

Enzymatic reaction lab report assignment



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Most enzymes require specific environmental parameters in order for them to function proficiently. The factors that change the rate of the reaction can be the increase of the temperature, concentration of salt, and the pH level. For an enzyme to be effective, the salt concentration should be intermediate, the Ph should be neutral and increasing the temperature will be beneficial to the reaction, until the point at which the protein degrades and devalue. The enzyme used in this experiment is peroxidase, obtained from turnip and catalyzes the following reaction: (Peroxidase) tetragonal + H₂O

Catalase (RE) + H₂O - (Colorless) (Brown) If concentration of the enzyme (independent variable) is high, it will increase the rate of the reaction; therefore the absorbency (dependent variable) will increase. Also, variety of pH, will have some effect on the enzyme activity and the reaction rate. Our expectation is that the highest rate of the reaction should occur at the neutral pH. (Ph 7) Methods and Materials Reaction as a function of time In this part of the experiment, a blank solution was prepared by combining 4, 450 μ l of Ph 7 buffer, 50 μ l of colloidal and 50 μ l of turnip.

The spectrophotometer set (zero absorbency, 100% transmittance) at 500 NM was then calibrated with the blank solution. In the meantime two test tubes were prepared. Test tube # 1, 50 μ l of colloidal, 1000 μ l of 1% H₂O and 2, 350 μ l of Ph 7 buffer were mixed. In test tube another mixture was made with 50 μ l of turnip extract and 2, 000 μ l of Ph 7 buffer. The contents of both tubes were mixed together back and forth a couple of times and then poured into a spectrophotometer tube and inserted into the spectrophotometer. The first 20 seconds from the time of the mixing and then every 20 minutes for 2 min were recorded.

Reaction as function of enzyme concentration Prediction: The absorbency will increase as the higher concentration of the enzyme increase the rate of the reaction In this part of the experiment , the composition of the tube #1 and #2 were duplicated , except that in the tube # 2 twice as much enzyme and substrate were added . The enzyme concentration was first halved, then tripled and quadrupled. Reaction as a function of Ph.