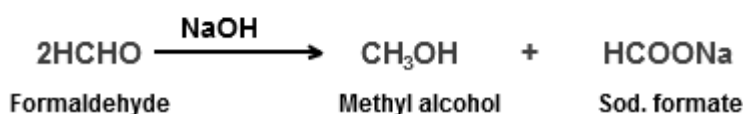
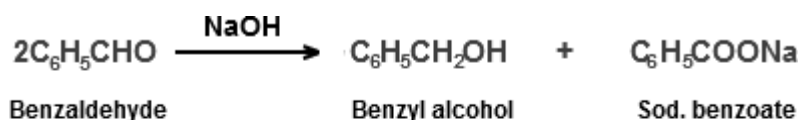


CANNIZZARO REACTION

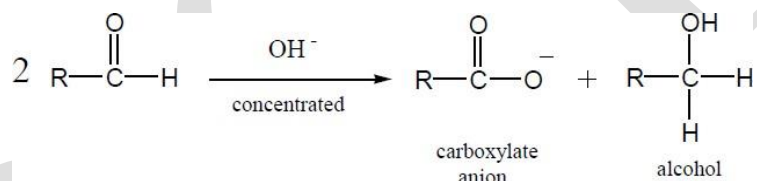
The Cannizzaro reaction, named after its discoverer *Stanislao Cannizzaro*.

The disproportionation (self-redox) of aldehydes lacking α -hydrogen atoms in presence of strong base to form salt of an acid and a primary alcohol is known as Cannizzaro reaction.

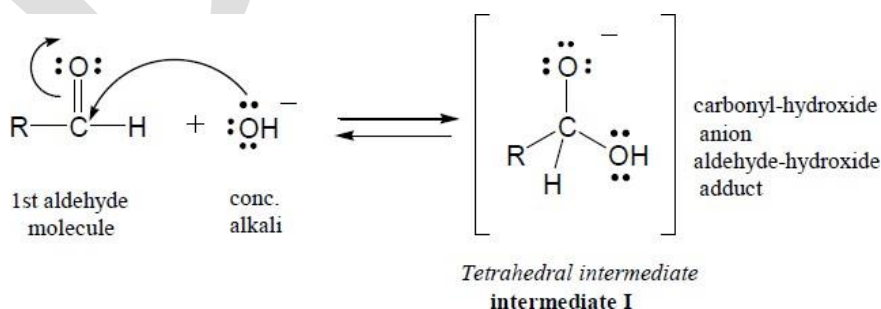
Thus, aromatic aldehydes, formaldehydes, trialkyl acetaldehyde, heterocyclic aldehydes undergo Cannizzaro reaction.



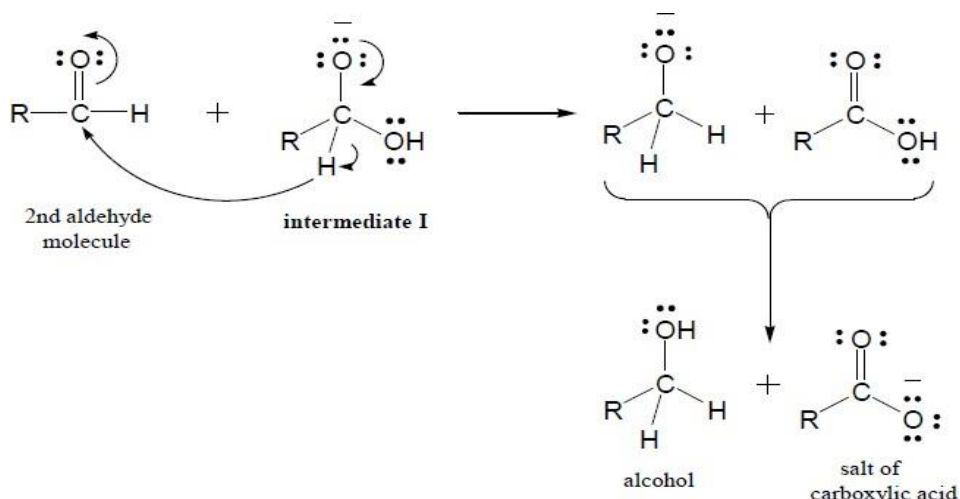
Reaction Mechanism:



Step I: *Nucleophilic addition* of an OH^- ion to the 1st aldehyde molecule gives a tetrahedral intermediate I.



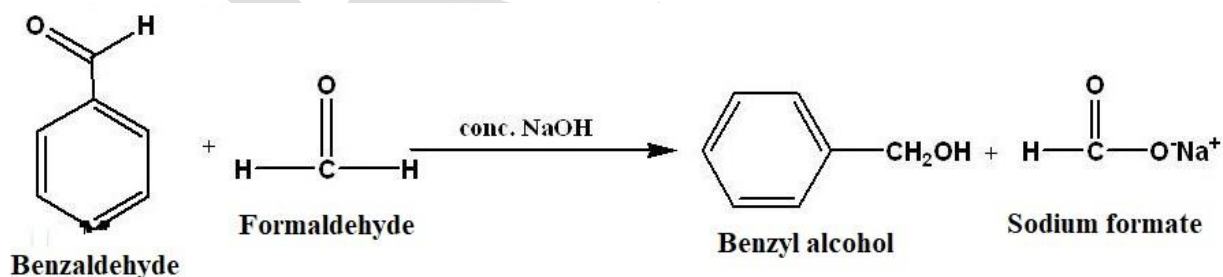
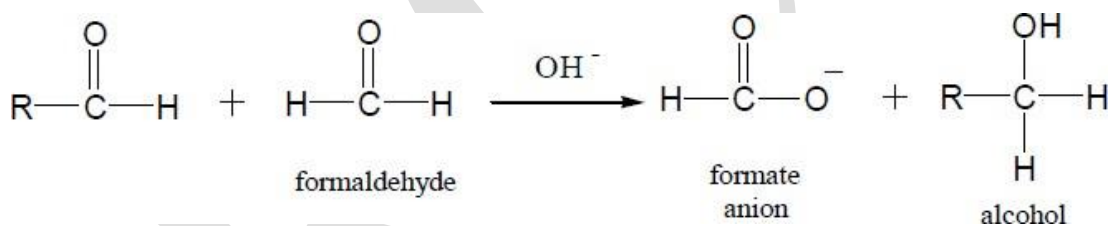
Step II: *Hydride shift:* The tetrahedral intermediate I, expels a hydride ion “as a leaving group” and is thereby oxidized. A second aldehyde molecule accepts the hydride ion in another nucleophilic addition step and is thereby reduced.



CROSSED CANNIZZARO REACTION

In general, a mixture of aldehydes undergoes a Cannizzaro reaction to yield all possible products. If one of the aldehydes is formaldehyde, the reaction yields almost exclusively salt of formic acid and the alcohol corresponding to the other aldehyde. Such a reaction is called a **Crossed Cannizzaro Reaction**.

If two different aldehyde having no α -Hydrogen, it is called **Crossed Cannizzaro Reaction**.



Reaction Mechanism: