Enzyme catalysis lab report essay sample

Background: Enzymes are catalyst, which affect the rate of a chemical reaction. One consequence includes the cell to carry out complex chemical activities at relatively low temperatures. In these reactions the substrate binds reversibly to the active site. The cause of this is a decrease in the energy needed to activate the reaction of the substrate molecule to from products. Every enzyme is particular for a reaction for the reason of its amino acid sequence and unique three-dimensional structure. There are many things that can affect the activity of the enzyme. For example, as a pH is lowered an enzyme will gain H+ ions, and side chains will be affected and the enzymes shape will be disrupted. Since enzymes are catalysts for chemical reactions, enzyme reactions tend to go faster with increasing temperatures. Also if a molecule increases the rate of the reaction it is known as an activator, while if it decreases the rate it is an inhibitor.

The enzyme catalase has four polypeptide chains, each composed of more than 500 amino acids. This enzyme prevents the accumulation of toxic levels of hydrogen peroxide formed as byproducts of metabolic processes. Purpose: The purpose of this lab is to observe an alteration of hydrogen peroxide to water and oxygen gas by the enzyme catalase. This also includes the measurement of the amount of oxygen produced and accumulates the ratio of the enzyme-catalyzed reaction. Hypothesis: I believe with the inclusion of the enzyme catalase the reactions will begin to at a rapid pace but will eventually decrease with the addition of the hydrogen peroxide. Variables: The Concentration of Catalase and the concentration of Hydrogen Peroxide are the dependent variables. The amount of time is the independent

variables. The constants include the amounts of each solution and enzyme.

Materials & Methods

Materials:

* 10mL of 1. 5% H202

* 50mL glass beaker

* 1ml catalase

* 10mL H2SO4

* Burette of KMnO4

Procedures:

a. Put 10 mL of 1. 5% H202 in a clean 50 mL glass beaker.

b. Add 1 ml of catalase extract.

c. Swirl gently for 10 seconds.

d. At 10, 90, 120, 180, 360 seconds add 10 mL of H2SO4

e. Remove a 5 mL sample and assay for the amount of H2O2 in the sample

f. Use a burette to add KMnO4, drop at a time to the solution.