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Nursing
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(1) Classification of Alchols
There are two major ways of classifying alchols
=> This type of classificaton is based on the carbon atom containing the hydroxyl group. This classification divides alchols into three:

(i) Primary alchols: Alchols in which there are two or three hydrogen atoms attached to carbon carrying the hydroxyl group e.g $CH_3CH(OH)CH_3$

(ii) Secondary alchols: Alchols in which there is only one hydrogen atom attached to the carbon carrying the hydroxyl group. e.g $CH_3CH(OH)CH_3$

(iii) Tertiary alchol: Alchols in which there are no hydrogen atom attached to the carbon bearing the hydroxyl group e.g $(CH_3)_2C-OH$

=> The second type of classification is based on the hydroxyl groups present in the alchol possesses.
This classification divides alchol into four:

Monohydric alcohol which have one hydroxyl group present in their alcohol structure e.g $CH_3CH_2CH_2OH$

Dihydric alcohol: Alcohol which have two hydroxyl group present in their alcohol structure e.g $HOCH_2CH_2CH$

- Trihydric alcohol: Alcohols which have three hydroxyl group present in their alcohol structure e.g

$OH+CH_2CH_2(OH)CH_2OH$

- Polyhydric alcohols: Alcohols which have more than three hydroxyl group in their alcohol structure. They are also referred to as polyols e.g $CH_3CH(OH)CH(OH)CH(OH)CH(OH)CH(OH)CH_2$

Solubility of Alcohols

lower alcohols with up to three carbon atoms in their molecule are soluble in water because they lower alcohols can form hydrogen bond with water molecules. The water solubility decreases with increasing relative molecular mass. All monohydric alcohols are soluble in organic solvent. The solubility of simple alcohols and polyhydric alcohols is largely due to their ability to form hydrogen bonds with water molecules

Industrial manufacture of ethanol

Generally, starchy food such as rice, maize or barley are used ~~(a) Extraction~~ of starch. The potato is crushed and then steamed at 1400°C to 1500°C under pressure to prepare starch solution known as mash.

(b) hydrolysis of starch: Starch is hydrolysed to maltose by an enzyme known as diatase

$$2(C_6H_{10}O_5)_n + nH_2O \xrightarrow[50°-60°]{\text{Diatase}} n(C_{12}H_{22}O_{11})$$
maltose

(c) Yeast is then added at room temperature. Yeast contains 2 enzymes which convert maltose to glucose

$$C_{12}H_{22}O_{11(aq)} + H_2O_{(l)} \xrightarrow[15°C]{\text{maltase}} 2C_6H_{12}O_6$$
maltose glucose

The glucose at contant temperature is then converted into alcohol by the enzyme zymase contained also in yeast

$$C_6H_{12}O_6 \xrightarrow[15°C]{\text{Zymase}} 2CH_3CH_2OH + 2CO_2$$
glucose ethanol

(4) Reaction between 2-methyl propanol and benzoyl magnesium chloride