Subsidiary
Part-II
Lecture No-10

Plant physiology
Group-C
Respiration

14th August 2020
Theory paper

GLYCOLYSIS: Breakdown of hexose to pyruvic acid. The process is called Glycolysis or Embden-Myerhof-Paranas (EMP) pathway. This process occurs in the cytosol and is independent of presence or absence of O_2. It is also called cytoplasmic respiration or common respiratory pathway and is universal to all living organisms. The whole glycolytic pathway is here. Conversion of one molecule of glucose into fructose-1-6-diphosphate requires consumption of 2 ATP molecules. The further breakdown of fructose 1-6-diphosphate ultimately yields 2 moles of 3-PGAL

Sciene conversion of each molecule of 3-PGAL into pyruvic acid yields 2 ATP and reduces one molecule of NAD into $NADH_2$. Both the molecules of 3-PGAL will yield 4 ATP 2 $NADH_2$ molecules. Thus in the whole process of glycolysis, Taking into account one molecule of glucose we have a net gain of only 2 ATP (4 ATP generated - 2 ATP initially consumbed), 2 $NADH_2$ and 2 molecules of pyruvic acid (pyruvate).

The overall glycolytic process is thus summed up as –

Glucose (1 mole) + 2 ADP + 2 ip + 2 NAD → 2 ATP + 2 $NADH_2$ + 2 pyruvate.

OR,

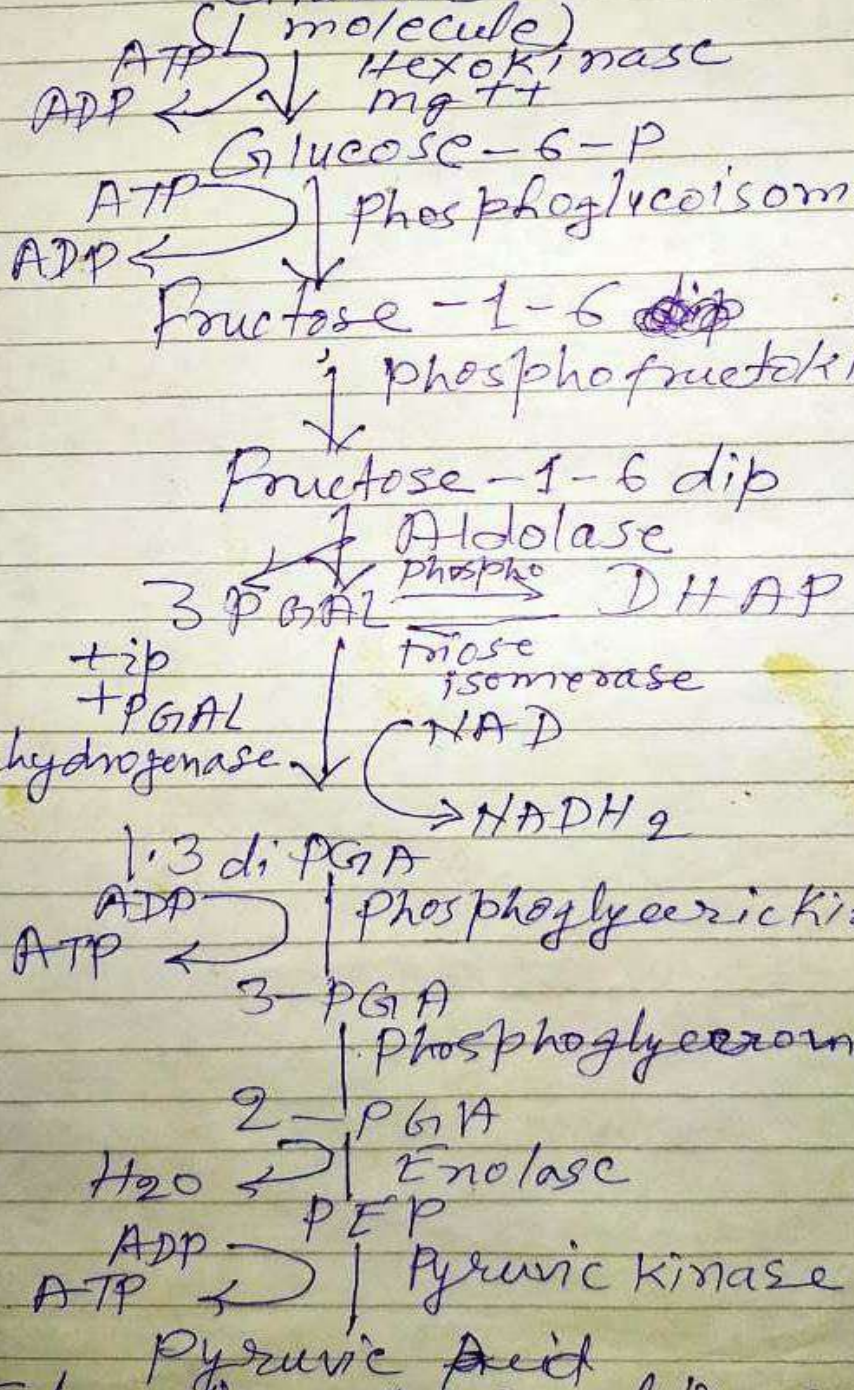

Fig- Schematic representation of Glycolysis.