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Dr. Rashmi Sinha
Deptt. of chemistry
H.D. Jain college, Ara

Enzymes

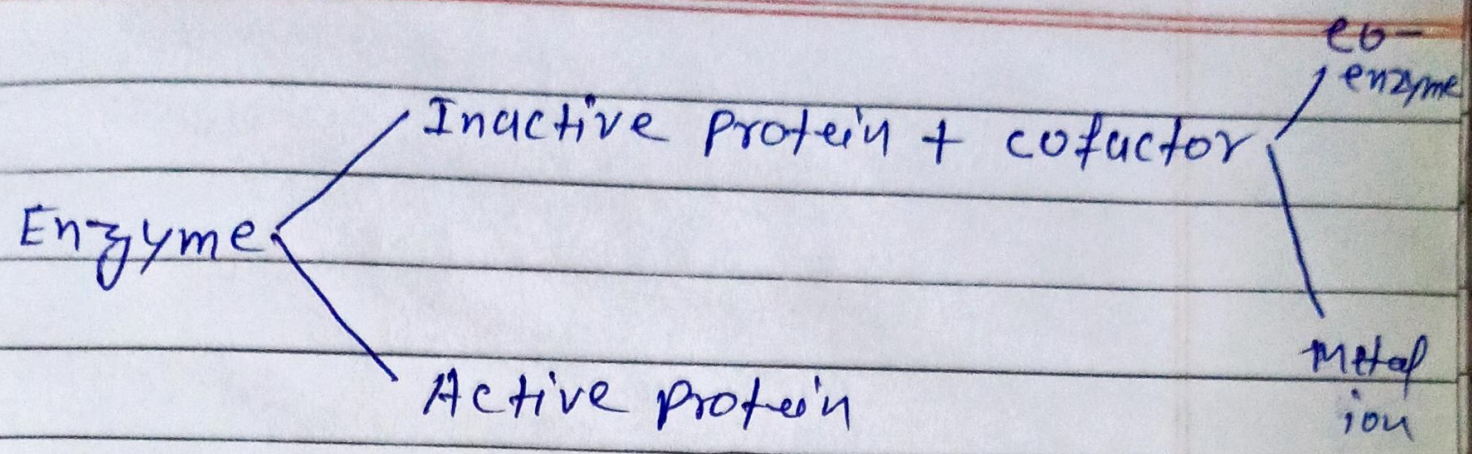
Enzymes are biological catalysts which control all biochemical reactions taking place within living cells without themselves suffering any overall change. The reactants of enzyme-catalysed reactions are termed "substrates". Each enzyme is quite specific in character, acting on a particular substrate to produce a particular product.

Every cell synthesises its own enzymes and a single body cell contains as many as 100,000 enzymes, each directing a specific reactions, each coming into play at the right moment and place. More than 100,000 different types of enzymes have been identified most of which are colourless solids, soluble in water, but some

are blue, green or greenish brown.

Most of the enzymes produced by a cell function within that cell and are called endoenzymes, but some enzymes are liberated by living cell and catalyze reactions in the cells environment such enzymes are called exoenzymes and if an enzyme is secreted in a form which acts upon the substrate i.e. without undergoing prior modification in structure is known as the active form of the enzyme (zymase).

All enzymes are proteins. However, without the presence of a non-protein component called a cofactor, many enzyme proteins lack catalytic activity. When this is the case, the inactive protein component of an enzyme is termed as the apoenzyme, and the active enzyme including cofactor termed as holoenzyme. The cofactor may be an organic molecule, is known as coenzyme or it may be a metal ion. Some enzymes bind cofactors more tightly than others. When a cofactor is bound so tightly and is difficult to remove without damaging the enzyme, is sometimes called a prosthetic group.



The enzyme activity is influnced by a number of factors, viz, conc. of the enzyme, conc. of the substrate, pH of the solution and temperature. The optimum pH value lies between pH 5 and pH 9, the value for an individual enzymes depends upon the nature of the enzyme and substrate. The optimum temperature for animal enzymes is in between 40°-50°C and for plant enzymes it's in between 50° - 60°C.