class - B.Sc. Part I (Subsidiary)
Subject - chemistry
Paper - subsidiary (gr. c)
Topic - Glycerol
Name - Dr. Reshmi Sinha
Deptt. of chemistry
H. D. Jain college, Ara

Alcohol [GLYCEROL]

Trihydric alcohol or Triols :—

Alcohol Containing three '-OH' group are Called the trihydric alcohols or triols. The most important member of the class is glycerol or 1,2,3 propentriol.

Glycerol or 1,2,3 propenetriol $(CH_2OH)_3$ —

It is a trihydric alcohol the name ~~of glycerol or~~ glycerine was derived from the word glyceral means sweet. Its IUPAC name is 1,2,3 propanetriol. Since, it could be Considered as trihydroxy derivative of propane.

It occure in almost all natural animal fats and vegetables oils as the glyceryl ester of higher Organic acids.

Structure :—

$$\begin{array}{l} CH_2 - OH \\ | \\ CH - OH \\ | \\ CH_2 - OH \end{array}$$

1, 2, 3 propanetriol (Prop — 1 : 2 : 3 triol)

Manufacture :— Glycerol can be prepared industrially by the following methods :—

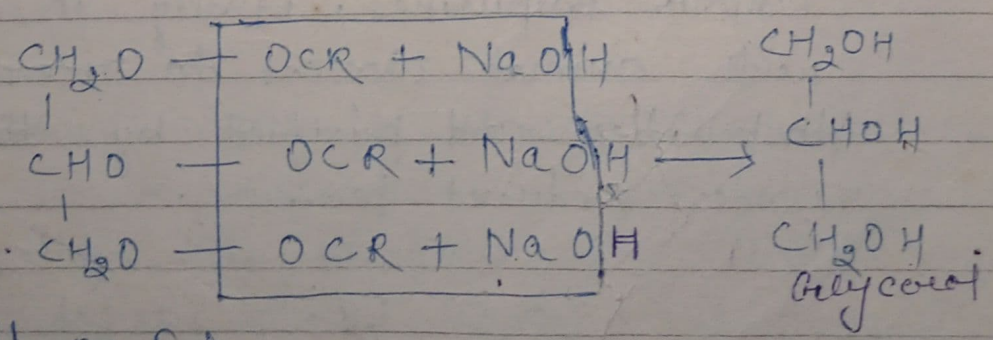
(i) By the hydrolysis of oils and fats :-

For the formation of soap and candle, oils and fats are hydrolised and as a by product, glycerol is formed. It is extracted by following methods.

(a) Glycerol from Soap manufacture :-

Soap → Higher fatty acid (Palmic acid, Steric acid, Oleic acid) of sodium salt are known as soap.

For the preparation of soap, fats and oils are hydrolised with caustic alkalies. By the hydrolysis higer fatty acids of sodium and pottasium salt are precepetated which are soap. For the fully precepetation, sodium chloride is added and the remaining solution is known as spentlye. Spentlye contains 3.5% glycerol, alkalis, sodium chloride, soluble soap and other impurities.



oil or fat

+ 3RCOONa (soap)

27/11/

Recovery of Glycerol from Spentlye

Spentlye is taken in a settling tank and set free to settle down impurities.

Then it is filtered and placed in another tank known as treating tank and treated with aluminium sulphate and alum by which soluble soap is precepetated. A little amount of hydrochloric acid is added to it for nutralising alkali present in it.

Now this mixture solution is interduced with filter press by a pump.

Now, In this solution glycerol with sodium chloride is present which are interduced with vaccum pans under reduces pressure vapour. As well as concentration increased, crystals of sodium chloride beginegs aperted which are separated.

In the solution now about 80% glycerol is present containing colour impurities. Finally it is treated with animal charcol to remove colour impurities and purified by distillation under reduced pressure.