ABSTRACT

The present study is concerned with the biosynthesis and characterization of alpha amylase by *Bacillus amyloliquefaciens* IIB-14 using solid state fermentation. Different agricultural by-products were evaluated for the biosynthesis of alpha amylase. Among them, wheat bran (10 g) was found to be optimal. Wheat bran was moistened with phosphate buffer at a ratio of 1:1.25. Temperature 40°C, pH 7.2 and rate of incubation 72 h was found to be optimal for the biosynthesis of alpha amylase. The size (20 %, v/w) and age (24 h) of inoculum was also optimized. Among different carbon and nitrogen sources, lactose, yeast extract and NH_4NO_3 was found to be optimal at a level of 1.5, 1.0 and 1.0 %, respectively.

Among the different buffers used, phosphate buffer was found to be the best choice of buffer for the extraction of alpha amylase. Characterization of crude alpha amylase revealed that the maximal enzyme activity (84.24 U/mg/min) was found at pH 7.0 and temperature 70°C incubated for 30 min.