



Al-Mustaqbal University College

Department of Medical Physics

First Class

Organic Chemistry

Lec 1 Introduction to Organic chemistry

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Introduction to organic chemistry

Organic chemistry :is a is the branch of chemistry that deals with carbon and its compounds. It is fundamental to biology and medicine. Carbon is known to form unlimited number of compounds. Carbon atoms can form chains, they have branches and crosslinks. or rings of all sizes;

Organic chemicals were used in ancient times by Romans and Egyptians as dyes, medicines and poisons from natural sources, but the chemical composition of the substances was unknown .

Nomenclature

1- Find the longest carbon chain in the molecule. This will give you the base of the name:

<i>No of C atoms</i>	<i>Name</i>
1	meth-ane
2	eth-ane
3	prop-ane
4	but-ane
5	pent-ane
6	hex-ane
7	hept-ane
8	oct-ane
9	non-ane
10	dec-ane

2- Determine the principle functional group and its position.

<i>principal functional group</i>	<i>formula</i>	<i>ending becomes</i>
alkane	C-C	-ane
alkene	C=C	-ene
alkyne	C≡C	-yne
alcohol	-OH	-anol
aldehyde	-CH=O	-anal
ketone	>C=O	-anone
carboxylic acid	-COOH	-anoic acid

Position is indicated, where necessary, by numbering the carbons in the main chain. Position need not be indicated for alkanes, as they have no functional group, and aldehydes and acids, as they are terminal functional groups. Positioning numbers are flanked by dash signs.

Multiple positions for a given functional group are separated by commas and indicated by the prefixes di, tri, tetra, penta, hexa, hepta, octa , nona and deca.

3- Ancilliary functional groups are given in alphabetical order, with their position at the beginning of the name.

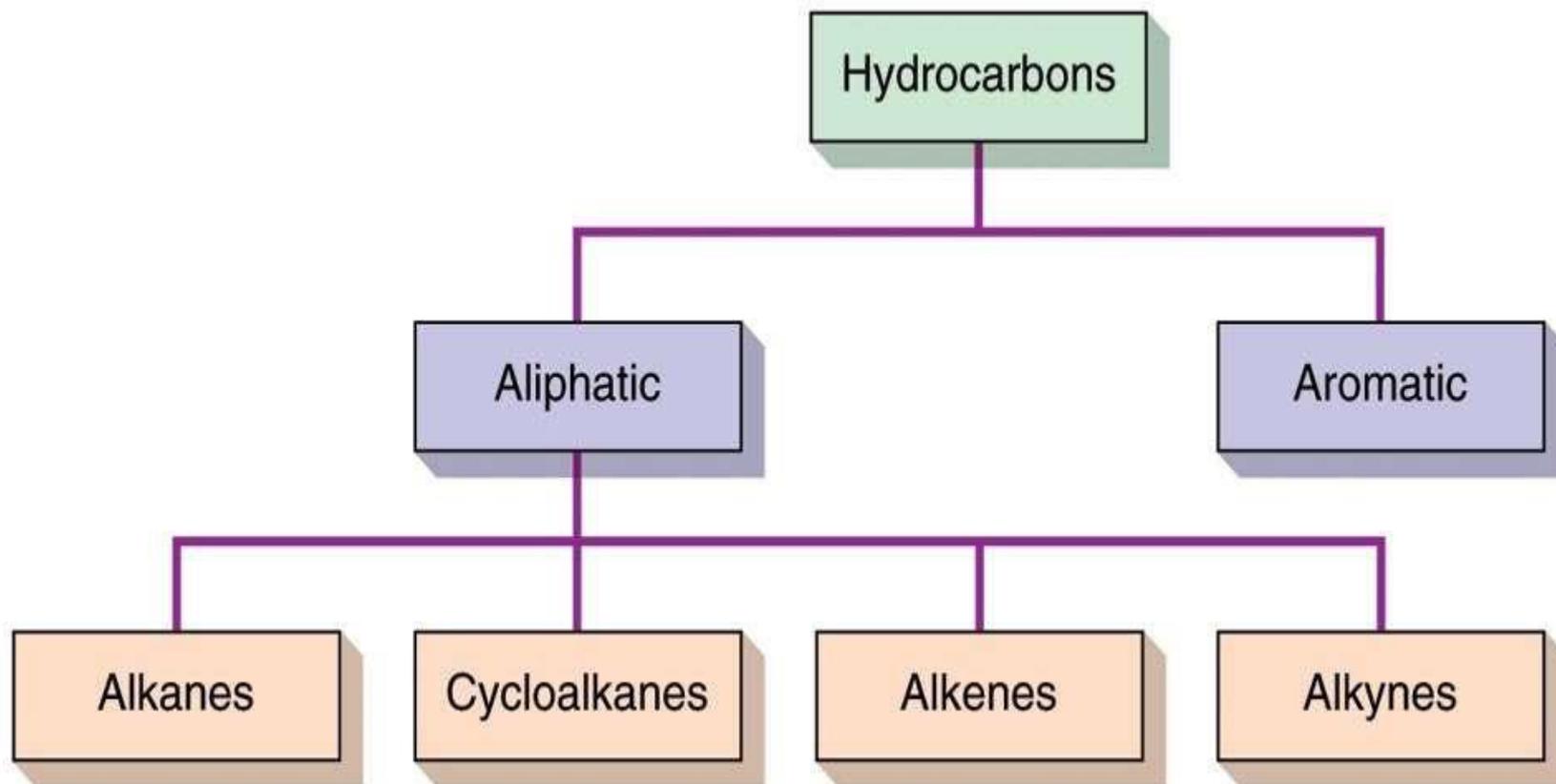
<i>ancilliary functional group</i>	<i>formula</i>	<i>prefix</i>
<i>methyl</i>	-CH ₃	methyl
<i>ethyl</i>	-C ₂ H ₅	ethyl
<i>propyl</i>	-C ₃ H ₇	propyl
<i>butyl</i>	-C ₄ H ₉	butyl
<i>pentyl</i>	-C ₅ H ₁₁	pentyl
<i>hexyl</i>	-C ₆ H ₁₃	hexyl
<i>heptyl</i>	-C ₇ H ₁₅	heptyl
<i>octyl</i>	-C ₈ H ₁₇	octyl
<i>nonyl</i>	-C ₉ H ₁₉	nonyl
<i>decyl</i>	-C ₁₀ H ₂₁	decyl
<i>fluorine</i>	-F	fluoro
<i>chlorine</i>	-Cl	chloro
<i>bromine</i>	-Br	bromo
<i>iodine</i>	-I	iodo
<i>amine</i>	-NH ₂	amino
<i>hydroxyl</i>	-OH	hydroxy
<i>cyanide</i>	-CN	cyano
<i>benzyl</i>	-CH ₂ C ₆ H ₅	benzyl
<i>phenyl</i>	-C ₆ H ₅	phenyl

Hydrocarbons

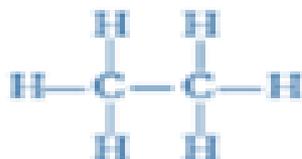
Hydrocarbons are the most simple organic compounds.

- Hydrocarbons contain only carbon (C) and hydrogen (H.)
- For classification purposes, all other organic compounds are considered derivatives of hydrocarbons.
- Hydrocarbons can be divided into aromatic and aliphatic hydrocarbons

Classification of Hydrocarbon



Example



Ethane



Ethene

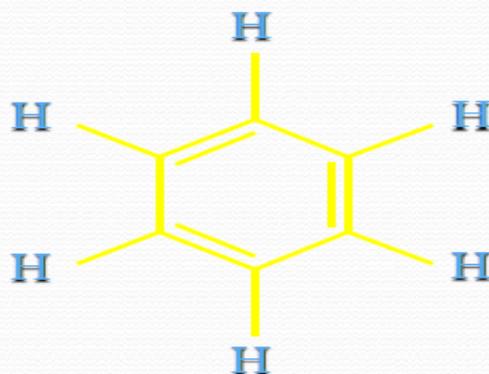


Acetylene

Hydrocarbons

The most common aromatic hydrocarbons are those that contain a benzene ring.

Aromatic



*Thank
you*

