DIAZO ACETIC ESTER

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ALIPHATIC DIAZO COMPOUNDS

They are characterised by the presence of a $>CN_2$ group.

Highly reactive compounds

Examples:

1. Diazomethane , CH_2N_2
2. Diazoacetic acetic ester $CHN_2COOC_2H_5$

PREPARATION

- It is prepared by reacting the cooled solution of hydrochloride of ethyl glycine hydrochloride with a cold solution of sodium nitrate.

$Cl\text{-}H_3N^+\text{-}CH_2\text{-}COOC_2H_5 + NaNO_2 \rightarrow N_2CH\text{-}COOC_2H_5$

PROPERTIES

- It is a yellow oil.
- Insoluble in water
- Insoluble in alcohol and ether
- Reaction are similar to that of diazomethane.

SYNTHETIC IMPORTANCE

- **Synthesis of ethylglycolate**

when boiled with dilte halogen acid, diazoacetic ester gives glycollic ester

$$N_2CHOOC_2H_5 + H_2O \rightarrow HOH_2CCOOC_2H_5 + N_2$$

- **Synthesis of ethylchloacetate**

with concentrated halogen acid, it produces ethyl halogenoacetate

$$N_2CHCOOC_2H_5 + HCl \rightarrow ClH_2CCOOC_2H_5$$

Synthesis of acetyl glycollic ester

With acetic acid and ethanol, it gives substituted glycollic esters.

$$CH_3COOH + N_2CHCOOC_2H_5 \rightarrow CH_3COOCH_2COOC_2H_5$$

Synthesis of ethyl bisiodoacetate

$$N_2CHCOOC_2H_5 + I_2 \rightarrow I_2CHCOOC_2H_5 + N_2$$

Reduction Product

On reduction with zinc and acetic acid, it gives ethyl glycine aster and ammonia.

$$N_2CHCOOC_2H_5 \rightarrow H_2NCH_2COOC_2H_5 + NH_3$$