PURIFICATION AND PROPERTIES OF GLUCOSE OXIDASE FROM *ASPERGILLUS NIGER*

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Glucose oxidase which catalyzes the oxidation of glucose by molecular oxygen has application in food Industry and in quantitative determination of D - glucose in body fluids and in industrial solutions. Hence glucose oxidase from *A. niger* (CISIR N_4) was purified and characterized. Glucose oxidase was purified 6.7 fold by DEAE - cellulose anion exchange chromatography and specific activity increased from 195 to 1306 μ moles min^{-1} mg $protein^{-1}$. The recovery of glucose oxidase activity was 56.7%. Glucose oxidase showed zero order kinetics for 20 min at 37°C and linear in initial reaction rate was observed in the range of 0 - 4 μ g protein. The enzyme had a broad temperature optimum between 35° - 45°C and pH optimum was 5.0 when the glucose oxidase activity was measured in the coupled reaction with peroxidase. At pH 5.6 the enzyme retained its full activity both at 30° and 37°C, and at 45°C it retained 90% of the initial activity for 6h. The enzyme was fairly stable and on storage for 3 days, lost 3%, 9% and 12% of the initial activity at 30°, 37° and 45°C respectively. The enzyme retained full activity at pH 5.6 for 6h and during this period lost 5% and 10% of the initial activity at pH 5.0 and 3.5. However on storage for 3 days at 30°C at pH 5.6, 5.0 and 3.5, the enzyme lost was 5%, 7% and 86% of the initial activity respectively. The glucose oxidase was more stable at 30°C and at pH 5.6 and hence could be efficiently utilized in the manufacturing and analytical processes under these conditions.