

(2nd PDF)

Date 28/04/2021

1. KINDS OF ENZYMES — Enzymes are mainly classified into six groups: —

1. OXIDOREDUCTASES: — These enzymes are necessary for oxidation and reduction reactions by transfer of hydrogen from one molecule to another. These enzymes are mainly of two types: —

(a) OXIDASE: — These are necessary for transfer of hydrogen from one molecule of oxygen.
e.g — cytochrome oxidase.

(b) DEHYDROGENASES: — These are necessary for transfer of hydrogen from one molecule to a Coenzyme like NAD FAD etc.
e.g: — Succinic dehydrogenase.

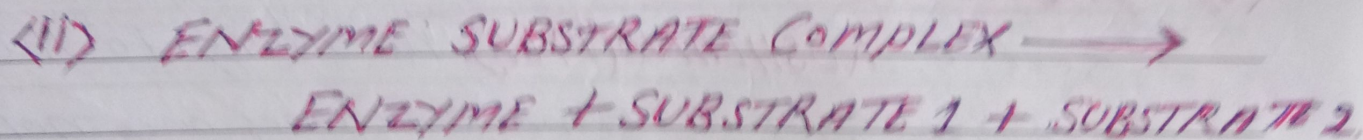
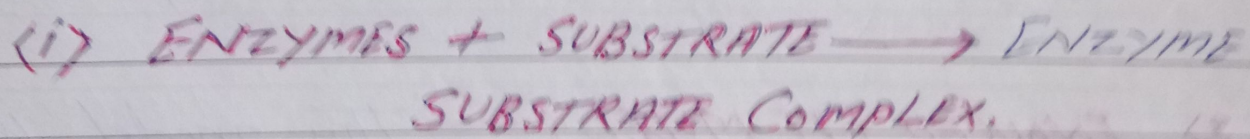
2. TRANSFERASE: — These enzymes are necessary for transfer of any chemical group from one substrate to another. e.g: — phosphotransferase.

3. HYDROLASES: — These enzymes are necessary for hydrolysis reactions i.e. breakdown of large molecules by addition of water. e.g: —
Amylase, Lipases.

4. LYASES:— These enzymes are necessary for addition or removal of chemical groups to a double bond. eg:— Pyruvic decarboxylase.
5. ISOMERASES:— These enzymes are necessary for rearrange the atom in a molecule, i.e. isomerisation eg:— phosphohexose isomerase.
6. LIGASE OR SYNTHETASE:— These enzymes are necessary for join two molecules together eg:— DNA Ligase.

MODE OF ENZYME ACTION

We describe the mode of enzyme action with the help of two reactions:



At first enzyme reacts with particular substrate and converts into enzyme substrate complex after that enzyme comes out in unchanged form but substrate divided

into Compounds. The hypothesis regarding the mechanism of Enzyme action are as follows: — (1) **LOCK AND KEY MODEL!** —

This model of enzyme action was proposed by **Emil Fischer** in 1890. The main features of this model are as follows: —

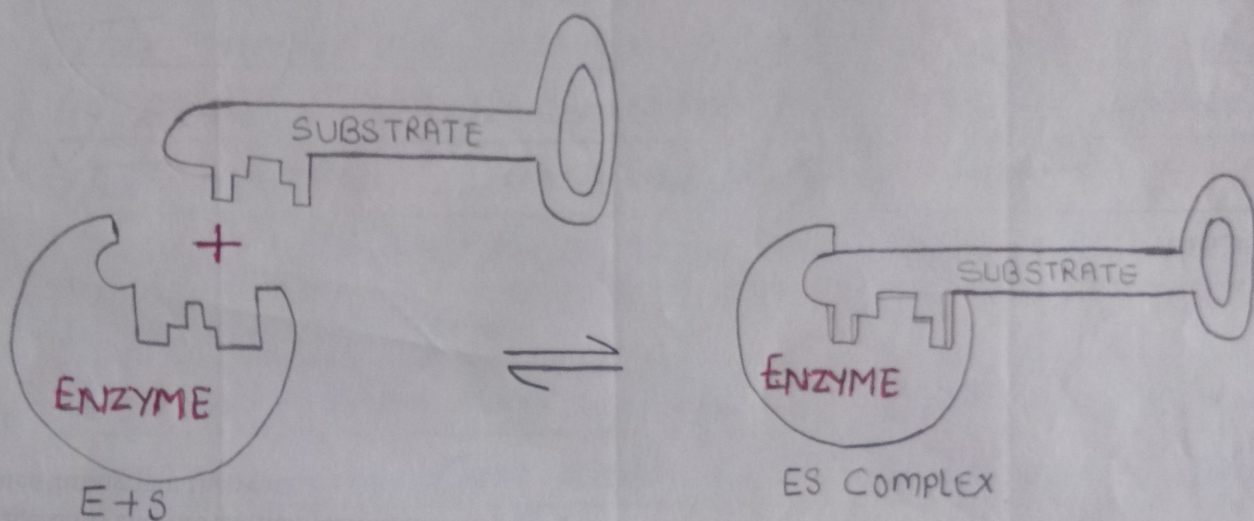
- (i) In this theory lock acts as substrate and key acts as enzyme.
- (ii) As a right key opens a right lock similarly an enzyme can act with particular substrate.
- (iii) A particular lock can be opened by a particular key specially designed to open it. Similarly enzymes have active sites where as particular substrate can only be attached.

(2) **INDUCED FIT MODEL!** — This model was proposed by **KOSHLAND (1966)**. According to this model the active sites of some enzymes are not rigid. hence enzymes changes shape complementary to that of substrate only after the substrate is bound.

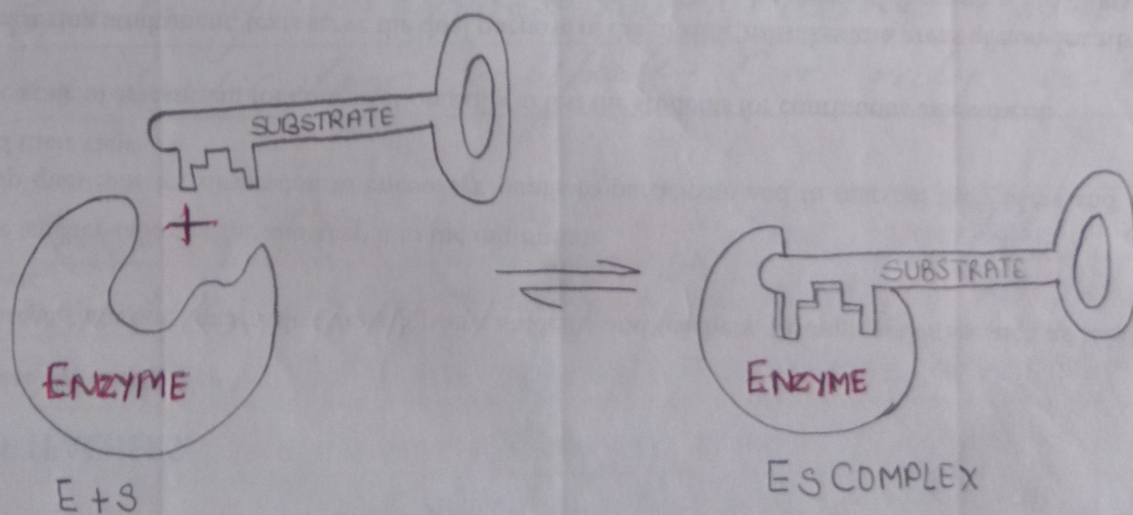
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1. Lock and Key model



2. INDUCED FIT MODEL



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