ABSTRACT

The current study is related to the isolation of bacterial stain and culture conditions optimization for production and extraction of glucoamylase. The production of enzyme glucoamylase enzyme by *Bacillus* sp. was optimized in a submerged fermentation technique. The production of the enzyme was recorded at 24 hours, at 37°C temperature; 10ml inoculum volume and pH were kept at 7.0. The glucoamylase showed maximum yield under glucose and yeast as carbon and nitrogen source. The salt combinations that produced the highest levels of glucoamylase secretion from *Bacillus* strain FBA1 were 1 grams NaCl, 1.5grams $ZnSO_4$, 2grams $FeSO_4$, 2grams KH_2PO_4, 0.1grams $CaCl_2$ and 2grams $MgSO_4$. All the concentrations of micronutrients ($MgSO_4$, $CaCl_2$, KH_2PO_4, $FeSO_4$, $ZnSO_4$ and NaCl) were almost same from *Bacillus* strain FBA2 for the production of glucoamylase enzyme. Glucoamylase a cost effective enzyme was produced from *Bacillus* sp. using submerged fermentation and fruit peels were used as substrate as they are eco and budget friendly carbon source for enzyme production. The optimum glucoamylase activity (2.984 mg/ml/min for FBA1 and 2.869mg/ml/min for FBA2) was obtained at pH 7 at 37°C.