



Al-Mustaqbal University College
Anesthesiology Techniques Department

First Class

General Chemistry

3th lecture

Organic chemistry

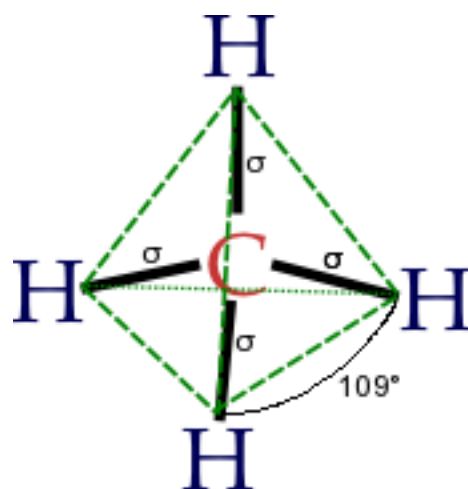


Article teacher
M.S.c. Zainab M. N.

Organic chemistry

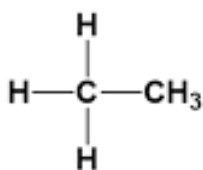
is the scientific study of the structure, properties, composition, reactions, and synthesis of organic compounds that by definition contain carbon.

- Organic compounds are molecules composed of carbon and hydrogen, and may contain any number of other elements.
- Many organic compounds contain nitrogen, oxygen, halogens, and more rarely phosphorus or sulphur.

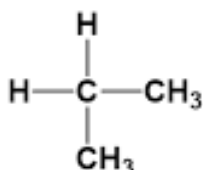


Carbon atoms classified according to their degree of substitution by other carbons.

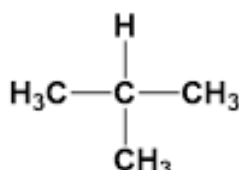
- **Primary carbon** is directly attached to another one carbon.
- **Secondary carbon** is directly attached with two other carbons,
- **Tertiary carbon** is directly attached with three other carbons
- **Quaternary carbon** is directly attached with four other



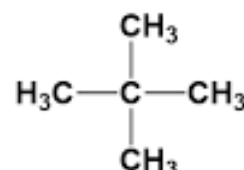
1° Carbon



2° Carbon



3° Carbon



4° Carbon

carbons.

Hydrocarbon compounds

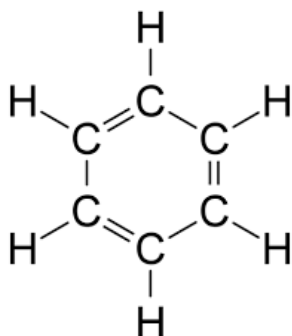
Hydrocarbons are organic chemical compounds that consist only of carbon and hydrogen elements, where carbon atoms are bound together to form the structure of the compound.

Types of hydrocarbon compounds

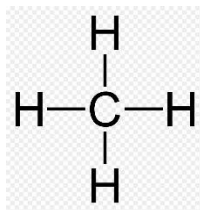
- **Aliphatic hydrocarbons** : It is divided into three main groups depending on the type of bonds they contain. These groups are: alkanes. Alkenes. Alkenes

- **Aromatic hydrocarbons**

- Another name for aromatic hydrocarbons is *Arenes*.
- The most important aromatic hydrocarbon is *Benzene*.



Alkanes: They are Saturated organic compounds consisting of carbon and hydrogen, and the bond in these compounds is mono covalent and its common formula $C_nH_{2n + 2}$ such as methane



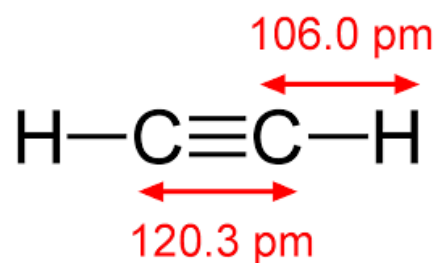
Alkene: Hydrocarbons unsaturated compounds have double bond a covalent bond between the two carbon atoms called Olefins and its common formula C_nH_{2n}

Such as Ethen



Alkyne: They are hydrocarbons with at least a triple bond between two carbon atoms. Alkenes are also known in the name of acetylene and its common formula $C_nH_{2n - 2}$

Such as ethyne



جدول بسيط يوضح المركبات الهيدروكربونية

مثال		الصيغة العامة	المجموعة الوظيفية		العائلة
الصيغة	الإسم		الصيغة	الإسم	
CH ₄	الميثان	C _n H _{2n+2}	C—C	الرابطه الأحادية	الألكانات
C ₂ H ₄	الإيثلين	C _n H _{2n}	C=C	الرابطه الثنائية	الألكينات
C ₂ H ₂	الأسيتلين	C _n H _{2n-2}	C≡C	الرابطه الثلاثية	الألكاينات
CH ₃ Cl	كلوريد الميثيل	R—X	C—X	ذرة الهالوجين	هاليدات الألكيل