CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
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Project Number
22006

Project Title
What Conditions Affect the Lactate Dehydrogenase Enzyme?

Abstract

Objectives/Goals
The purpose of this study is to determine some conditions that affect the reaction rate of the lactax dehydrogenase (LDH) enzyme. How does changing the amount of enzyme present affect the reaction ratex of LDH? How does changing the degree of acidity, measured as pH, affect the reaction rate of LDH? How does changing the amount of reactant present, pyruvate, affect the reaction rate of LDH? Dot cibacron blue (CB) inhibit the reaction rate of LDH? If so, what type of inhibition is observed?

Methods/Materials
First, a set of conditions were used to monitor LDH reaction rate. In order to answer each question of the objectives, all conditions remained identical except for the condition being tested.

Results
As more enzyme is added to the reaction the LDH reaction rate increases. LDH performs its reaction the fastest at pH 7. As more substrate is added to the reaction, LDH reaction rate increases. Cibacron blue was observed to inhibit LDH competitively.

Conclusions/Discussion
Predictions made about LDH reaction rate under different conditions were identical to the resultt obtained. But an incorrect prediction about increasing pyruvate was made.

Summary Statement
The purpose of this project is to determine what conditions affect the reaction rate of lactate dehydrogenase enzyme.

Help Received
Kathy McNamara Schroeder at San Diego State University donated the materials, equipment and procedures for this project. I performed all of the experimental work myself. My brother Genaro Hernandez showed me some math and graphing techniques used in this project. My brother also guided