-21-3, which has been isolated by a previous researcher was used as CGT-ase producing bacteria. CGT-ase enzymes are enzymes that enable to convert starch into cyclodextrins. Optimization of CGT-ase enzyme production was carried out by varying the carbon's source (soluble starch, corn starch, sweet potato starch, sago starch, and the addition of maltose), nitrogen's sources (yeast extract, urea and NH_4Cl), metal ion's sources ($CuSO_4$, $ZnSO_4$, $FeSO_4$, and $CaCl_2$) and the pH (on pH 7, 8, 9 and 11) of the modified culture medium Horikoshi's II. The results showed that the optimum conditions for production of the enzyme was on a culture medium containing cassava starch, NH_4Cl, $MgSO_4$ at pH 8 with optimum incubation time for 36 hours. In these conditions were obtained the value of the unit and specific activity are 546,86 U/mL and 595,72 U/mg, respectively. The specific activity on this condition was approximately 253% higher than that of the modified Horikoshi's II medium without treatment.

Key words: *Bacillus sp. strain LTi-21-3, CGT-ase, β-cyclodextrin, cassava starch*