ABSTRACT

The present study is concerned with the production of β-Amylase in 250 ml Erlenmeyer flasks. Different bacterial cultures such as *Bacillus polymyxa* NRRL-B-68, *B. macerans* NRRL-B-391, *B. coagulans* NRRL-NRS-609, *B. circulans* NRRL-B-380, *B. megaterium* NRRL-B-3712, *B. licheniformis* NRRL-14368, 1264, *B. amyloliquefacians* NRRL-14394, *B. subtilus* NRRL-NRS-1315, *Azotobacter vinilandii* NRRL-B-4027, *Zymomonas mobilis* NRRL-B-4286 and *Micrococcus* sp. were screened for β-Amylase production. *B. licheniformis* NRRL-14368 gave 18.43±0.93 U/ml enzyme activity, so it was selected for the optimization of cultural conditions and nutritional requirements. The enzyme production was found to be maximum when fermentation medium containing (g/l) peptone 10.0. raw starch 20.0, $MgCl_2.2H_2O$ 0.2, KH_2PO_4 5.4, K_2HPO_4 7.0, $CaCl_2.2H_2O$ 2.5, $FeSO_4.7H_2O$ 0.005, $MnSO_4.5H_2O$ 0.001, NaCl 1.0, pH 7.2 was incubated at 37°C for 48 h. The optimal enzyme production (48.24±1.30 U/ml) was obtained when 30.0 g/l starch as a carbon source and 15.0 g/l peptone as a nitrogen source were supplemented in the medium. The age (20 h) and size of inoculum (4.0 %) were also optimized.

The optimal activity and stability of β-Amylase was determined as a function of pH, temperature and incubation time. In the present study, the maximum enzyme activity (61.84±0.78 U/ml) was observed at 70°C, buffer pH 6.5 and incubation time 30 min.