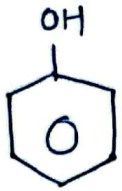
* Structure & uses :

① PHENOLS :



- also known as carbolic acid.
- consist of a phenyl group (C_6H_5) bonded to a hydroxy group (-OH)
- slightly acidic in Nature
- More soluble in water and have high Boiling points.

USES :

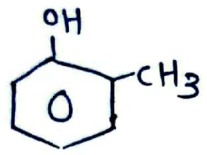
phenol $\geq$ 1% ⟶ disinfectant

0.2% ⟶ Antiseptic.

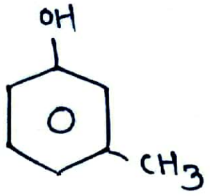
- used in manufacturing drugs like salol, Aspirin, salicylic acid, etc.,

- phenol spray :
  - For treatment of sore throat.
  - used in cosmetic industries for manufacturing of sunscreens, lightning cream & hair coloring solutions.
- used for extraction of Nucleic Acid :
- used as preservative in some vaccines and inks.
- used to synthesize Bakelite, plastic, resin, etc.,
- used in manufacturing of picric acid

② CRESOLS:



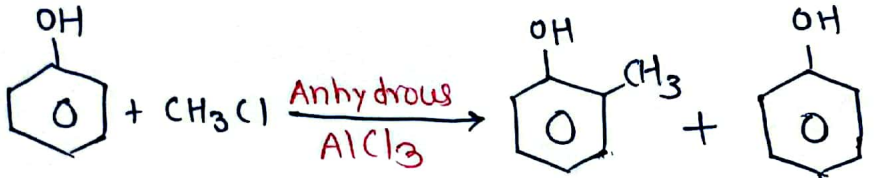
O-cresol



m-cresol

p-cresol.

- preparation of cresol:



p-cresol

[DEPTH OF BIOLOGY]

- Also called hydroxy toluene (or) methyl-phenols.
- They are solid (or) liquid, depend upon temperature on long exposure to air they are oxidised & the impurities oftenly gives cresols a yellowish to Brown Red tint.

[DEPTH OF BIOLOGY]

[DEPTH OF BIOLOGY]

- There are 3 isomers of cresol i.e, o-cresol, m-cresol, & p-cresol.

USES:

1) used as a precursor for synthesis of other compounds.

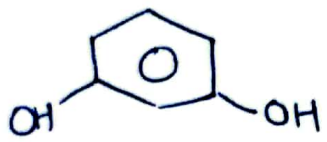
2) o-cresol → used in synthesis of muscle Relaxant drug Mephenesin.
→ Dinitrocresol (Herbicide) is obtained by nitration of o-cresol.
→ Carvacrol (strong antibacterial agent) is obtained by alkylation of o-cresol. [DEPTH OF BIOLOGY]

3) m-cresol → used as antiseptic like Amyl-meta cresol.
→ chloro-m-cresol is used as household disinfectant.

4) p-cresol → used in synthesis of Bupranolol which is Non-selective β-blockers
→ used in production of Butylated hydroxy-toluene (BHT) which is an Antioxidant.

[DEPTH OF BIOLOGY]

③ RESORCINOL:



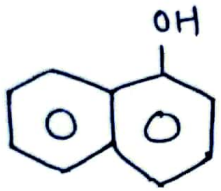
- It is 1,3- isomer of Benzenediol.
- colourless, readily soluble in water, alcohol & ether But insoluble in CS_2.
- It has sweet taste, on exposure to Resorcinol, irritation on skin & Mucous membrane can occur.

USES:

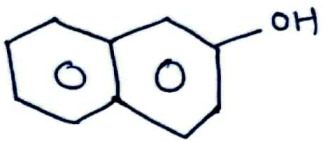
- Used as Antiseptic and disinfectant
- Used in Antidandruff shampoo (or) in Sunscreen cosmetics.
- Due to its Analgesic and haemostatic action, it is also used in treatment of gastric ulcers.
- used in manufacturing of Resins.

- Topically used to treat eczema, psoriasis and other skin disorders.
- It has Bacteriocidal effects so it can be used as preservative in cosmetics and dermatological drugs.

④ NAPHTHOLS :



1-Naphthol
(α-Naphthol)



2-Naphthol
(β-Naphthol)

- These are monohydroxy derivatives of Naphthalene.

- It has 2 isomers i.e. 1-Naphthol & 2-Naphthol, these 2 isomers differ by which carbon in the Naphthalene Ring, the hydroxyl group is Bonded.

- 1-Naphthol is a white solid, fluoroscent compound and soluble in alcohols, ethers and chloroform.

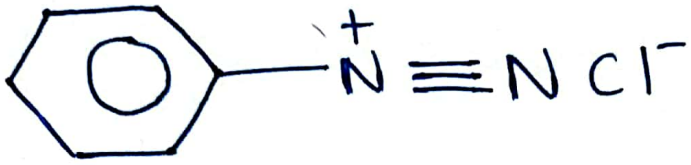
- 2-Naphthol is a colorless (or) yellow crystalline solid, fluoroscent having

- same solubility as 1-Naphthol.

USES:

- 1-Naphthol dissolved in ethanol is called Molish's Reagent which is used for detection of presence of carbohydrates.
- Used as an insecticide.
- 2-Naphthol ⇒ used in preparation of dyes
  - → used in antinematodal drug.
  - → Used as Antiseptic
  - → used in perfumes.
  - → used in synthesis of fungicides.
- 1-Naphthol is used to detect the presence of arginine in protein by Sakaguchi test.

⑤ Diazonium salts:



Benzenediazonium chloride – A diazonium salt

- They find application in the dye and pigment industries and are used to produce dyed fabrics.
- They are useful in the synthesis of a large variety of organic compounds, especially aryl derivatives.
- Direct halogenation is not a suitable method for preparing aryl iodides and fluorides.