

Name: Umar Abdullahi Dabarako

Matric number: 19/MH501/421

MBO5

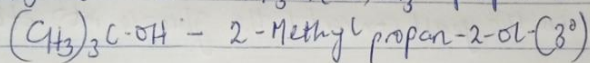
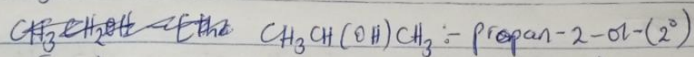
19/MH501/421

NEW 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 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 a tertiary alcohol (3°).

Examples: CH_3OH - Methanol - 1°



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 have two hydroxyl groups present in the alcohol structure. Trihydric alcohols have three hydroxyl groups present in the alcohol structure. Polyols have more than three hydroxyl groups.

Examples: $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$ - propanol - (Monohydric alcohol)

$\text{HOCH}_2\text{CH}_2\text{OH}$ - Ethane-1,2-diol - (Dihydric alcohol)

$\text{OHCH}_2\text{CH}(\text{OH})\text{CH}_2\text{OH}$ - Propane-1,2,3-triol - (Trihydric alcohol)

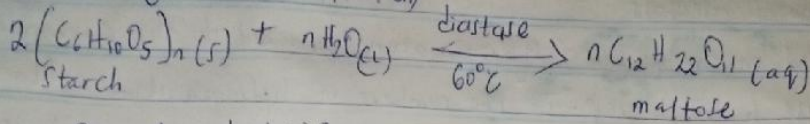
$\text{CH}_2\text{CH}(\text{OH})\text{CH}(\text{OH})\text{CH}(\text{OH})\text{CH}(\text{OH})\text{CH}(\text{OH})\text{CH}_3$ - Heptane-2,3,4,5,6-pentol (polyol)

2) Solubility of alcohols

Lower alcohols with up to three carbon atoms in their molecules are soluble in water because these lower alcohols can form hydrogen bond with water molecules. The water solubility of alcohols decreases with increasing relative molecular mass.

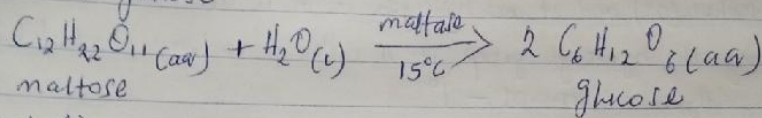
All monohydric alcohols are soluble in organic solvents. The solubility of simple alcohols and polyhydric alcohols is largely due to their ability to form hydrogen bonds with water molecules.

3) Starch is converted to maltose by ~~an~~ malt which contains an enzyme
 diastase (starch fermentation)



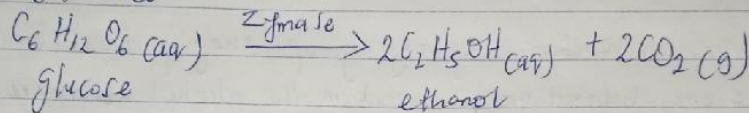
starch hydrolysis

i) Heat is added at room temperature to release maltase, which converts maltose to glucose.

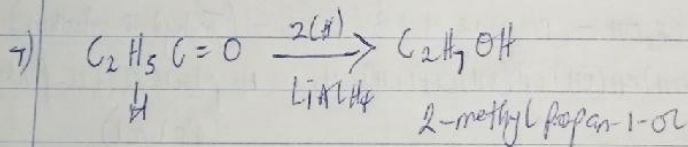
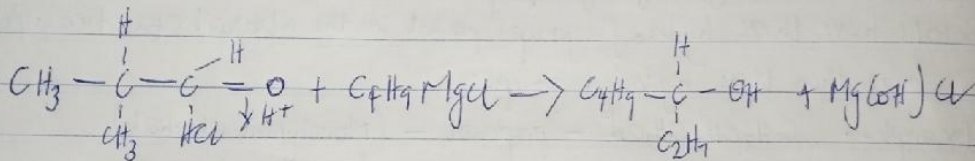


ii) Fermentation

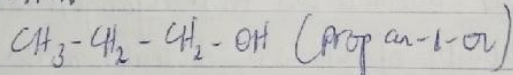
Enzyme zymase in the yeast converts the glucose into ethanol and carbon (IV) oxide.



4



5) The conversion of propan-1-ol to propan-2-ol can be done by dehydration.



* Heat in the presence of concentrated H_2SO_4 to dehydrate it and form propene ($CH_2 = CH - CH_3$)

* $CH_3 - CH_2 - CH_2 - OH = CH_2 = CH - CH_3$ after heating with concentrated tetraoxosulphate (VI) acid; H_2SO_4

* Add to propan-2-ol

* Hydrolysis of propene: $CH_3 - CH = CH_2 + H_2O = CH_3 - CH(OH) - CH_3$
 propan-2-ol