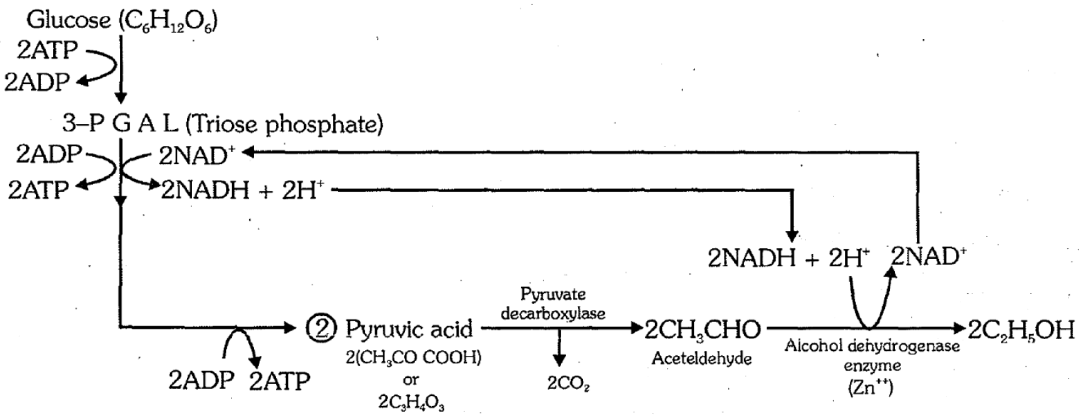
RESPIRATION IN PLANTS

FERMENTATION

FERMENTATION IS OF TWO TYPES :-

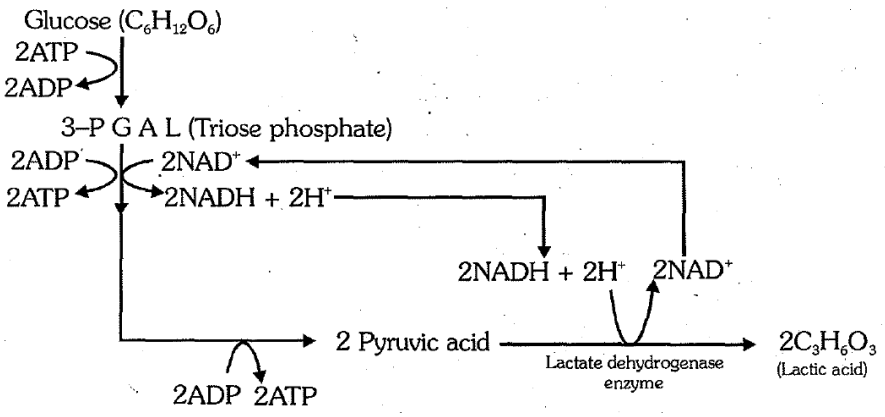
(A) Alcoholic Fermentation :

In this fermentation, say by yeast, the incomplete oxidation of glucose is achieved under anaerobic conditions by sets of reaction where pyruvic acid is converted to CO_2 and ethanol. The enzymes, pyruvate decarboxylase and alcohol dehydrogenase catalyse these reactions.



(B) Lactic acid Fermentation :

Some bacteria produce lactic acid from pyruvic acid. In animal cells also like in muscles during exercise, when oxygen is inadequate for cellular respiration pyruvic acid is reduced to lactic acid by lactate dehydrogenase.



- The reducing agent is NADH + H^+ which is reoxidised to NW in both the processes.
- During alcoholic fermentation triose phosphate (3PGAL) is the electron donor and acetaldehyde is acceptor, while during lactic acid fermentation although electron donor is triose phosphate but acceptor is pyruvic acid.

Q. What is the net ATPs that is synthesised when one molecules of glucose is fermented to alcohol or lactic acid?

Ans. 2 ATP

Q. What would be the maximum concentration of alcohol in beverages that are naturally fermented ?

Ans. ≤ 13%

Q. What is the way to obtain alcoholic beverages of alcohol content greater than 13 percent concentration ?

Ans. Distillation

Q. What is the process by which organisms can carry out complete oxidation of glucose and extract the energy stored to synthesise a larger number of ATP molecules needed for cellular metabolism ?

Ans. Aerobic respiration is the process that leads to a complete oxidation of organic substances in the presence of oxygen and release CO_2, water and a large amount of energy present in the substrate.

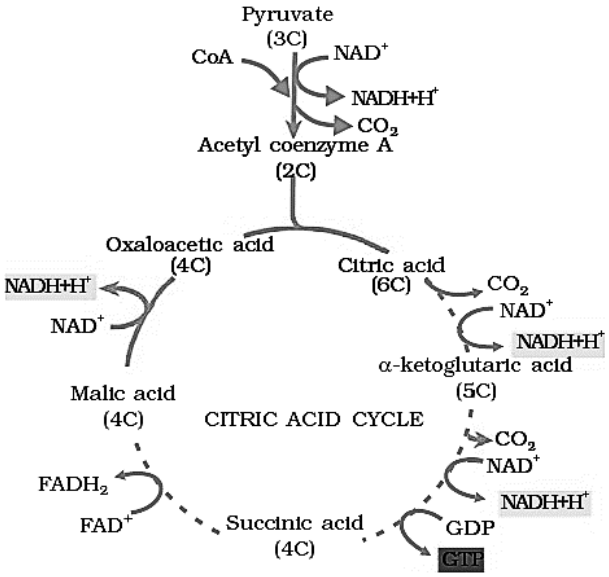


Fig. The Citric acid cycle