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COLLEGE: MHS

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NEW ASSIGNMENT.

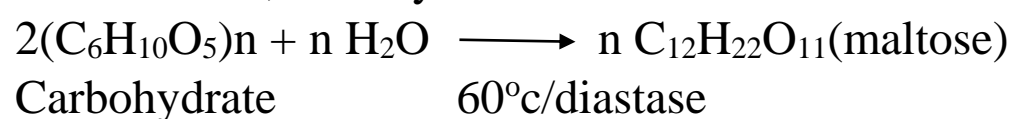
1. Alcohols are very important organic compounds. Discuss briefly their classification and give one example each.
 - a. Classification based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group. If the numbers of hydrogen atoms attached to the carbon atom are three or two, it is called a primary alcohol (1°), then if it is one hydrogen atom, it is called a secondary alcohol (2°) and if it has no hydrogen atom, it is called a tertiary alcohol (3°) e.g $\text{CH}_3\text{CH}_2\text{OH}$ Ethanol (1°).
 - b. Classification based on the number of hydroxyl groups they possess. If they possess one hydroxyl group, it is called a monohydric alcohol. Dihydric alcohols possess two hydroxyl groups, they are also called Glycols while trihydric alcohols have three hydroxyl groups present in the structure of the alcohol. Polyhydric alcohols or polyols have more than three hydroxyl group. E.g $\text{HOCH}_2\text{CH}_2\text{OH}$ Ethane-1,2-diol (dihydric alcohol).

2. Discuss the solubility of alcohols in water, organic solvents.

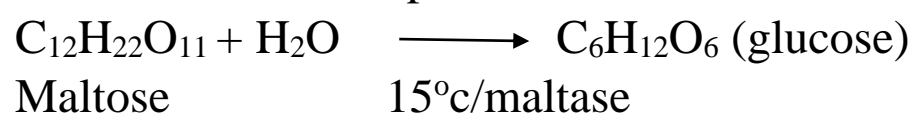
Alcohols with up to three carbon atoms in their carbon atoms in their molecules are soluble in water because these lower alcohols can form hydrogen bond with water molecules while all monohydric alcohols are soluble in organic solvent.

3. Show the three steps in the industrial manufacture of ethanol. Equation of reaction are mandatory.

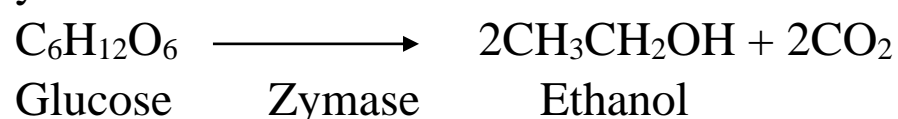
The starch containing materials include molasses, rice, potatoes, cereals and on warming with diastase, an enzyme contained in malt at 60°C to produce maltose.



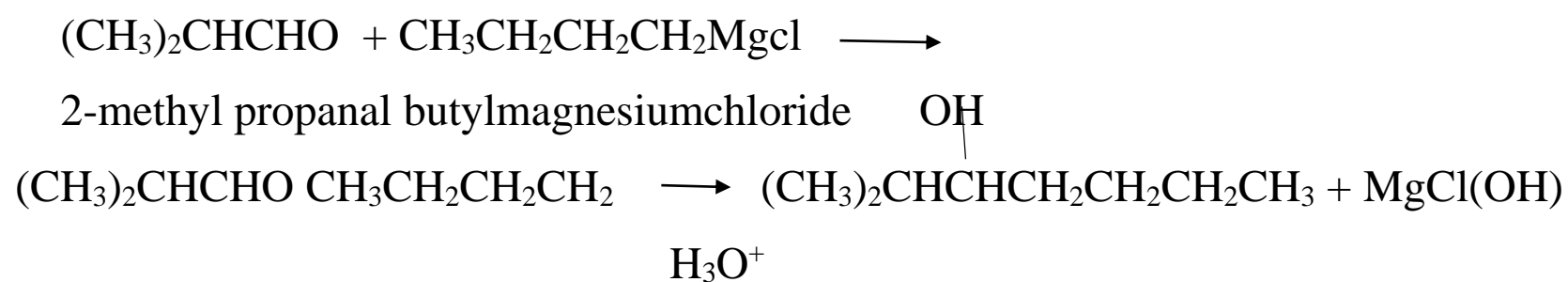
The maltose is broken down into glucose on addition of yeast which contains the enzyme maltase and at a temperature of 15°C .



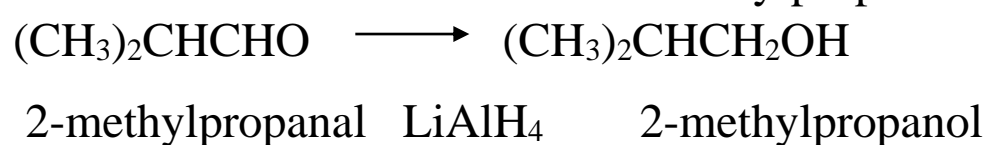
The glucose at 15°C is then converted into alcohol by the enzyme zymase contained also in yeast.



4. Show the reaction between 2-methyl propanal and butylmagnesiumchloride hint: Grignard synthesis.

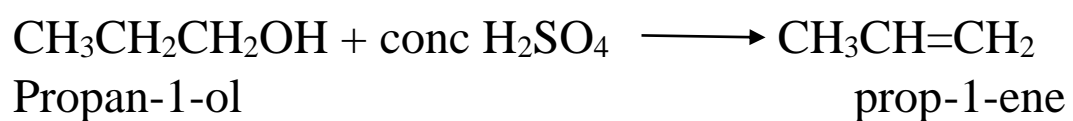


5. Show the reduction reaction of 2-methylpropanal.



6. Propose a scheme for the conversion of propan-1-ol to propan-2-ol.

First of all, propan-1-ol is dehydrated using H_2SO_4 as the dehydrating agent and prop-1-ene is formed.



Then hydrolysis of water is carried out;

