

E2-37: Kinetic studies on α -galactosidase from *Penicillium citrinum*

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Traditionally α -galactosidases from fungi are used in the food industry to hydrolyse flatulence causing oligosaccharides, because mycelial pellets can

be used as immobilized enzymes for continuous processing. In this study, α -galactosidase producing fungi was isolated from soil using a raffinose containing culture medium. The species that produced the highest enzyme activity of 2.5 units/g wet weight of mycelium was identified by the International Mycological Institute, U.K. as *Penicillium citrinum*.

α -galactosidase from *Penicillium citrinum* was extracted by homogenizing using a Waring blender. The enzyme was purified by ammonium sulphate fractionation and DEAE gel chromatography. The fold purification obtained was 12 and recovery was 82%. Kinetic properties of the partially purified enzyme was studied using p-nitrophenyl α -D-galactopyranoside as the substrate. The Michaelis constant and maximum reaction velocity obtained were 1.6×10^{-4} M and 9.9×10^{-6} μ mol/min/mg protein respectively. The enzyme showed maximum activity at 50°C and when incubated at 40°C for 1 h lost 20% of its activity. The optimum pH for enzyme activity was at pH 4.0. The enzyme activity was stable between pH values 2.5 to 4.5 with a sharp decrease in activity above pH 5.0