

chemistry 102 Assignment
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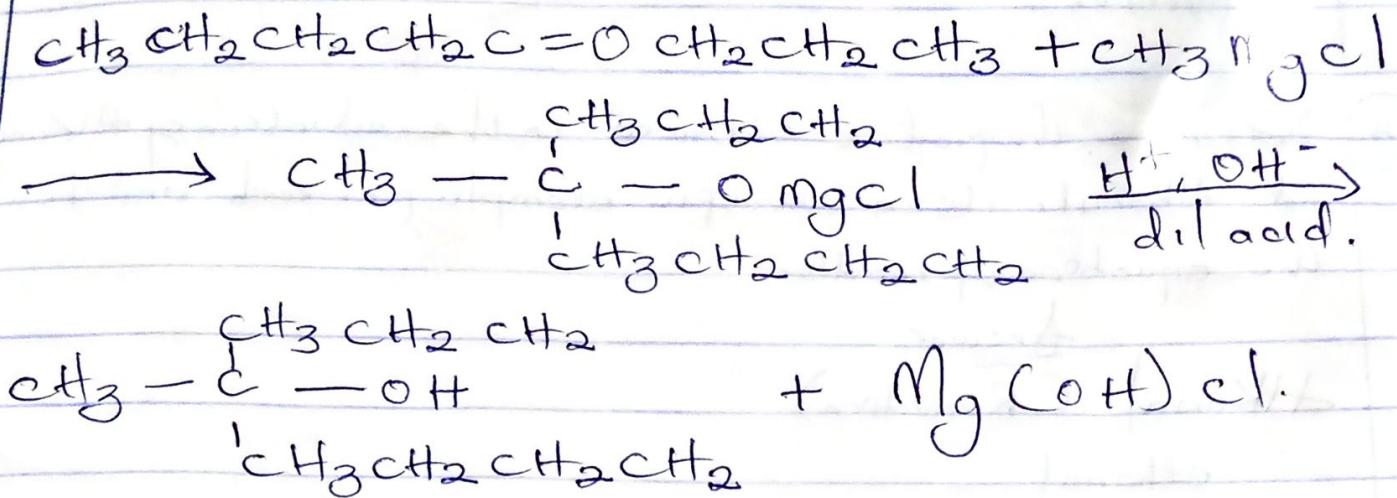
- 1) Discuss the two major classification of Alcohols. Give two Examples each for each class

Answer

This is based on the number of hydrogen atoms attached to the carbon atoms containing the hydroxyl group. If the numbers 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 tertiary alcohol (3°)
Examples e.g. CH_3OH (1°), propan-2-ol ($\text{CH}_3\text{CH(OH)}\text{CH}_3$ (2°))

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~~ called Glycols, have two hydroxyl groups present in the alcohol structure while alcohols with three hydroxyl groups present in the structures of the alcohols, Polyalcohols or polyols have more than three hydroxyl groups
Examples are $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$ (propanol) (monohydric alcohol)
 $\text{HOCH}_2\text{CH}_2\text{OH}$, Ethan-1,2-diol (dihydric alcohol)

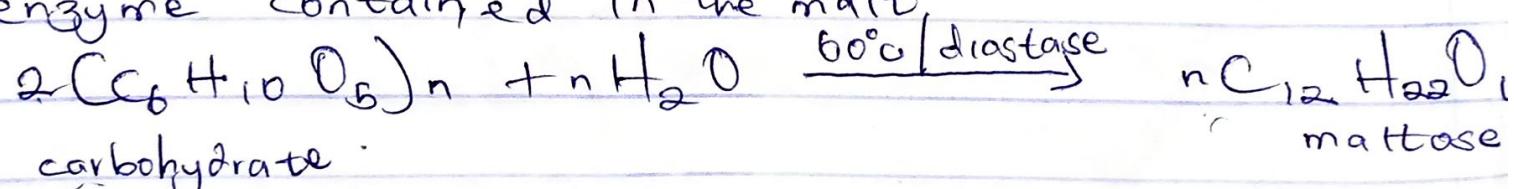
- ② In the Grignard synthesis of Alkanols, react a named a grignard reagent with $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{C}=\text{O}\text{CH}_2\text{CH}_2\text{CH}_3$
Show the reaction steps
Answer



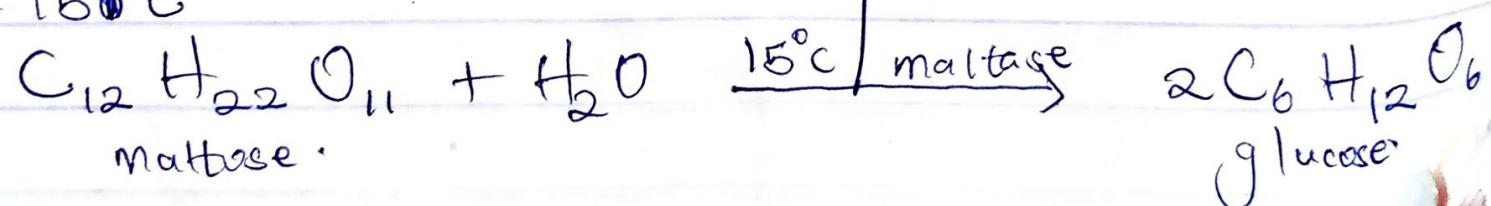
- ③ Discuss the Industrial manufacture of ethanol showing all reaction equations and necessary enzymes and temperature of reaction

Answer

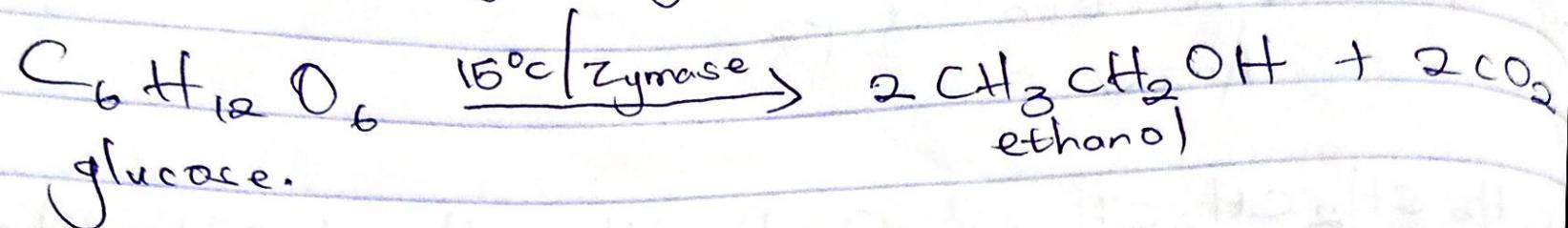
The starch containing materials include molasses, potatoes, cereals, rice and on warming with malt to 60°C for a specific period of time are converted into maltose by the enzyme contained in the malt.



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



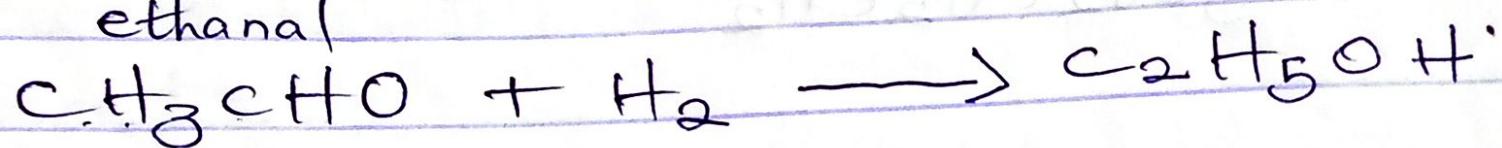
the glucose at constant temperature of 15°C is then converted into alcohol enzyme Zymase contained also in yeast.



- (4) Determine the product obtained in the reduction of Alkanal and Alkanal. Use a specific example for each and show the equation of reaction

Alkanal (Reduction)

ethanal



Alkanone

Propanone.

