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Course: Chem 102

- 1) Two major classification of alcohols and their examples are
- a) Classification based on the number of hydrogen atoms attached to the carbon atom containing the OH group.

Two examples are

i) Methanol  $\text{CH}_3\text{OH}$

ii) Propan-2-ol  $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$  ( $2^\circ$ )

- b) Classification based on the number of hydroxyl groups they possess.

Two examples are

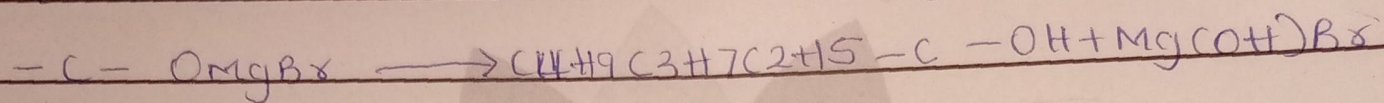
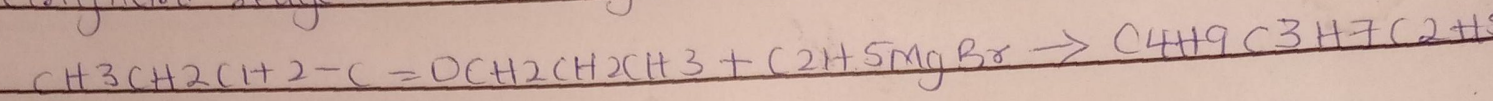
i) Monohydric alcohol - Propan-1-ol  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$

ii) Dihydric alcohol - Ethane-1,2-diol  $\text{HOCH}_2-\text{CH}_2-\text{OH}$



## 2. Grignard synthesis of Alcohols

Grignard reagent  $-C_2H_5MgBr$



## 3 Industrial manufacture of Ethanol

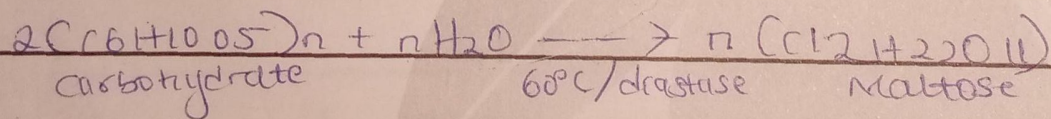
Carbohydrates such as starch are major group of natural compounds

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%.

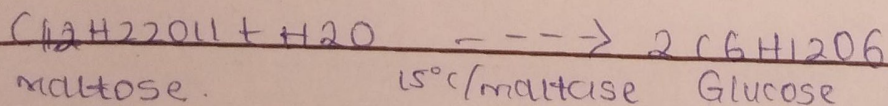
On incubating starch in malt to  $60^\circ$  for a specific period of time are converted into maltose by the enzyme

diastase contained in malt.



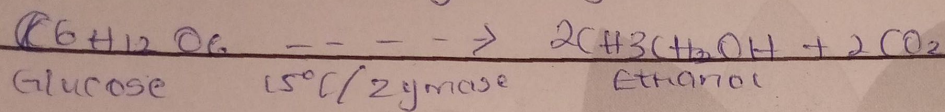
The maltose is broken down into glucose on addition of yeast extract and

the enzyme maltase and at a temperature of  $15^\circ$

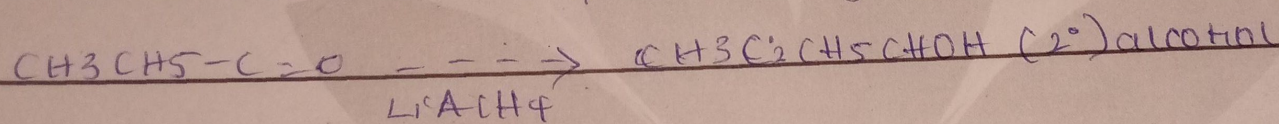




The glucose at constant temperature of  $15^{\circ}\text{C}$  is then converted into alcohol by the enzyme zymase contained also in yeast.



• Alkane Reduction of alkanone gives secondary alcohols



Alkanals Reduction of alkanals gives primary alcohols

