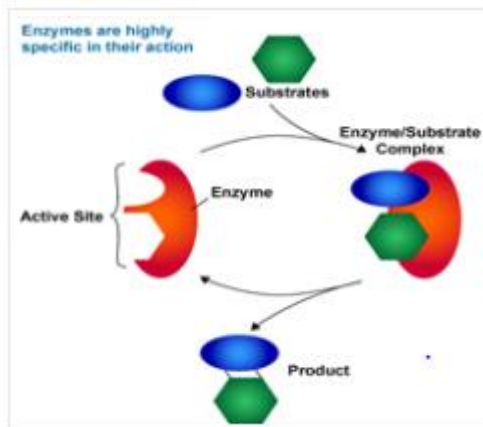# Effects of PH and Temperature on Enzyme Activity

Introduction:

Enzymes are basically the proteins which speed up the rate of reactions in living cells. These catalysts are made by the cells in very small amounts which are not consumed during a chemical reaction. They decrease the requirement of activation energy to start a reaction. The enzymes are very very specific and they may need coenzymes for carrying out the activity. They digest food substances and breakdown the food substances in cells to release the energy required for respiration. Carbohydrates, lipases and proteases are the types of enzymes and there are many others as well. Get info about Transducer Techniques.

Every enzyme shows maximum activity at an optimum pH. Their activity is slow above or below the optimum pH. Enzymes have active sites where the substrates bind. These active sites are damaged or in other words their shape is changed by changing the pH. Substrates no longer fit the active site and the reaction does not occur. A pH of about 7 is the optimum and as the pH moves further away from the optimum pH the enzyme activity starts to slow down.

Every enzyme shows highest activity at a specific temperature which is called the optimum temperature. The rate of reaction above or below this temperature is slower. Increasing the temperature causes the frequency of collisions to increase as the molecules move faster when the heat is supplied. For a 10 degree Celsius rise in the temperature, the activity of enzyme doubles until the optimum temperature is reached. Increasing further temperature damages the active sites and changes their shapes. Substrates can no longer fit into the

active sites. At temperatures higher than 60 degrees Celsius enzymes are basically completely denatured.

Thus pH and temperature affect the enzyme activity to a great extent as seen above. They are highly sensitive to temperatures as well as pHs.

Take a look at the video below to learn more:

https://www.youtube.com/watch?v=nHCyUCtfeVI&feature=emb_logo