expression pattern of mutants exhibited that the mutants were isogenic variants of the parent strain and out-performance of the mutants could be attributed to changes in the genetic make up. This work represented the first report of strain improvement in *Alternaria* for hyper activity of α–amylase enzyme and suggested that this fungus could be used to extract purified enzyme.

PP 45

Single Step Purification of α-Amylase Produced by *Bacillus licheniformis* ATCC 6346 using DEAE-Sepharose

Vengadaramana A[1], Balakumar S[2], Arasaratnam V[2]
[1] Department of Botany, Faculty of Science, University of Jaffna, Sri Lanka
[2] Department of Biochemistry, Faculty of Medicine, University of Jaffna, Sri Lanka

This study was aimed at the purification of α-amylase produced by *Bacillus licheniformis* ATCC 6346 in fermentation medium at 42°C and at 100rpm. The fermentation medium contained (gL^{-1}) soluble starch, 4.0; $(NH_4)_2SO_4$, 5.0; peptone, 6.0; $FeCl_3$, 0.01; $MgCl_2.6H_2O$, 0.01; $CaCl_2.2H_2O$, 0.01; KH_2PO_4, 4.0 and K_2HPO_4, 7.5. α-Amylase activity in the spent medium was 37.5 Uml^{-1} at 48h (The enzyme activity was measured at 85°C, pH 7.0 and for 5 minutes) and the specific activity of the spent medium was 21.18 Umg^{-1}. The enzyme was purified using fractional precipitation with $(NH_4)_2SO_4$ and the maximum specific activity of 65.54 Umg^{-1} was obtained with 50% saturation of $(NH_4)_2SO_4$. The recovery of α-amylase from the spent medium by $(NH_4)_2SO_4$ precipitation was 66.6%. Further purification of $(NH_4)_2SO_4$ precipitated enzyme was done using DEAE-Sepharose column [Bed volume 5 x 1 cm (3.92ml)] equilibrated with 0.01M Tri buffer (pH 8.0). The bound proteins were eluted with a linear gradient of 0-0.8 M NaCl in the same buffer. The specific activity of 173.8 Umg^{-1} with 7.5% recovery of α-amylase was obtained by this ion exchange purification method. The enzyme sample purified by ion-exchange chromatography was separated by sodium dodecyl sulfate-polyacrylamide gel electrophoresis. The Electropherograms showed a single band for the purified enzyme. The apparent molecular weight was calculated as 55.54 kDa.

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