

## ABSTRACT

The present study is concerned with the production and characterization of alpha amylase by *Bacillus subtilis* GCUCM-25. Different surfactants such as SDS, PEG, Tween 20, Tween 80, glycine, glycerol, alcohol, triton-X or EDTA were tested for the production of alpha amylase. Of all the surfactants tested, SDS at the level of 0.2 % was found to be the best (1309 U/ml/min) for the production of alpha amylase. The production of enzyme was reached optimum (1316 U/ml/min) at 44 h after inoculation with the addition of SDS in the fermentation medium. The pH (8.0) and incubation temperature (40°C) were also optimised for the production of alpha amylase.

The alpha amylase was partially purified by acetone and ammonium sulphate precipitation. The enzyme (crude and purified) was found to be the most active at 60°C and at pH 8.0. Different stabilizers such as PEG, SDS, NaCl, CaCl<sub>2</sub>, sucrose and toluene were evaluated to obtain the maximum stability of enzyme. Of the entire stabilizers tested, PEG at the level of 1.0 % was found to be the best for maximum stability of crude and partially purified alpha amylase. The enzyme was found to be the most stable at 4 and 35°C, respectively while the stability of enzyme was greatly inhibited at a higher temperature (55°C).