

Enzyme controlled reactions lab essay sample



**ASSIGN
BUSTER**

1) Describe the relationship between substrate concentration and the initial reaction rate of an enzyme-catalyzed reaction. Is this a linear relationship? What happens to the initial reaction rate as substrate concentration increases? A) The relationship between the substrate concentration and the initial reaction of an enzyme-catalyzed reaction is very productive, but is dramatically affected by the pH level of the given solution. The most productive pH level is pH7 B) The relationship is somewhat linear both according to the pH level, and substrate concentration up to the point of saturation, which in this case was reached between 2g, and 4g of substrate C) The reaction grows in productivity with an increase in concentration up to the point of saturation which in this case is between 2g, and 4g of substrate. Increasing the amount of substrate beyond that level has no added effect.

2) What is the maximum initial reaction rate for this enzyme at pH 7? The maximum initial reaction rate of this enzyme at pH7 is 350×10^{-6} per minute of product formed with a saturation of between 2g and 4g of substrate.

3) Explain why the maximum initial reaction rate cannot be reached at low substrate concentrations. It is my understanding that at low substrate concentration there are many enzymes that are not producing anything because they have no substrate molecules to work with. At low concentration all substrate molecules are absorbed immediately by waiting enzymes on a first come first serve basis.

4)What does your data indicate about the optimum pH level for this enzyme-catalyzed reaction? According to this experiment the data shows that the optimal pH level for this enzyme catalyzed reaction is pH7

5)Enzymes function most efficiently at the temperature of a typical cell, which is 37 degrees Celsius. Increases or decreases in temperature can significantly lower the reaction rate. What does this suggest about the importance of temperature The importance of temperature cannot be overstated. Very small fluctuations in temperature can have dramatic results on enzyme catalyzed reactions as well as all other parts of the human organism; however there are times when the human body will use this temperature result to its advantage when there is a need to kill or slow certain cells and reactions; therefore producing a fever by raising the body temperature for the desired effect.