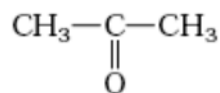
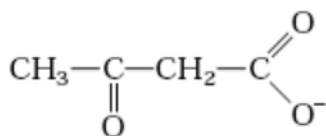


Ketone Bodies

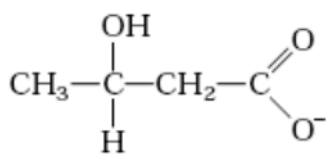
The acetyl CoA formed during β -oxidation can enter either the TCA cycle or undergo conversion to ketone bodies.



Acetone



Acetoacetate



D- β -Hydroxybutyrate

The pathway by which the ketone bodies are generated is called **KETOGENESIS**. *The organ where the Ketogenesis occurs is liver and organelle where the Ketogenesis occurs is mitochondria.* The acetone is exhaled and other two ketone bodies move to extra-hepatic tissues where they are converted to acetyl CoA and enter TCA cycle for complete oxidation providing energy to the tissues.

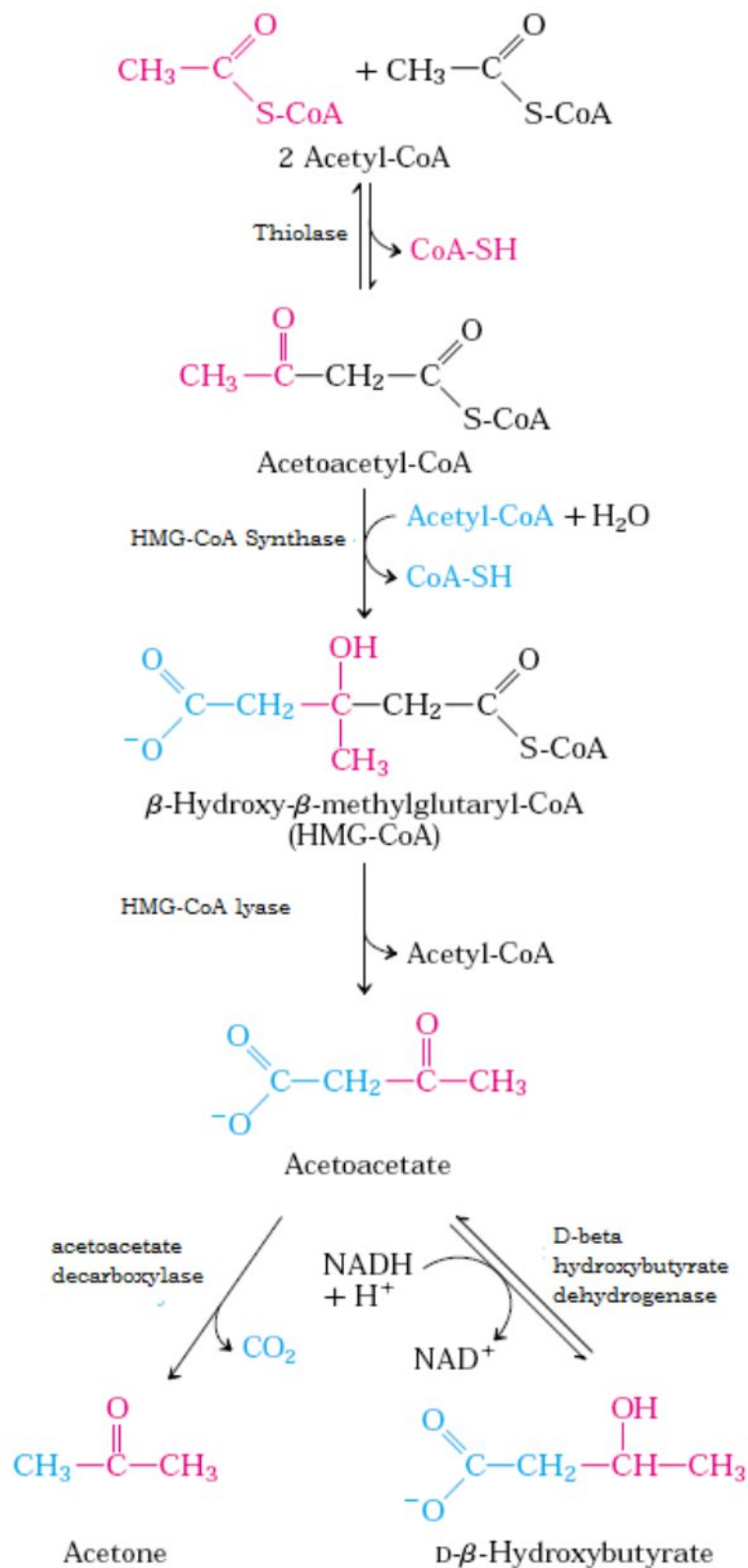
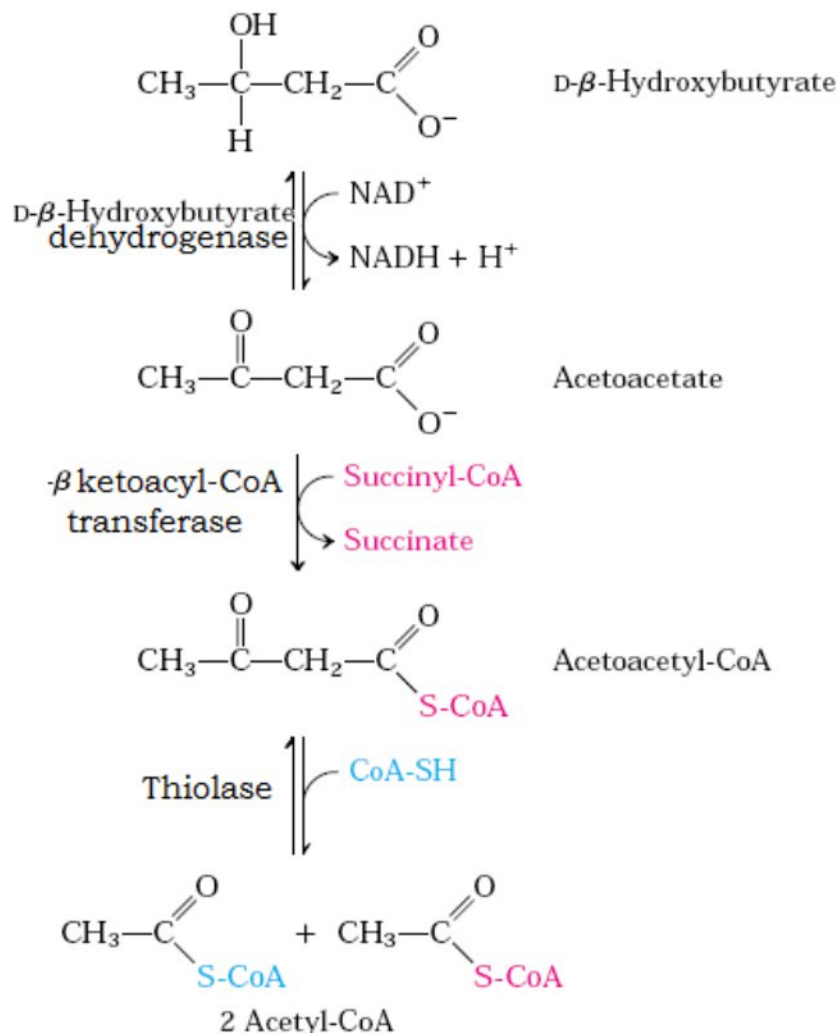


Fig: The pathway of Ketogenesis.

Ketone Bodies Oxidation:

The oxidation of ketone bodies occurs in extra-hepatic tissues (tissues other than hepatic tissues) by converting the ketone bodies back to acetyl CoA where they are oxidised in TCA cycle.



The liver is the producer of ketone bodies and they are used as fuel by other tissues.

CONDITIONS FOR KETOGENESIS:

1. Deficiency of glucose e.g. during starvation.
2. Glucose not utilized e.g. during diabetes mellitus.

In the two above mentioned conditions, glucose oxidation is not possible as a result the β -oxidation of fatty acids starts producing huge amounts of Acetyl CoA. Apart from this due to deficiency of glucose, it is generated from non-carbohydrate source by the pathway of gluconeogenesis that utilizes the intermediates of TCA cycle. Thus TCA is stopped that is main pathway for the oxidation of Acetyl CoA. As a result, the Acetyl CoA produced by β -oxidation of fatty acids move to the alternative pathway of Ketogenesis instead of TCA cycle.