NAME; SAIDU MARYAM

DEPARTMENT; PHARMACY

COURSE; CHEMISTRY

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1. Alcohols are important in organic chemistry because they can be converted to and from other types of compound.

Classification Of Alkanol

A. It can be classified based on the number of hydrogen atons attached to the carbon atom containing the hydroxyl group. If the number 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 hydeogen atom is attached to the carbon atom bearing the hydroxyl group. It is called a tertiary alcohol (3°)

Example; CH3CH2OH Ethanol 2H(primary 1°)

(CH3)3C-OH 2-Methylpropan-2-ol 0H(3°)

B. It is classified based on the number of hydroxyl groups they possess when there is presence of one hydroxyl group is called Monohydric alcohol.

I. Dihydric/glycol alcohol- presence of two hydroxyl group

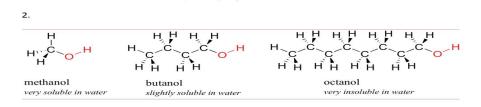
Ii. Trihydric/tricol alcohol- presence of three hydroxyl group

Iii. Polyhydric/polyol alcohol- moore than three hydrolic group

Examples; CH3CH2CH2OH propanol(monohydric alcohol)

HOCH2CH2OH ehane-1,2-diol(dihydric alcohol.

2.



The smaller alcohols - methanol, ethanol, and propanol - dissolve easily in water. This is because the water is able to form hydrogen bonds with the hydroxyl group in these molecules, and the combined energy of formation of these water-alcohol hydrogen bonds is more than enough to make up for the energy that is lost when the alcohol-alcohol hydrogen bonds are broken up. When you try butanol, however, you begin to notice that, as you add more and more to the water, it starts to form its own layer on top of the water.

The longer-chain alcohols - pentanol, hexanol, heptanol, and octanol - are increasingly non-soluble. What is happening here? Clearly, the same favorable water-alcohol hydrogen bonds are still possible with these larger alcohols. The difference, of course, is that the larger alcohols have larger nonpolar, hydrophobic regions in addition to their hydrophilic hydroxyl group. At about four or five carbons, the hydrophobic effect begins to overcome the hydrophilic effect, and water solubility is lost.

3. Starch is converted by this enzyme into maltose.

 $2(C6H10O5)n(s) + nH2O(1) \rightarrow nC12H22O11$ Starch maltose

Yeast is then added at room temperature, yeast contains two enzymes, namely maltose which converts the maltose to glucose and zymase which the decomposes the glucose into ethanol and carbon(iv)oxide.

C12H22O11(aq) + H2O \rightarrow 2C6H12O6(aq) Maltose maltase glucose C6H12O6(aq) \rightarrow 2C2H5OH(aq) + 2CO2(g)

Glucose zymase ethanol

4.

4.
$$CH_3CHCGH_3CHO + C_4Hq mgcl CcaHs) = 0 + MgcloH
H=20 + CH_3CHCCHS) - C - OH + MgcloH
H=20 + CH_3CH(CHS) - C - OH + MgcloH$$

