

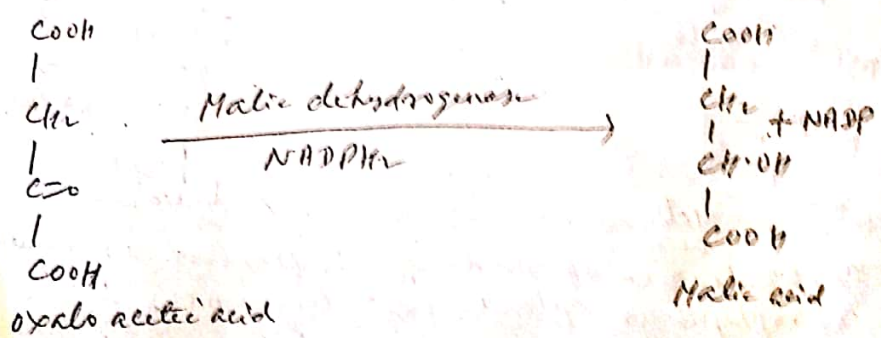
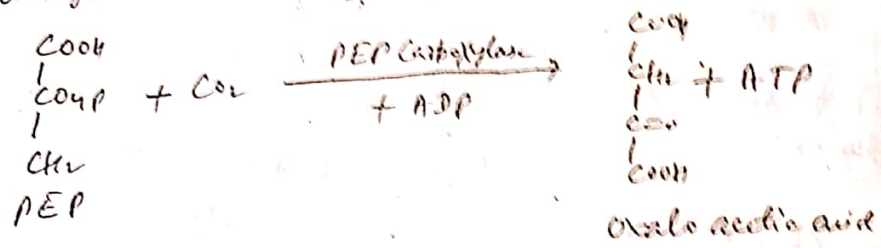
Name of the Subject : Botany
 Semester : B.Sc. II
 Topic : CAM PATHWAY (Plant Physiology)
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 Lecture No. : 16

Crossulacean acid Metabolism (CAM pathway)

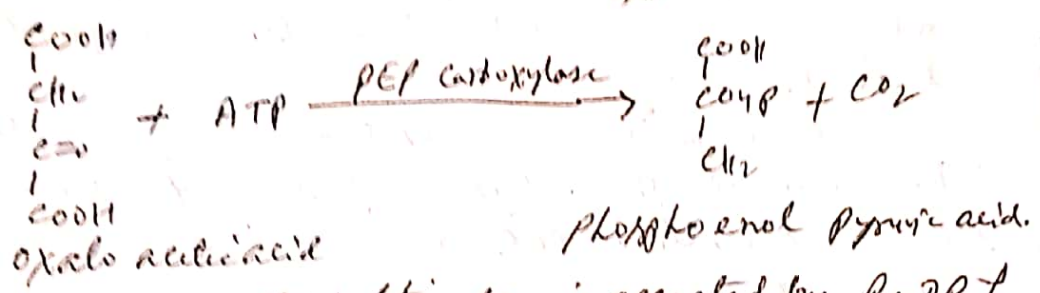
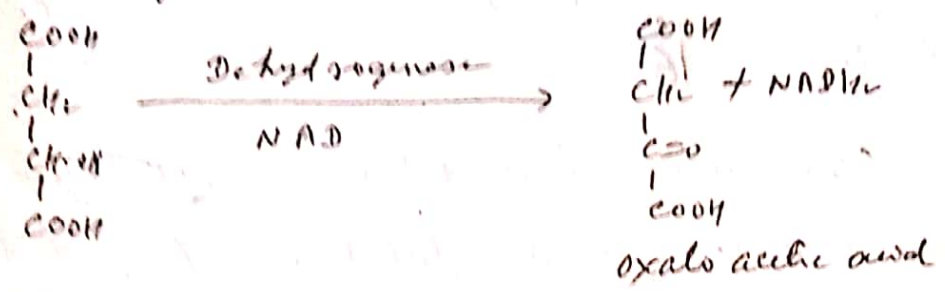
The crossulacean acid metabolism is found in the members of families like crossulaceae, Euphorbiaceae and cactaceae.

In them it is seen that opening of stomata takes place in dark. During dark CO₂ fixation occurs. The CO₂ acceptor is PEP, as we find in connection with C₃ plants.

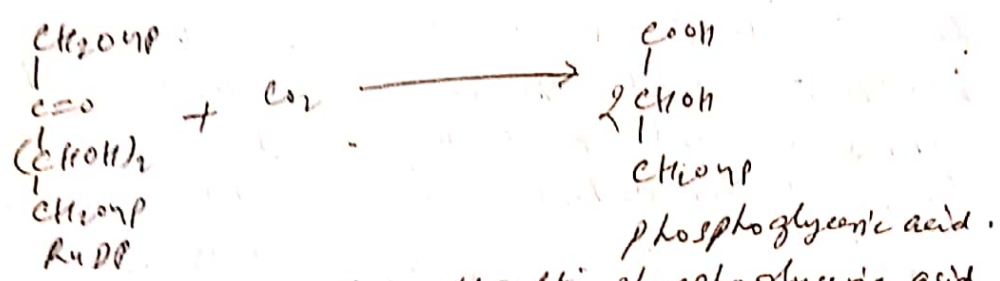
This phosphoenol pyruvic acid in the presence of enzyme PEP carboxylase combines with a molecule of CO₂ to form a 4C acid, oxaloacetic acid. This oxaloacetic acid is then reduced to Malic acid (4C) in the presence of enzyme Malic dehydrogenase and NADPH₂.



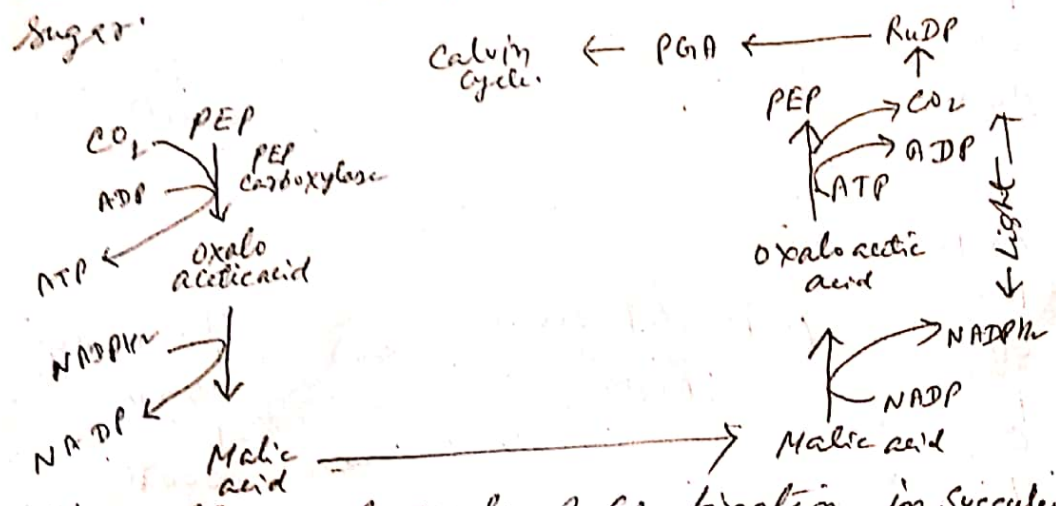
But during the night this Malic acid undergoes oxidation by losing a molecule of hydrogen. This reaction causes the formation of oxaloacetic acid. This oxaloacetic acid is then decarboxylated in the presence of ATP and an enzyme PEP-Carboxylase.



Now this CO₂ is accepted by RuDP & the formation of two molecules of PEA takes place. This reaction is catalysed by enzyme Carboxylase.



There after this phosphoglyceric acid is reduced through pentose phosphate cycle into sugar.



Sketch diagram of mode of CO₂ fixation in Succulent Xerophytes or plants exhibiting CAM.