

19/MHS 01/236

(1)

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Course Code: CHM 102 Matric No: 19/MHS 01/236

(a) They are classified based on the number of hydrogen atoms attached to the carbon atoms containing the hydroxyl group

If the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group are 2 or 3 it is called a primary alcohol ( $1^\circ$ ) eg  $\text{CH}_3\text{CH}_2\text{OH}$

If the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group is one, it is called secondary alcohol ( $2^\circ$ ) eg  $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$

If no hydrogen atom is attached to the carbon bearing the hydroxyl group, it is called a tertiary alcohol ( $3^\circ$ ). eg  $(\text{CH}_3)_3\text{C}-\text{OH}$

b) They are classified based on the number of hydroxyl groups they possess.

Monohydric alcohols have one hydroxyl group present in the alcohol structure. E.g  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$

Dihydric alcohol/Glycols have 2 hydroxyl

②

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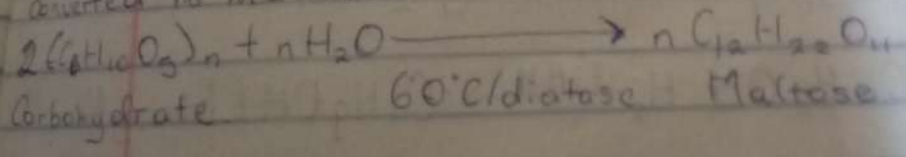
groups present in the alcohol structure. E.g.  $\text{HOCCH}_2\text{CH}_2\text{OH}$ .

Trihydric alcohols/trials has 3 hydroxyl groups present in the structure of the alcohols. E.g.  $\text{OHCCH}_2\text{CH(OH)CH}_2\text{OH}$ .

Polyhydric alcohols/Polyols has more than 3 hydroxyl groups. E.g.  $\text{CH}_3\text{CH(OH)CH(OH)CH(OH)CH(OH)CH}_3$

① Lower alcohols with up to 3 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.

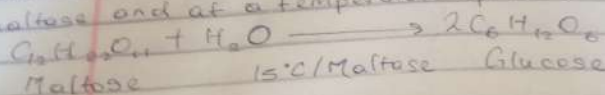
③ Starch/Carbohydrate is warmed with diastase<sup>TM</sup> to 60°C for a specific period of time to be converted to maltose.



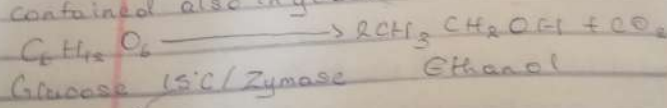
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(K) The maltose is broken down into glucose on addition of yeast which contains the enzyme maltase and at a temperature of 15°C

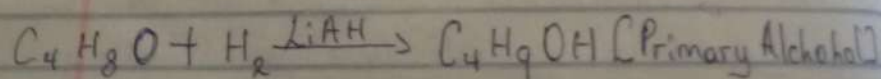
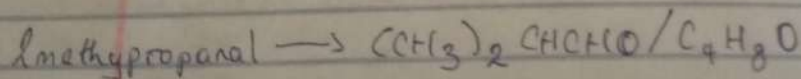


The glucose at constant temperature of 15°C is then converted into alcohol by the enzyme Zymase contained also in yeast.

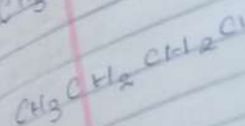
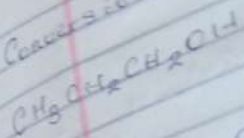


(F) ~~2 methylpropanal and Butylmagnesium chloride~~  
 ~~$(CH_3)_2CHCHO$   $C_4H_9OMg$~~

(\*) Reduction reaction of pro R-p 2-methyl propanal

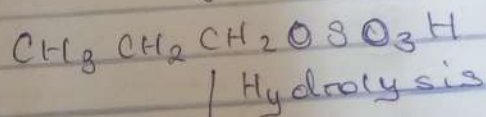
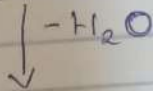
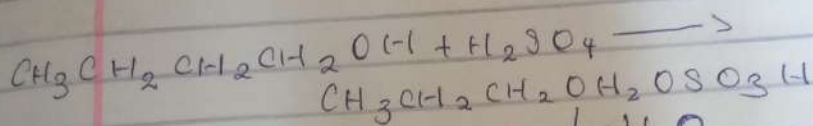
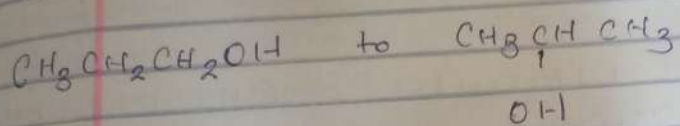


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(5) Conversion of pro

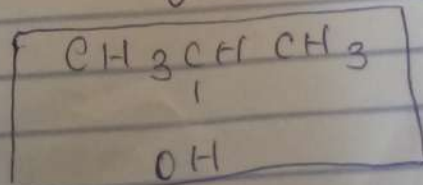
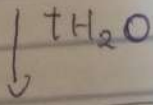
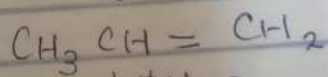


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⑤ Conversion of propan-1-ol to propan-2-ol



Hydrolysis



Propan-2-ol

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