

**NAME: SOSANYA IYIOLA ELIZABETH**

**COLLEGE: MEDICINE AND HEALTH SCIENCES**

**DEPARTMENT: PHARMACY**

**MATRIC NUMBER: 19/MHS11/134**

**COURSE CODE: CHM 102**

## **ASSIGNMENT**

### **1. Classification of Alcohols**

**A.** Classification based on the number of hydrogen atoms attached to the carbon atom containing the OH group

- i. if 2 or 3 hydrogen atoms are attached to the carbon atom bearing the OH group, it is called a primary alcohol ( $1^\circ$ )
- ii. If 1 hydrogen atom is attached, it is called a secondary alcohol ( $2^\circ$ )
- iii. If no hydrogen atom is attached to the carbon atom, it is called a tertiary alcohol ( $3^\circ$ )

EXAMPLES.

Methanol  $\text{CH}_3\text{OH}$  ( $1^\circ$ )

Propan-2-ol  $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$  ( $2^\circ$ )

**B.** Classification based on the number of hydroxyl groups they possess. Monohydric alcohol has one OH group present in the alcohol structure. Dihydric alcohols are called glycols, they have 2 hydroxyl groups present in the structures while trihydric alcohols or triols have three OH groups present in the structure of the alcohol. Polyhydric alcohols or polyols have more than 3 OH groups.

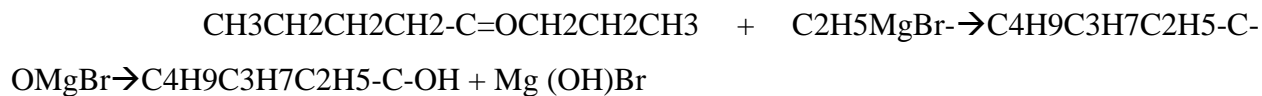
EXAMPLES

Monohydric alcohol—Propanol  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$

Dihydric alcohol –Ethane1,2diol  $\text{HOCH}_2\text{-CH}_2\text{OH}$

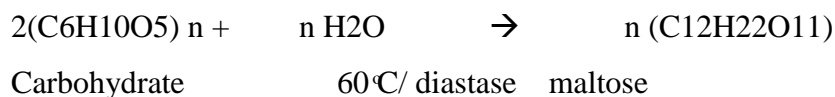
## 2. GRIGNARD SYNTHESIS OF ALKANOLS

Grignard reagents -C<sub>2</sub>H<sub>5</sub>MgBr

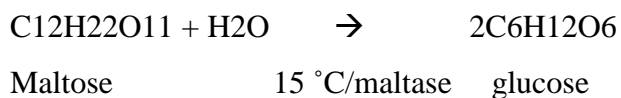


## 3. Industrial manufacture of ethanol

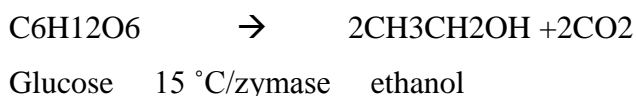
Carbohydrate such as starch are major group of natural compound that can be made to yield ethanol by the biological process of FERMENTATION. The biological catalyst enzymes found in yeast breaks down the carbohydrate molecules into ethanol to give a yield of 95%. On warming starch with malt to 60° for a specific period of time is converted in to maltose by the enzyme diastase contained in the malt.



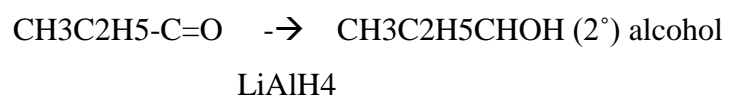
The maltose is broken down into glucose on addition of yeast which contains the enzymes maltase and at a temperature of 15 °C



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



**4. Alkanone:** Reduction of alkanone gives secondary alkanols.



Alkanals: Reduction of alkanals gives primary alkanols

