Jonathan Quang 10/6/2014

Biology - Ms.Prahbu

Pre-Lab #4

2. Enzymes are usually proteins.

3. There are three factors that affect the structure of tertiary proteins. One is disulfide bridges, which are bonds between amino acids that contain sulfur. A second factor is the hydrogen bonds with surrounding water molecules in amino acids. A third factor is the environment the amino acids is in. If the amino acid is in water and it contains hydrophilic and hydrophobic parts, the hydrophilic parts will point to water and the hydrophobic parts will shy away.

4.When a protein is denatured, it loses some of the bonds between atoms. When the environmental stressor is removed (such as temperature returning to room temperature), the protein's atom may bond with other atoms, but not in the exact configuration it was before.

5.Refer to stapled paper.

6.Refer to stapled paper.

7.  
Procedure to test out the effect of temperature on enzyme activity:  
1. Create or find the data collection chart.  
2.Pour 15 ml of the substrate solution (H202 or hydrogen peroxide) into the 25 ml beaker.   
3. Use the thermometer to record the temperature of the solution.  
4.Add a filter paper disk to the solution. It should sink to the bottom and stay there. This will act as the negative control.  
5.Add a filter paper disk soaked in the yeast solution to the hydrogen peroxide solution. It should sink to the bottom.  
6. Using the timer, record how long it takes for the yeast soaked paper disk to rise to the surface to the nearest hundredth of a second. The substrate solution should be saved for future use.  
7.Repeat steps five and six two more times.   
8. Average the three times and record the average in the class data table.  
9. Place the beaker containing the substrate solution and yeast solution into the 45oC hot water tub, and wait until the solutions are about 45oC.  
10. Perform steps 5-8.  
11.Perform steps 9-10, substituting the hot water for the ice water at 10oC.  
Procedure to test out the effect of substrate density on enzyme activity:  
1. Create or find the data collection chart.  
2.Pour 15 ml of the substrate solution (H202 or hydrogen peroxide) into the 25 ml beaker.   
3.Add a filter paper disk to the solution. It should sink to the bottom and stay there. This will act as the negative control.  
4.Add a filter paper disk soaked in the yeast solution to the hydrogen peroxide solution. It should sink to the bottom.  
5. Using the timer, record how long it takes for the yeast soaked paper disk to rise to the surface to the nearest hundredth of a second. The substrate solution should be saved for future use.  
6.Repeat steps four and five two more times.   
7. Average the three times and record the average in the class data table.  
8.Add 5 ml of room temperature water to the 25ml substrate solution.  
9. Perform steps 4-7.  
10.Perform steps 8-9, adding an addition 5ml of room temperature water (for a total of 10 extra milliliters).