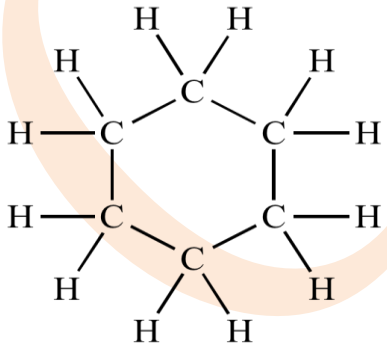
PHARMACEUTICAL ORGANIC CHEMISTRY-II- BP301T

UNIT: 1 Benzene and its derivatives

CLASS:1

TOPIC: Benzene and its derivatives

Cyclohexane is a cycloalkane with the molecular formula C_6H_{12}. Cyclohexane is non-polar. Cyclohexane is a colourless, flammable liquid with a distinctive detergent-like odor, reminiscent of cleaning products (in which it is sometimes used). Cyclohexane is mainly used for the industrial production of adipic acid and caprolactam, which are precursors to nylon.



Discovery:

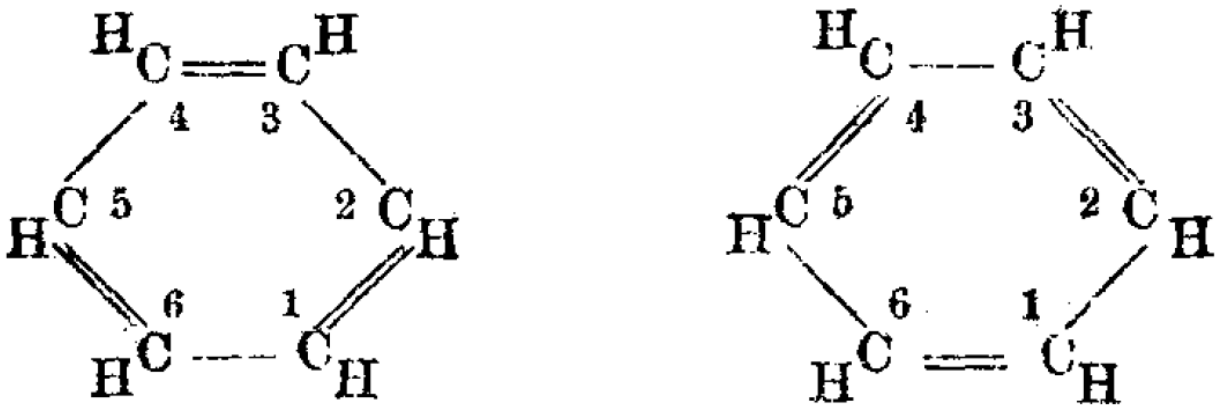
The word "benzene" derives from "gum benzoin" (benzoin resin), an aromatic resin known since ancient times in Southeast Asia; and later to European pharmacists and perfumers in the 16th century via trade routes.

An acidic material was derived from benzoin by sublimation, and named "flowers of benzoin", or benzoic acid. The hydrocarbon derived from benzoic acid thus acquired the name benzin, benzol, or benzene.

Michael Faraday first isolated and identified benzene in 1825 from the oily residue derived from the production of illuminating gas, giving it the name bicarburet of hydrogen.

In 1833, Eilhard Mitscherlich produced it by distilling benzoic acid (from gum benzoin) and lime. He gave the compound the name benzin.

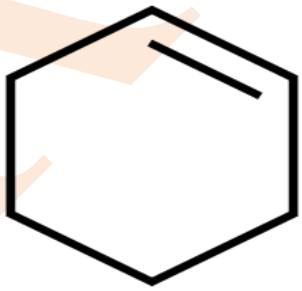
In 1836, the French chemist Auguste Laurent named the substance "phène"; this word has become the root of the English word "phenol", which is hydroxylated benzene, and "phenyl", the radical formed by abstraction of a hydrogen atom (free radical H•) from benzene



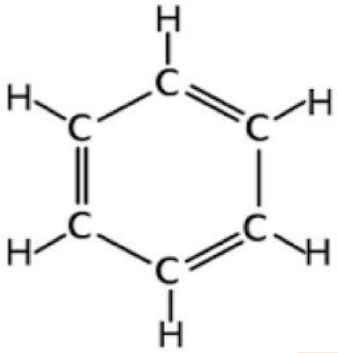
Kekulé's 1872 modification of his 1865 theory, illustrating rapid alternation of double bond

Cyclo 1-hexene:

Cyclohexene is a cycloalkene that is cylohexane with a single double bond. Cyclohexene is a natural product found in Rattus rattus.

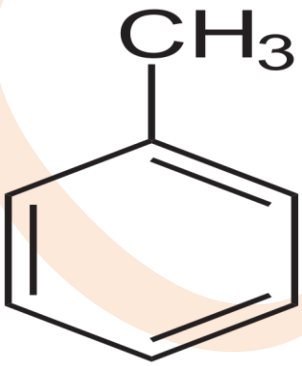


Benzene is an organic chemical compound with the molecular formula C_6H_6. The benzene molecule is composed of six carbon atoms joined in a planar ring with one hydrogen atom attached to each. Because it contains only carbon and hydrogen atoms, benzene is classed as a hydrocarbon.



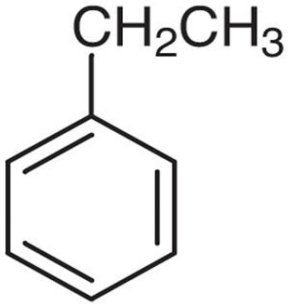
Nomenclature:

Toluene is a substituted aromatic hydrocarbon.[15] It is a colour less, water-insoluble liquid with the odour associated with paint thinners. It is a mono-substituted benzene derivative, consisting of a methyl group (CH_3) attached to a phenyl group. As such, its systematic IUPAC name is methylbenzene. Toluene is predominantly used as an industrial feedstock and a solvent.



Ethyl benzene:

Ethylbenzene is an organic compound with the formula $C_6H_5CH_2CH_3$. It is a highly flammable, colorless liquid with an odor similar to that of gasoline. This monocyclic aromatic hydrocarbon is important in the petrochemical industry as a reaction intermediate in the production of styrene, the precursor to polystyrene, a common plastic material.



Chlorobenzene:

It is used primarily as a solvent, a degreasing agent, and a chemical intermediate. Limited information is available on the acute (short-term) effects of chloro benzene. Acute inhalation exposure of animals to chloro benzene produced narcosis, restlessness, tremors, and muscle spasms.