Name: Raji Fatimah Jimoh

Matric No: 19/MHS01/386

College: Medicine and Health Sciences

Department: MBBS

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1. Primary alcohols

In a primary (1°) alcohol, the carbon atom that carries the -OH group is only attached to one alkyl group. Some examples of primary alcohols are shown below:



Notice that the complexity of the attached alkyl group is irrelevant. In each case there is only one linkage to an alkyl group from the CH2 group holding the -OH group. There is an exception to this. Methanol, CH3OH, is counted as a primary alcohol even though there are no alkyl groups attached to the the -OH carbon atom.

Secondary alcohols

In a secondary (2°) alcohol, the carbon atom with the -OH group attached is joined directly to two alkyl groups, which may be the same or different. Examples include the following:



Tertiary alcohols

In a tertiary (3°) alcohol, the carbon atom holding the -OH group is attached directly to three alkyl groups, which may be any combination of the same or different groups. Examples of tertiary alcohols are given below:



1. Solubility of alcohols in water:

As the size of the alkyl group gets larger, alcohols become less soluble in water. Because of the strength of the attraction of the OH group, first three alcohols (methanol, ethanol and propanol) are completely miscible. They dissolve in water of any amount.

1. Industrial manufacture of alcohol:

Carbohydrates such as starch are a major group of natural compounds that can bee made to yield ethanol by the biological process of fermentation.

2(C6H10O5)n+ NH2O------------------------ nC12H22O11

 Carbohydrate 60oC/diastase Maltose

The maltose is broken down into glucose on adding yeast which contains the enzyme maltase.

C12H22O11 + H2O------------------------------------2C6H12O6

 Maltose 15oC/maltase glucose

The glucose at constant temperature of 15oC is then converted into alcohol by the enzyme zymase contained alson in yeast

C6H12O6------------------------------------- 2CH3CH2OH + 2CO2

Glucose 15oC/Zymase Ethanol