

NAME: NNONYELU IFEOMA PEACE

MATRIC NO: 19/MHS01/260

DEPT: MBBS

Assignment

1) HCOOH- Methanoic acid

HOOCCH₂CH₂CH₂COOH- Pentan-1, 5-dioic acid

CH₃CH₂CH₂COOH- Butanoic acid

HO₂C-CO₂H- Ethanedioic acid

CH₃(CH₂)₄COOH- Hexanoic acid

CH₃CH=CHCH₂CH₂COOH- Hex-4-eneoic acid

2) Physical properties

Physical appearance: All simple aliphatic carboxylic acids up to C₁₀ are liquids at room temperature; other carboxylic acids are solids at room temperature and anhydrous carboxylic acids freeze to an ice-like solid below the room temperature.

Boiling points: Aromatic carboxylic acids have higher melting points than their aliphatic counterparts of comparable relative molecular mass.

Solubility: The water solubility of the acids decreases as the relative molecular mass increases because the structure becomes relatively more hydrocarbon in nature and hence covalent. All carboxylic acids are soluble in organic solvents.

3) From carbon (II) oxide:

Methanoic acid is manufactured by adding carbon (II) oxide under pressure to hot aqueous solution of sodium hydroxide. The free carboxylic acid is liberated by careful reaction with tetraoxosulphate (VI) acid.

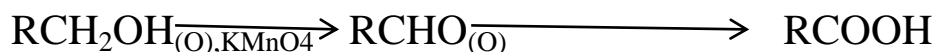
From ethanol:

Ethanoic acid is obtained commercially by the liquid phase air-oxidation of 5% solution of ethanol to ethanoic acid using manganite (II) ethanoate catalyst. Ethanal is obtained from ethylene.

4) Synthetic preparations of carboxylic acids

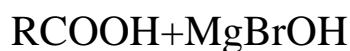
- Oxidation of primary alcohols and aldehydes

Oxidation of primary alcohols and aldehydes can be used to prepare carboxylic acids using the oxidizing agents (KMnO_4) in acidic solution.

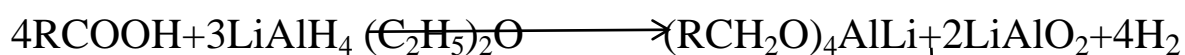


- Carbonation of Grignard reagent

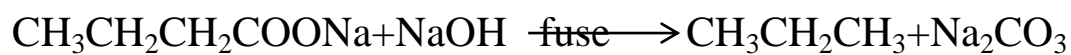
Aliphatic compounds acids are obtained by bubbling carbon(VI) oxide into the Grignard reagent and then hydrolysed with dilute acid.



5) Reduction to primary alcohol



- Decarboxylation



Kolbe synthesis



- Esterification

