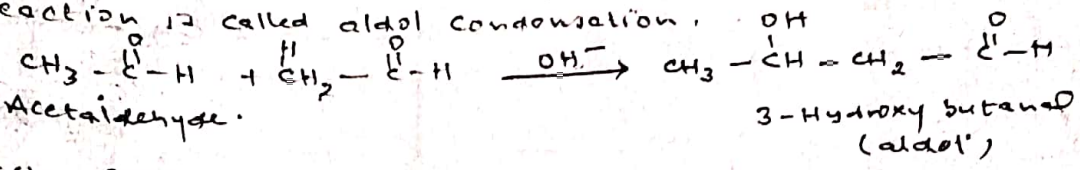


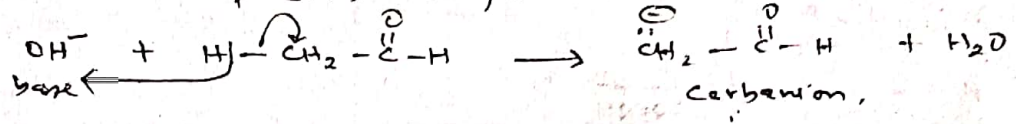
Aldol Condensation Reaction

Aldehydes having α -hydrogens undergo self oxidation in presence of a base to form products called aldols. The reaction is called aldol condensation.

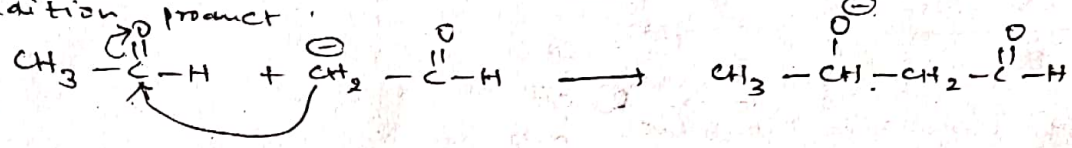


Mechanism

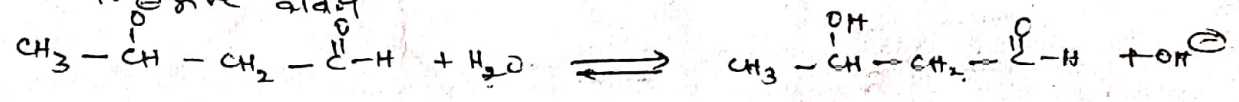
i) Formation of carbanion from a molecule of aldehyde and base.



ii) Now carbanion attacks on second aldehyde molecule to form addition product.



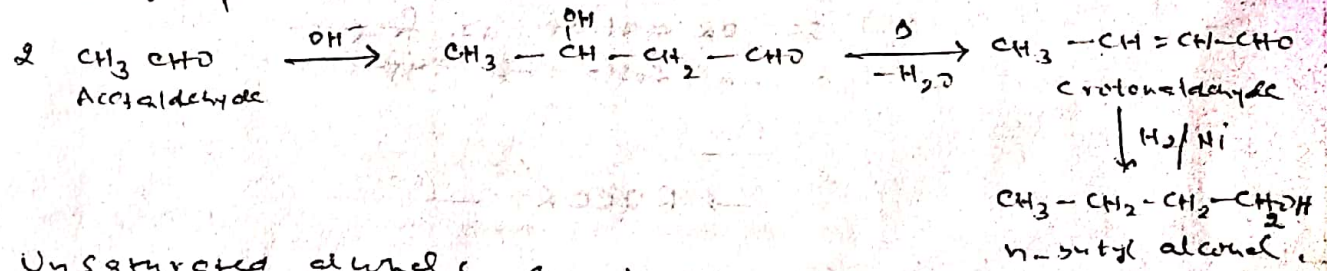
iii) The negative oxygen in the product accepts a proton from water to give aldol.



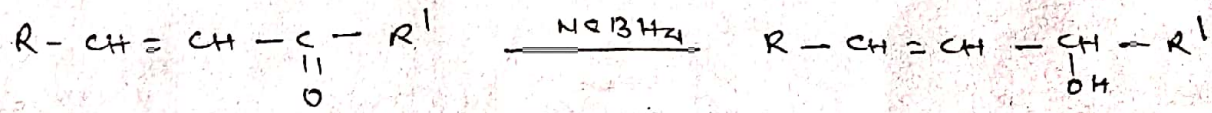
Application of Aldol Condensation reaction

i) Synthesis of saturated alcohol

n-butyl alcohol can be prepared on industrial scale by the using of aldol condensation.



ii) Unsaturated alcohols can be prepared by reducing the unsaturated aldehyde or ketone obtained by aldol condensation with sodium borohydride (NaBH_4) which does not attack the carbon-carbon double bond.



iii) Sorbic acid (a food preservative) can be prepared by the condensation of crotonaldehyde with acetaldehyde followed by oxidation.

