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19/MHS01/238

CHM 102.

(1) Alcohols are very important organic compounds

(2) Alcohols can be classified in two ways which are:

i) Based on the number of hydrogen atoms attached to the carbon and contained in the hydroxyl group. Under this, they can be classified into 3 namely;

Primary alcohol - Secondary alcohol - Tertiary alcohol.

If the number of hydrogen atom attached to the carbon atom bearing the hydroxyl group are two or three, they are primary, if one it is secondary and if there is none it is tertiary.

E.g

$\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$ Propan-2-ol (2°) secondary.

ii) Based on the number of hydroxyl groups they possess

Monohydric alcohol - one hydroxyl group.

Dihydric alcohol - two hydroxyl group

Trihydric alcohol - three hydroxyl group

Polyhydric alcohol - above more than three hydroxyl group.

E.g

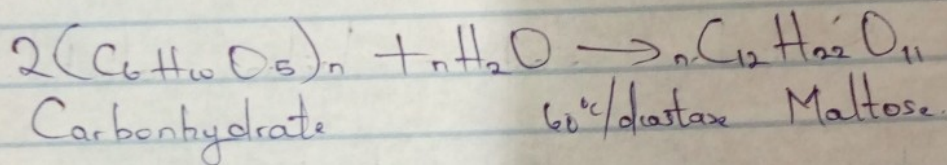
$\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$ (Monohydric alcohol) Propanol.

2 In water:- lower alcohols with up to three carbon atoms in their molecule are soluble in water because they can form hydrogen bond with water molecules.

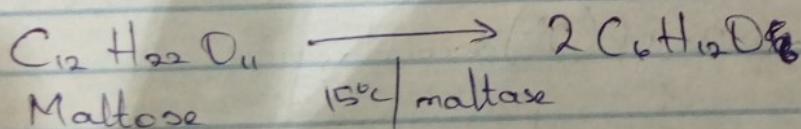
In Organic solvents:- All monohydric alcohols are soluble in organic solvents.

3 Carbohydrates such as starch can be made to yield ethanol by fermentation. The biological catalyst enzymes found in break down the carbohydrate molecule into ethanol to give a yield of 95%

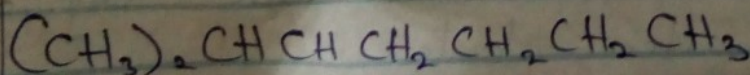
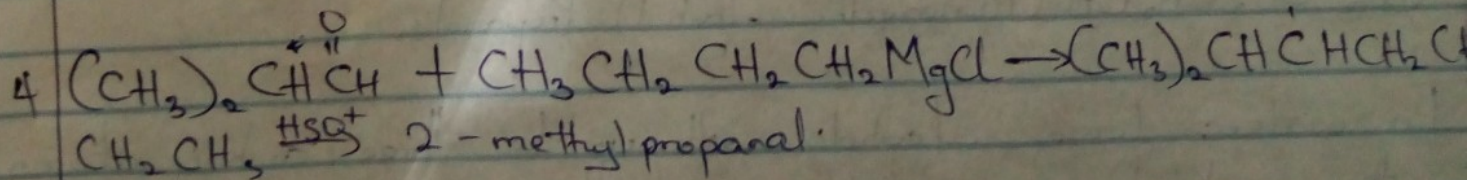
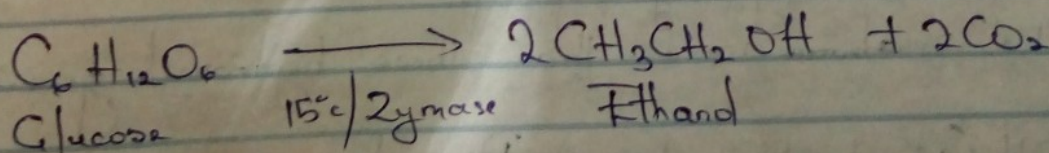
i The starch on warming with malt to 60°C for a specific period of time are converted into maltose by the enzyme ~~ATA~~ **DIASTASE** contained in the malt.



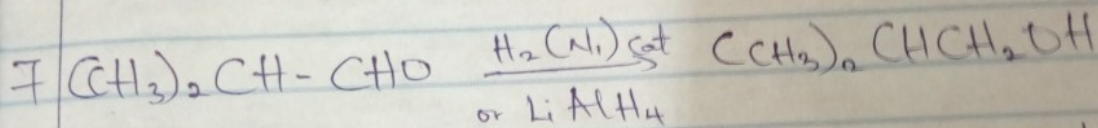
ii The maltose is broken down into glucose on addition of yeast which contains enzyme maltase at 15°C .



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



2-methyl-3-heptanol.



2-methyl propanal

2-methyl-propanol.

8 Addition of H_2SO_4 (as dehydrating agent).

