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Course title: Chemistry 102

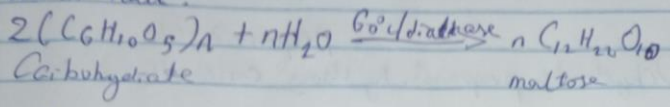
Answers:

1) Based on the number of hydrogen atoms attached to the carbon atoms containing the hydroxyl group. The number of hydrogen atoms attached to the carbon atom bearing the hydroxyl group are three or two, it is called primary alcohol. If it is one, it is called secondary alcohol and if no hydrogen atom is attached to the carbon atom, it is called tertiary alcohol. Examples, menthanol, propan-2-ol and methyl propan-2-ol.

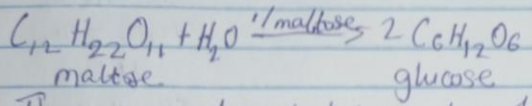
b) Based on the number of hydroxyl groups they possess. Mono-hydric alcohols possess one hydroxyl group, dihydric alcohols or glycols possess two hydroxyl groups while trihydric alcohols or triols have three hydroxyl groups present in the structure of the alcohols. Examples are propanol, Ethane, -1,2 diol, propano-1,2,3-triol.

2) Lower alcohols with up to three carbon atoms in their molecules are soluble in water because the lower alcohols can form hydrogen bonds, with water molecules. The water solubility of alcohols decreases with increasing relative molecular mass. All monohydric alcohols are soluble in organic solvents. The solubility of simple alcohols and polyhydric alcohols is largely due to their ability to give or form hydrogen bonds with water molecules.

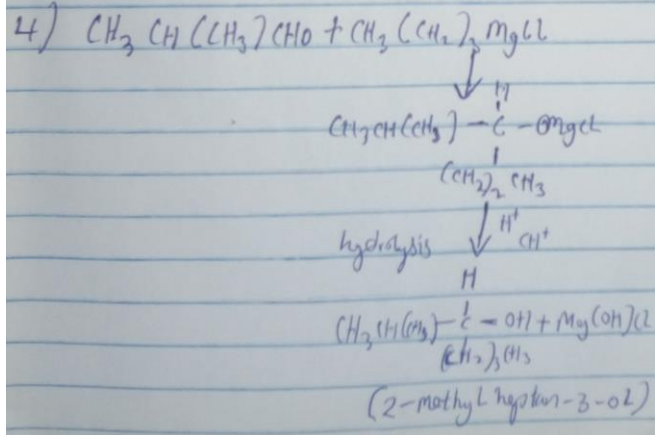
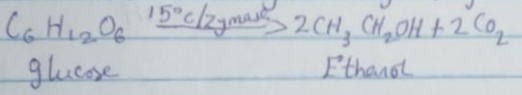
3) Carbohydrates such as starch are major group of natural compounds that can be made to yield ethanol by the biological process of fermentation. The biological catalyst, enzymes found in yeast breakdown the carbohydrate molecules methanol to give a yield of 95%. The starch contain materials on warming with malt to 60°C for specific period of time are converted into maltose by the enzyme diastase contained in malt.

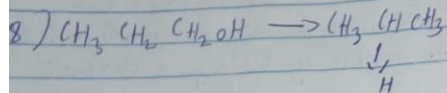
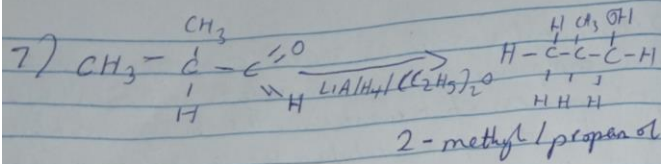


The maltose is broken down into glucose and atoms of yeast which contains the enzyme maltase and at a temperature of 15°C



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





propan-2-ol

Dehydrate propan-2-ol by using conc.  $\text{H}_2\text{SO}_4$ .

