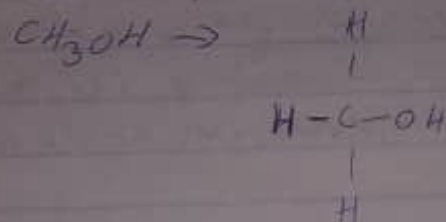


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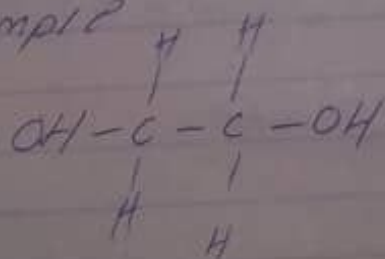
- 1) Alcohols can be classified based on;  
1. Number of hydrogen atoms attached to the carbon atom containing the hydroxyl group. If no hydrogen atom is attached, it is called a tertiary alcohol, one hydrogen atom attached to a secondary alcohol ( $2^\circ$ ) and two or three hydrogen atoms attached is called primary alcohol ( $1^\circ$ ) e.g



methanol ( $1^\circ$ )

- ii) Number of hydroxyl groups they possess.  
Monohydric alcohols have one hydroxyl group, dihydric alcohols have two hydroxyl groups while trihydric alcohols or triols have three hydroxyl groups present.

example



Ethane-1,2-diol

Dihydric alcohol

- 2) water

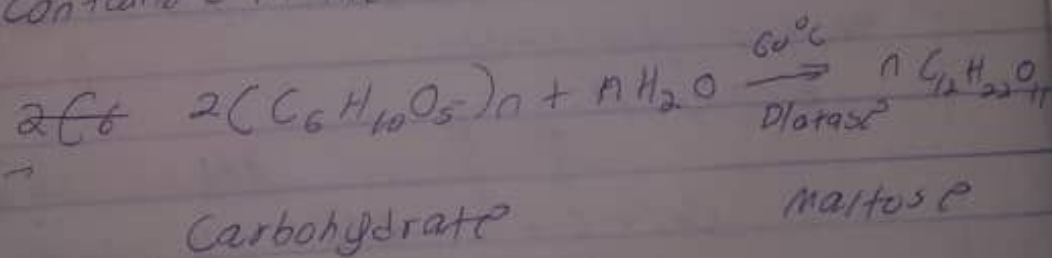
Lower alcohols with up to three carbon atoms in their molecules are soluble

In water because these lower alcohols can form hydrogen bond with water molecules. The water solubility of alcohols decreases with increasing relative molecular mass.

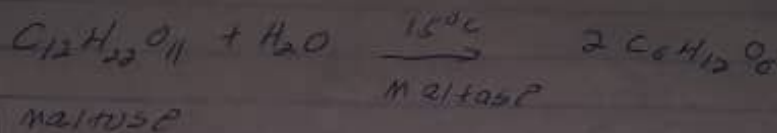
### Organic solvents

All monohydric alcohols are soluble in organic solvents. The solubility of simple alcohols decreases and polyhydric alcohols is largely due to their ability to form hydrogen bonds with water molecules.

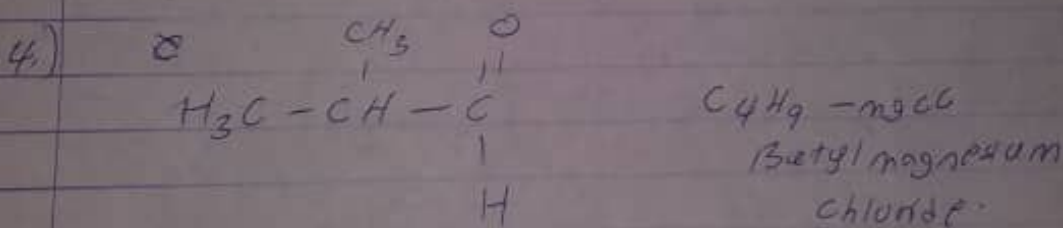
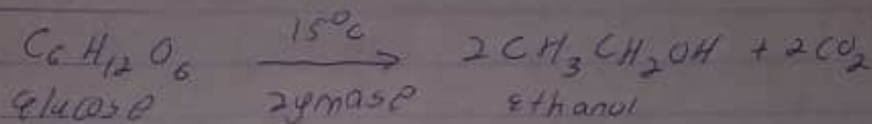
- 3.) Manufacture of ethanol Industrially  
Starch containing materials including molasses, potatoes, cereals, etc are warmed with malt at 60°C for a specific period of time and converted into maltose by the enzyme diastase contained in the malt.



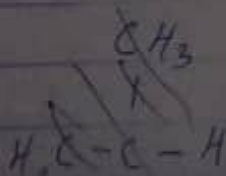
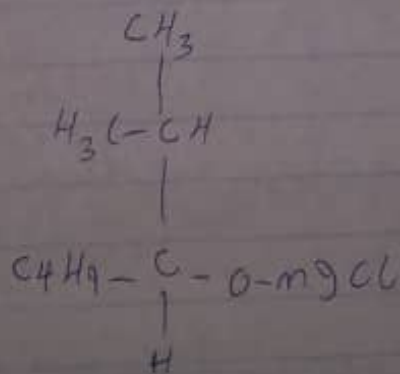
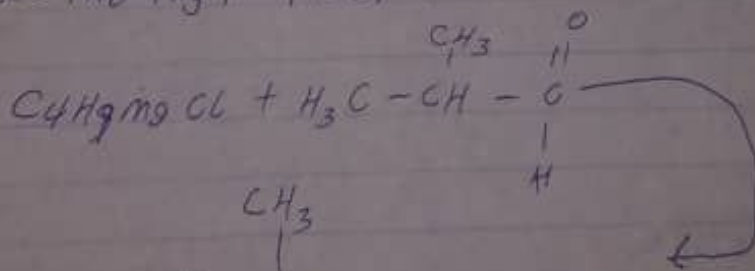
The maltose is broken down into glucose on addition of yeast, which contains the enzyme maltase and at a temperature of 15°C

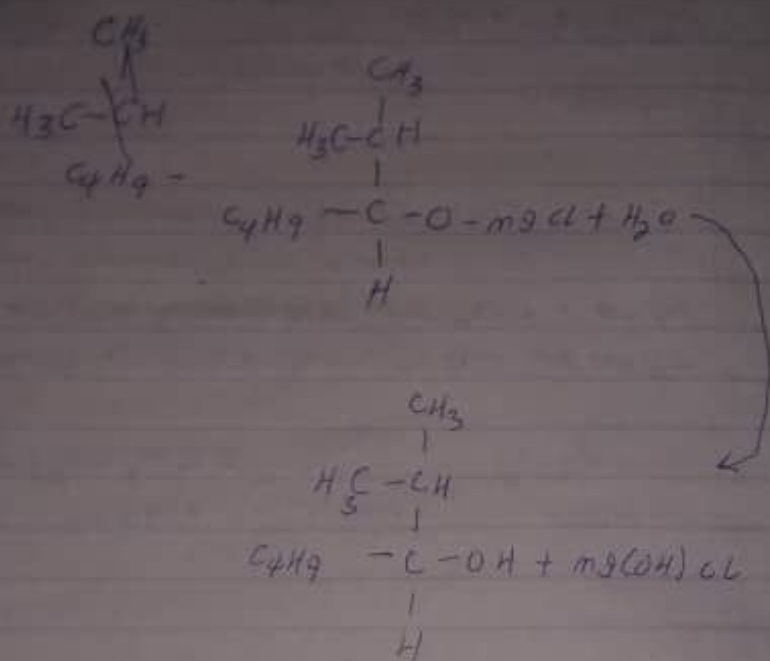


The glucose at constant temperature of  $15^{\circ}C$  is then converted into alcohol by the enzyme maltase and at a temperature  $20^{\circ}C$  zymase contained also in yeast.



$\alpha$ -methyl-propanal

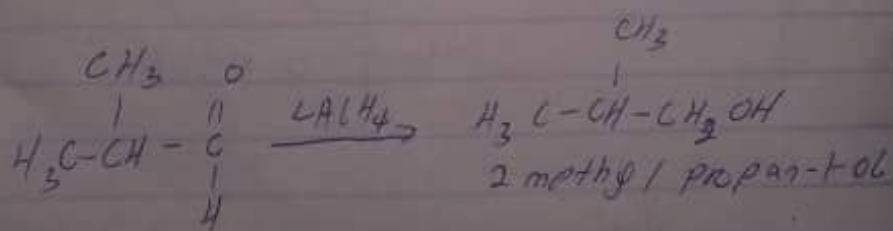




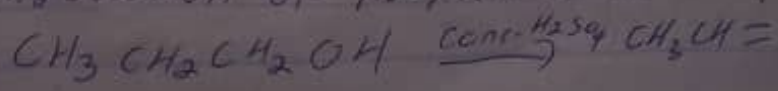
5)

6.)

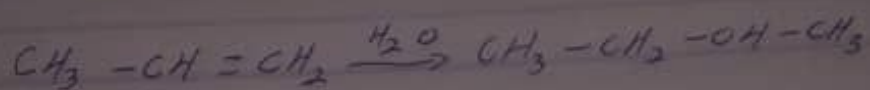
7.) Reduction of 2-methyl propanal.



8.) Dehydration of propan-1-ol



i) Hydrolysis of propene



Propene is hydrolyzed to propan-2-ol in accordance with Markovnikov's addition which states that in an ~~asymmetric~~ <sup>unsymmetrical</sup> addition the ~~negative~~ <sup>positive</sup> part of the reagent gets attached itself to the carbon atom of the alkene which has less number of hydrogen atoms.