

### Abstract

Glucose oxidase produced by locally isolated strain of *Aspergillus niger* was isolated from the extract of mycelium. The enzyme purified by ammonium sulphate precipitation and size exclusion chromatography exhibited 77.53 (U/mg protein) specific activity, 60.50 % purification yield and 4.02 purification fold. The purified enzyme having 0.089 mg/ml protein content was used for kinetic and thermodynamics studies. Optimum pH and temperature for enzyme activity were found to be 5.6 and 35 °C respectively.  $V_{max}$  and  $K_m$  for the enzymes were obtained with the help of Lineweaver-Burk plot and were calculated to be 12.48 U/ml/min (140.22 U/ mg) and 13.97 mM respectively. Activation energy ( $E_a$ ), 22 KJ/mol, was calculated by Arrhenius plot. The enzyme showed free energy at constant temperature ( $\Delta G$ ) 45394.29 J/mol, enthalpy of the activation ( $\Delta H$ ) 19.73 KJ/mol and entropy of the activation ( $\Delta S$ ) -147.32 J/mol/K.