

## **ABSTRACT**

The present study is concerned with the improvement of *Bacillus licheniformis* strain GCBUCM-30 for alpha amylase production in 250 ml Erlenmeyer flasks. Chemical mutation using ethyl methanesulfonate (EMS 50-300  $\mu$ /ml) was undertaken for 10-60 min. Twenty eight isolates were further selected on the basis of clear zones of starch hydrolysis. Only one isolate designated as *B. licheniformis* EMS gave  $102.78 \pm 2.01$  U/ml/min enzyme activity. Alpha amylase production was found to be maximum when fermentation medium containing (g/l) lactose 10.0, bactopectone 14.0, yeast extract 6.0, KCl 1.0, CaCl<sub>2</sub> 0.25, MgCl<sub>2</sub> 0.2, MnSO<sub>4</sub> 0.001, FeSO<sub>4</sub> 0.0005, pH 6.5 was incubated at 37°C for 72 h. The volume of medium (50 ml) and size of inoculum (4.0 %) were also optimized.

The optimal activity of alpha amylase was determined as a function of pH and temperature. In the present study, the maximum enzyme activity was observed at a temperature of 60°C and neutral buffer (pH 7.0).