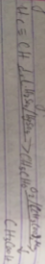
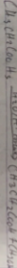
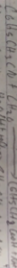
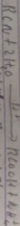


1b From Phenol

It is prepared generally by the hydrolysis of phenyl acetate or phenyl benzoate in aqueous solution of alkali to phenol and using magnesium chloride as the catalyst. Phenol is obtained from Ethylene.

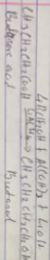
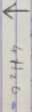
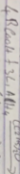


↳ Synthetic preparation of acetic acid and hydrolysis of nitriles (cyanides) or esters

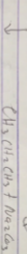
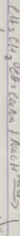


R = alkyl or aryl radical

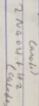
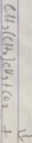
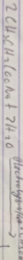
5a Reduction



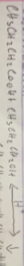
5b Decarboxylation



↳ Kolbe synthesis



c Esterification



Zacchous Carol Ayadri's

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- a) HCOOH - Methanoic acid
- b) $\text{HOOCCH}_2\text{CH}_2\text{CH}_2\text{COOH}$ - pentanedioic acid
- c) $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$ - Butanoic acid
- d) $\text{H}_2\text{C}=\text{CO}_2\text{H}$ - Ethanedioic acid
- e) $\text{CH}_2(\text{CH}_2)_4\text{COOH}$ - Hexanoic acid
- f) $\text{CH}_2\text{CH}=\text{CHCH}_2\text{CH}_2\text{COOH}$ - Hex-5-enoic acid

2a) Physical properties

All simple aliphatic carboxylic acids up to C_{10} are liquid at room temperature. Most other carboxylic acids are solid at room temperature. Acetic acid or aliphatic carboxylic acid known as glacial ethanoic acid freezes to an ice-like solid below room temperature.

b) Boiling point:

This increases with increasing relative molecular mass. Aromatic carboxylic acids are crystalline solids that have higher melting points than their aliphatic compounds.

It compares with almost the same relative molecular mass.

c) Solubility

Lower molecular mass carboxylic acid up to four carbon atoms is these molecules are soluble in water; this is due to their ability to form bonds with water (hydrogen bonds). Water solubility of acids decreases as the relative molecular mass increases because it becomes more hydrocarbon in nature hence less soluble. All carboxylic acid are soluble in organic solvent.

3a) From petroleum

Liquid phase oxidation of C_5 - C_7 alkanes obtained from petroleum are C_5 - C_7 carboxylic acid at high temperatures and pressures give off methanoic acid, propanoic acid and butanoic acid as by products.

$\text{C}_5 \rightarrow \text{C}_7$ $\xrightarrow{\text{O}_2 / \text{high temp}}$ C_5 - C_7 carboxylic acid