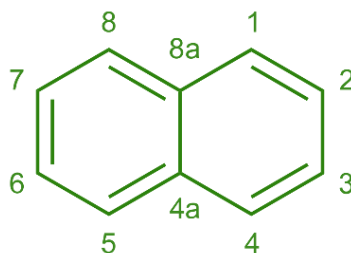


Polynuclear hydrocarbons

Naphthalene

Structure:

- Naphthalene is a polycyclic aromatic hydrocarbon consisting of two fused benzene rings.
- The molecular formula is $C_{10}H_8$.
- The structure is planar, and it has alternating double and single bonds, which are characteristic of aromatic compounds.



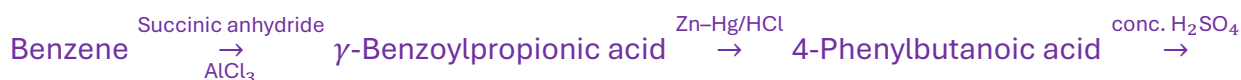
Synthesis:

1. From Coal Tar:

- Naphthalene is primarily obtained from coal tar, which is distilled to separate it from other components.

2. Laboratory Synthesis (Haworth Reaction):

- Formation of 1-Tetralone:** Benzene is first reacted with succinic anhydride to form 1-tetralone via the Friedel-Crafts acylation.
- Cyclization:** The intermediate is cyclized to form naphthol.
- Dehydration and Aromatization:** Finally, dehydration and aromatization produce naphthalene.

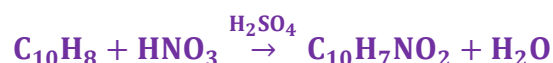


Reactions:

1. Electrophilic Substitution:

A. Nitration:

- Naphthalene reacts with nitric acid (HNO_3) to form nitronaphthalene.
- Reaction:**



B. Sulfonation:

- Naphthalene reacts with sulfuric acid (H_2SO_4) to form naphthalene sulfonic acid.
- **Reaction:**

**2. Oxidation:**

- Naphthalene can be oxidized to phthalic anhydride using oxidizing agents like vanadium pentoxide (V_2O_5).
- **Reaction:**

**Derivatives:**

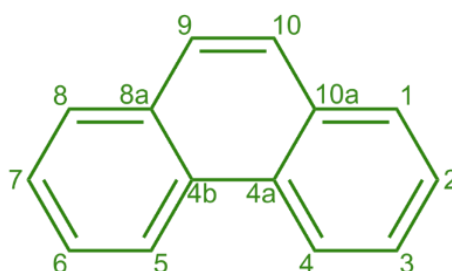
1. **Naphthols (1-Naphthol, 2-Naphthol):** These are important derivatives used in dye manufacture.
2. **Naphthylamines (1-Naphthylamine, 2-Naphthylamine):** These are precursors to various azo dyes.

Medicinal Uses:

- **Mothballs:** Naphthalene is used in mothballs due to its insect-repellent properties.
- **Derivatives:** Some derivatives of naphthalene, such as naphthoquinones, have antibacterial and antifungal properties. However, the direct medicinal use of naphthalene is limited due to its toxic nature.

Phenanthrene**Structure:**

- Phenanthrene is a polycyclic aromatic hydrocarbon composed of three fused benzene rings arranged in a linear arrangement.
- Its molecular formula is $\text{C}_{14}\text{H}_{10}$.

**Synthesis:****1. From Coal Tar:**

- Phenanthrene is extracted from the high boiling fraction of coal tar.



FREE PREVIEW

[Click here to visit our website](#)

PHARMACY PREMIUM NOTES

Complete subject
and semesters are
available on
FirstHope app only.



[Scan or click here](#)

Click here to get the app



Available on Google Play

JOIN THE FIRSTHOPE COMMUNITY

Join our Telegram channel

Click here to join Telegram



[Scan or click here](#)

@FirstHopeNotes

Instagram

@firsthope.official

[Click here to follow >](#)

YouTube channel

FirstHope-Pharmacy / Live streams

[Click here to watch >](#)

WhatsApp channel

Follow FirstHope on WhatsApp

[Click here to join >](#)

FirstHope website

firsthopenotes.com

[Click here to visit >](#)

B.Pharm / D.Pharm / M.Pharm / Pharm.D

Preview notes. Complete subjects and semesters in the FirstHope app.