KINETIC STUDIES ON THE PURIFIED α GALACTOSIDASE OF COCONUT KERNEL

C. Deepal Mathew and K. Balasubramaniam
(*Department of Biochemistry, University of Colombo*)

Two α-galactosidases from coconut kernel were previously isolated and characterized. The low molecular weight isoenzyme had been purified to homogeneity.

The molecular weight of the enzyme, which is a glycoprotein was 18, 330 daltons as determined by (polyacrylamide gel electrophoresis)

Enzyme activity using p-nitrophenyl-α-D galactopyranoside as substrate increased upto a substrate concentration of 5×10^{-4} M, after which concentration, enzyme inhibition was observed.

The Km and Vmax values calculated from the Lineweaver - Burk plot were 2.5×10^{-4} M and 25 μmole/min/mg protein respectively.

Enzyme activity increased with increase in temperature up to 60° C. The energy of activation calculated from Arrhenius plot was 6.83 kilocalories. The enzyme was stable from 30-45° C and a sharp drop in activity was observed between 50°C to 60° C.

The enzyme showed a broad pH optimum. Activity was high between pH 2.5 and 6 with a peak at pH 5.5; a sharp drop in activity being observed beyond pH 6.

Hg^{2+} ions at a concentration of 10^{-6} M non-competitively inhibited the enzyme. D-Galactose inhibited the enzyme competitively at 10^{-2} M concentrations.