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Matric number: 19/MHS01/369
Course: CHEM 102

Assignment

1. Classification of Alcohols

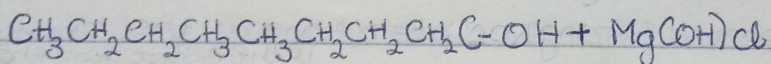
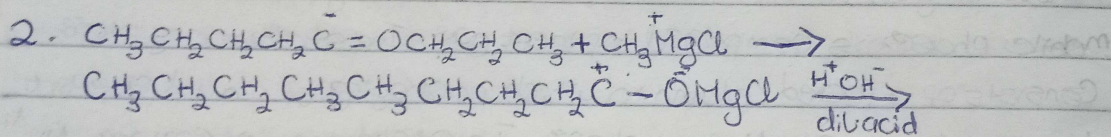
a) This is based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group. If the number of hydrogen atoms attached to the carbon atom bearing the hydroxyl group are three or two, it is called a primary alcohol (1°). If it is one hydrogen atom, it is called secondary alcohol (2°) and if no hydrogen atom is attached to the carbon atom bearing the hydroxyl group, it is called a tertiary alcohol (3°). E.g. $\text{CH}_3\text{CH}_2\text{OH}$ (1°), $\text{CH}_3\text{CH(OH)CH}_3$ (2°)

b) This is based on the number of hydroxyl groups they possess. Monohydric alcohols have one hydroxyl group present in the alcohol structure. Dihydric alcohols are also called glycols or diols have two hydroxyl groups present in the alcohol structure

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Monohydric alcohols have one hydroxyl group present in the alcohol structure. Dihydric alcohols are also called glycols or diols have two hydroxyl groups present in the alcohol structure while trihydric alcohols or triols have three hydroxyl groups present in the structure of the alcohol. Polyhydric alcohols have more than three hydroxyl groups present. E.g.

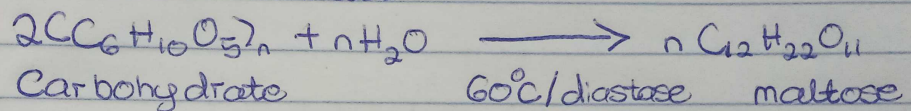
$\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$ (monohydric alcohol), $\text{HOCH}_2\text{CH}_2\text{OH}$ (Dihydric alcohol)



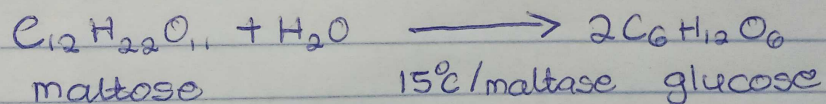
3. ~~Our~~ Industrial manufacture of ethanol

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 catalysts, enzymes found in yeast break down the carbohydrate molecules into ethanol to give a yield of 95%. The starch containing

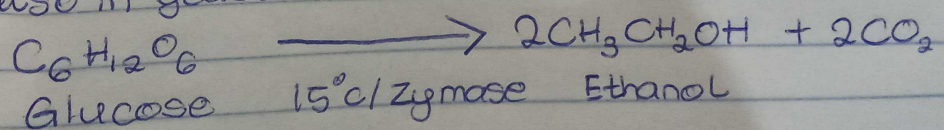
materials include molasses, potatoes, cereals, rice and on warming with malt to 60°C for a specific period of time are converted into maltose by the enzyme diastase contained in the malt.



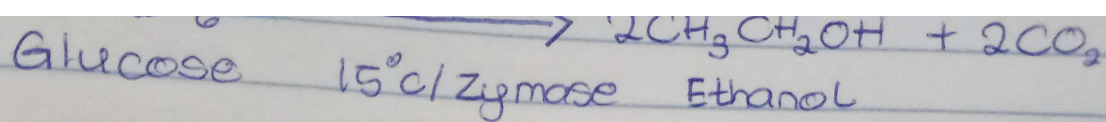
The maltose is broken down into glucose on addition of yeast which contains the enzyme maltase and at a temperature of 15°C .



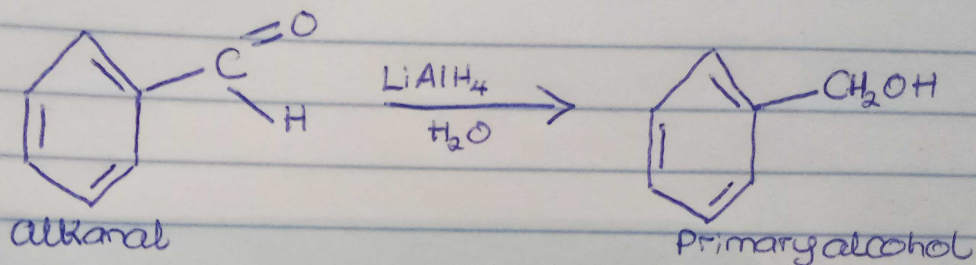
The glucose at constant temperature of 15°C is then converted into alcohol by the enzyme zymase contained also in yeast.



4. Reduction of alkanal:



4. Reduction of alkanal:



Reduction of alkanone:

