KINETIC STUDIES OF LACTATE DEHYDROGENASE FROM SETARIA DIGITATA

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The disease caused by filarial nematodes are a major health problem in tropical countries. As a lactate fermenter Setaria species depend on lactate dehydrogenase for the continuation of glycolysis. The Kinetic properties of purified lactate dehydrogenase from Setaria digitata was investigated in the present study.

Purification of lactate dehydrogenase was described previously.[1] Polyacrylamide gel electrophoresis of the crude extract showed three lactate dehydrogenase activity bands. One major band with a Rf value of 0.38 and two minor bands with Rf values of 0.12 and 0.47. The purified enzyme showed only one lactate dehydrogenase activity band corresponding to the major band of the crude extract. The optimum pH for the enzyme activity was between pH 6.8 to pH 7.5 with a sharp decrease in activity on either side of the optimum. The enzyme was stable upto 50°C. A sharp decrease in enzyme activity was observed above 50°C. -Hydroxymercuribenzoate (10 M) inhibited enzyme activity by 81%. In the presence of cysteine hydrochloride the enzyme was not inhibited by -hydroxymercuribenzoate. The Km values for pyruvate and NADH were 0.50 mM and 0.04 mM respectively. Oxamate and Hg^{2+} were observed to be competitive inhibitors, antihelminthic drug Suramine and Ag^{+} showed uncompetitive inhibition.

References: 1. Wijesundera, S., Mathew C. Deepal, Karunanayake, E.H. & Dissanayake S. (1989). Proc. Sri Lanka Assoc. Adv. Sci., 45, Part 1,2.