

NIJANKWO KAMSUYOCHUKWU ADONNA

CHEM 102 Assignment

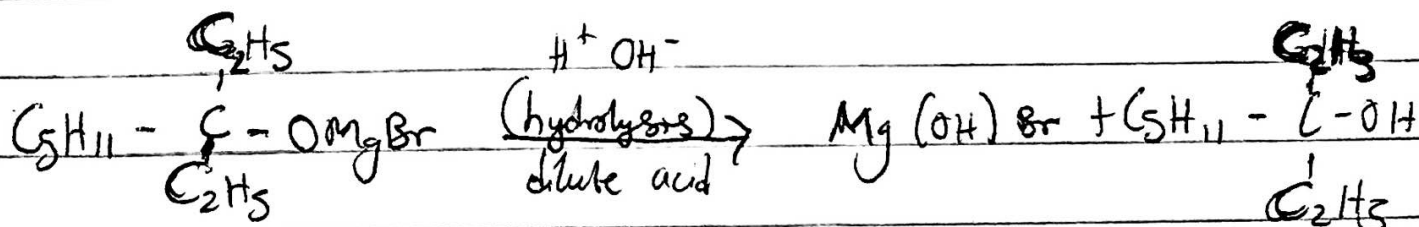
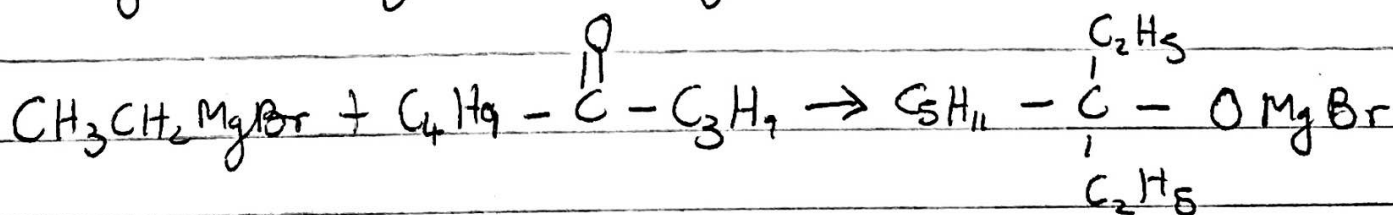
19/MHS01/263

1). Alkanols can be classified based on;

a) The number of hydrogen atoms 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 a secondary alcohol (2°) and if there are no hydrogen atoms, it is called a tertiary alcohol (3°).
Examples are; CH_3OH Methanol (1°), $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$ Propan-2-ol (2°)

b) The number of hydroxyl groups they possess: Monohydric alcohols have one hydroxyl group present, Dihydric alcohols have two while trihydric alcohols have three hydroxyl groups. Polyhydric have more than three.
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)

2). Using $\text{CH}_3\text{CH}_2\text{MgBr}$ as the Grignard reagent

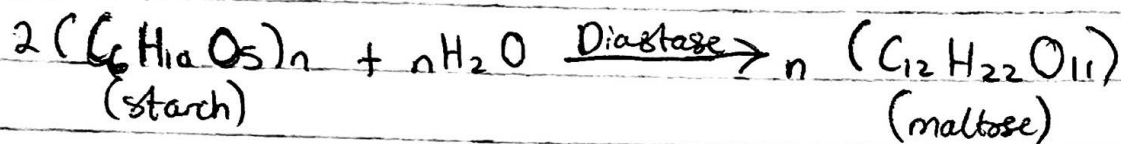


3) Generally potato, rice, maize or barley is used as source of starch. Use of potato for starch is very common.

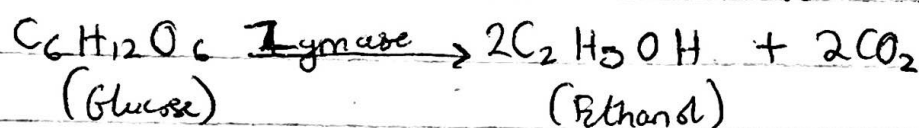
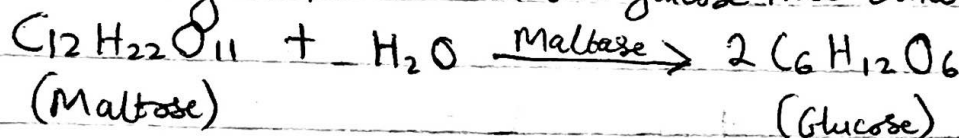
1) Extraction of Starch: The crushed potato is steamed at 140°C to 150°C under pressure to prepare starch solution known as MASH.

Before hydrolysis, starch undergoes germination at 10°C to 130°C for a few days. This germinated starch is called MALT.

2) Hydrolysis of Starch: Starch is hydrolysed to maltose by an enzyme known as diastase.



3) Finally, Yeast is added to the maltose and kept at about 20°C for about three days. Yeast secretes two enzymes; Maltase, which converts maltose into glucose and Zymase, which converts glucose into ethanol.

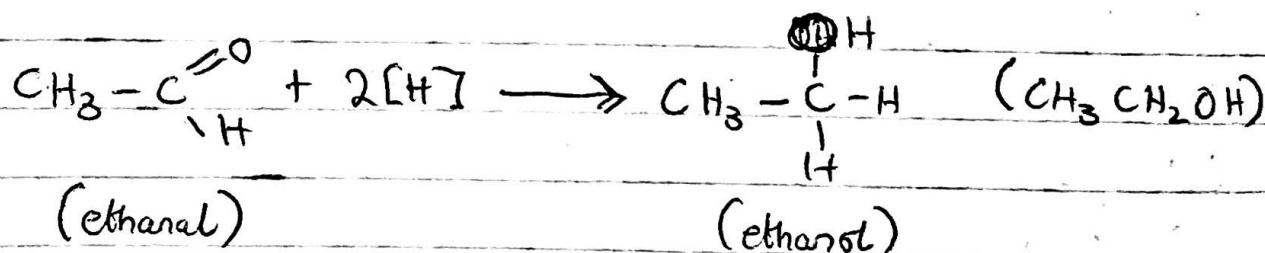


The mixture is distilled, to obtain 95% ethanol that boils at 78°C .

4) Alkanals are reduced to their corresponding primary alkanols

Alkanones are reduced to their corresponding secondary alkanols.

b) Reduction of Alkanals: Reduction of ethanal to ethanol;



c) Reduction of Alkanones: Reduction of propanone to propan-2-ol;

