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**COURSE: CHM102 ASSIGNMENT**

1. CLASSIFICATION OF ALCOHOLS

* Alcohols can be classified based on the number of hydrogen atom attached to the carbon carrying the OH functioning group. If 2 or 3 hydrogen atoms are attached to the carbon carrying the OH group, it is called PRIMARY ALCOHOL [10]. If 1 hydrogen atom is attached to the carbon carrying the OH group, it is called SECONDARY ALCOHOL [20]. If no hydrogen atom is attached to the carbon carrying the OH group, it is called TERTIARY ALCOHOL [30].

EXAMPLES: 1. Ethanol [CH3CH2OH] [10]

2.Propanol [CH3CH2CHOH] [20]

* Alcohols can also be classified based on the number of OH functional group present in the alcohol or compound. When the OH present is one, it is called MONOHYDRID alcohol. When the OH present is two, it is called DIHYDRID alcohol or GLYCOL. When the OH present is three, it is called TRIHYDRID alcohol or TRIOL. When the OH present is more than three, it is called POLYHYDRID alcohol or POLYOL.

EXAMPLE: 1. CH3CH2CH2OH [buntan-1, 3-diol] [dihydrid alcohol]

2.CH3CH2OH [Ethanol] [monohydrid alcohol]

1. Grignard Reagent—C2H5MgBr

CH3CH2CH2CH2-C=OCH2CH2CH3 + C2H5MgBr---🡪 C4H9C3H7C2H5-C-OMgBr-🡪C4H9C3H7C2H5-C-OH+ Mg[OH]Br

1. Industrial manufacturer of ethanol.

Carbohydrate such as starch is major group of natural compounds that can be made to yield ethanol by the biological process of fermentation. The biological catalysts, enzymes found in yeast break down the carbohydrate molecules into ethanol to give a yield of 95%. On warming starch with malt to 600 for a specific period of time are converted into maltose by the enzyme diastase contained in the malt.

2[C6H10O5]n + n H2O---------------🡪 n [C12H22O11]

Carbohydrate 600c/ diastase Maltose

The maltose is broken down into glucose on addition of yeast which contains the enzyme, maltase and at the temperature of 150c.

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

Maltose 150c/ maltase Glucose

The glucose at constant temperature of 150c is then converted into alcohol by the enzyme, zymase contained also in yeast.

Glucose 150c/zymase ethanol

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

1. The reduction of alkanone gives secondary alkanols.

CH3C2H5-C=O-----🡪 CH3C2H5CHOH [20 alcohol]

. The reduction of alkanal gives primary alkanols.

CH3CH2CH=O-----------🡪 CH3CH2CH2OH [10 alcohol]

LiAlH4/H2O