

Study Material (Botany)

6th Semester

Paper CC (XIV) - Bio-Technology & plant tissue -
culture

Southern Hybridization →

The DNA-DNA hybridization discovered by EM Southern. DNA is fragmented by mechanical shearing or restriction endonuclease and subjected to electrophoresis using polyacrylamide or agarose gel.

Marker DNA fragments of known sizes are run in a separate line which permit an accurate determination of size of an unknown DNA molecule by interpolation.

In many situations it is critical to detect and identify DNA fragments in a transgenic. So in these animals the DNA fragment 1st denatured, subjected to DNA probe. The membrane having DNA-DNA hybrid is now placed in close contact with an X-ray film.

Study Material.

Botany

4th Semester

Plant Metabolism - CC-VIII

β - Oxidation of fatty acids

Mitochondrial oxidation of fatty acids takes place in three stages. In the first stage, β -oxidation of fatty acids undergo oxidative removal of successive two-carbon units in the form of acetyl Co-A, starting from the carboxyl end of the fatty acyl chain.

In the second stage of fatty acid oxidation, the acetyl groups of acetyl Co-A are oxidised to CO_2 in the Citric acid cycle, which also takes part place in the mitochondrial matrix. Acetyl Co-A derived from fatty acids thus enters a final common path way of oxidation with the acetyl Co-A derived from glucose via glycolysis and pyruvate oxidation.

Place of Reaction - Cytosol

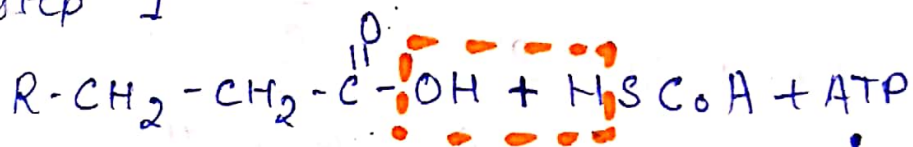
β -oxidation occurs in 3 following steps -

A. Activation of fatty acid chain

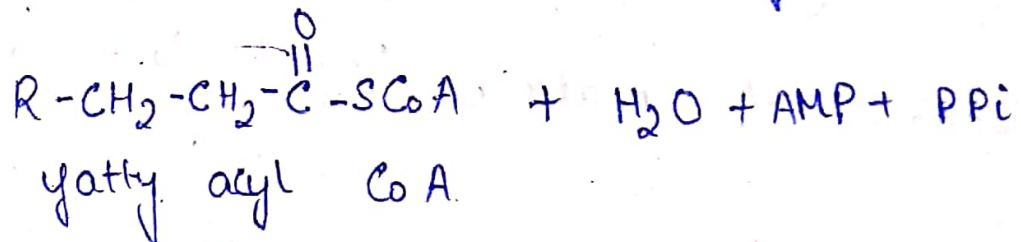
B. Transport or Transfer of activated fatty acid chain from cytosol to mitochondrial matrix through carrier protein (carnitine shuttle) located in mitochondrial matrix.

C. β -oxidation proper

A Step 1

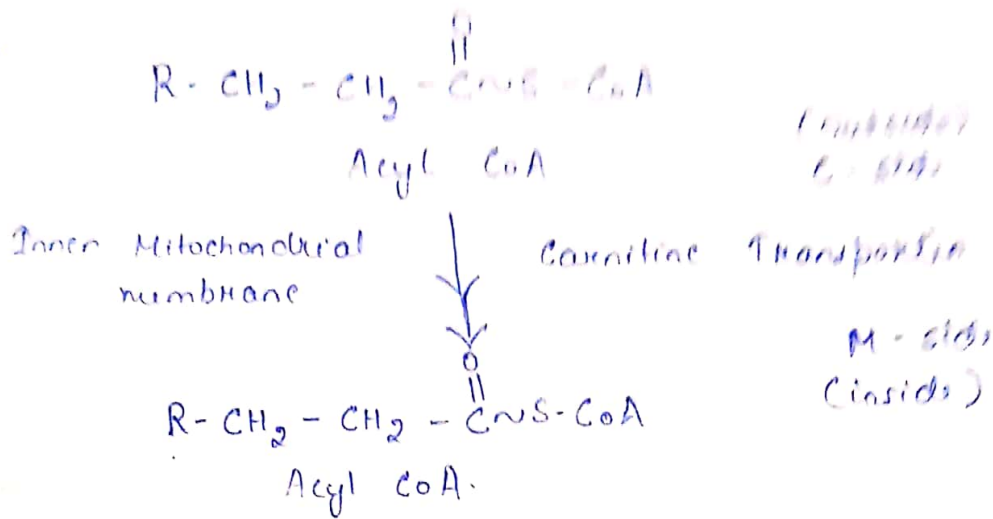


↓ Thiokinase



In these step, Fatty acid with the help of enzyme Thiokinase combine with coenzyme (Co-A)

B.



C. β -Oxidation proper.

For complete breakdown of activated fatty acid, following reaction steps involved —

- i. Oxidation
- ii. Hydration
- iii. Oxidation
- iv. Splitting.

