

Fermentation : Anerobic degradation of Glucose

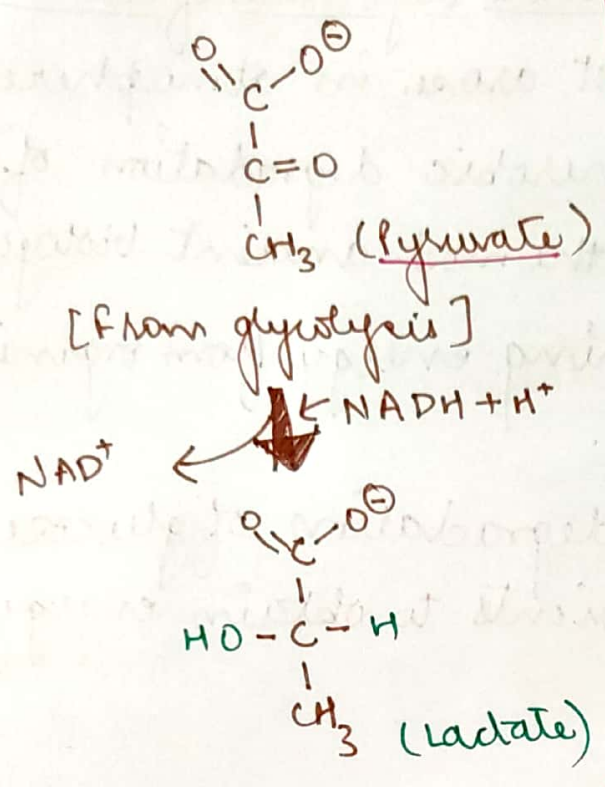
- \* Living organisms first arose in atmosphere without oxygen  $\therefore$  anerobic degradation of Glucose is probably the most ancient biological mechanism for obtaining energy from organic molecules.
- \* Fermentation is the degradation of glucose or other organic nutrients to obtain energy conserved as ATP.

Fates of Pyruvate

1. Under aerobic conditions: pyruvate gets oxidized, with loss of  $CO_2$ , to yield acetyl CoA which further goes to Krebs cycle (already discussed)

2. Reduction of Pyruvate to lactic acid : Lactic acid fermentation

- $\Rightarrow$  Muscles work under low oxygen conditions.
- $\Rightarrow$  Pyruvate is reduced to lactate on accepting  $e^-$  from  $NADH$  &  $NAD^+$  is regenerated.
- $\Rightarrow$  Generation of  $NAD^+$  is important for glycolysis to continue.
- $\Rightarrow$  It must be noted that certain tissues convert glucose to lactate even under aerobic conditions



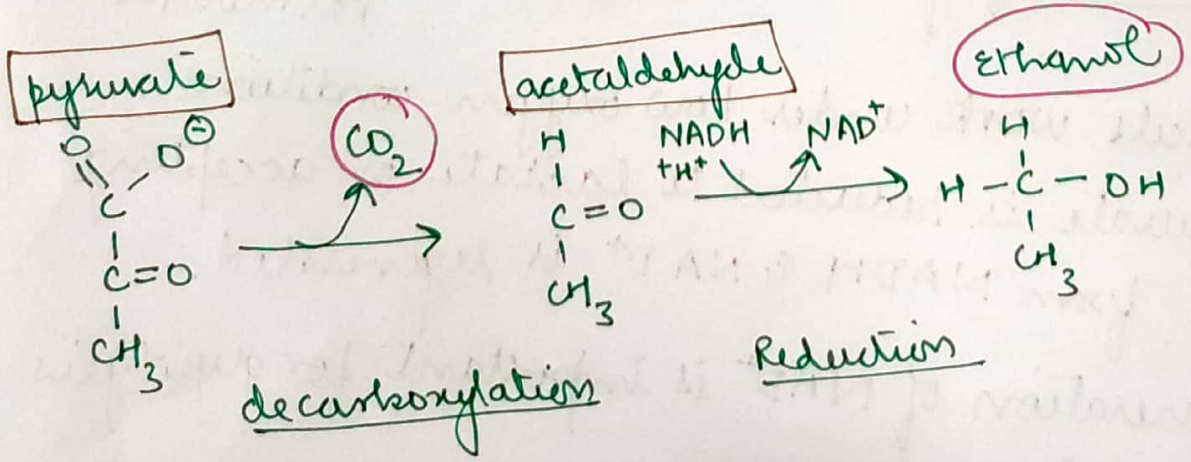
\* Lactic-acid  
for fermentation

⇒ lactate from lactic acid

⇒ fermentation i.e. degradation  
in absence of oxygen

### 3.) Ethanol Fermentation

⇒ in some plant tissues and in certain invertebrates & microorganisms such as baker's yeast pyruvate gets converted to ethanol & CO<sub>2</sub> as shown below: -



~~V.2.m.p~~

Summary :-

