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Organic Chemistry: Current Research

Perspective

Classification of Organic Compounds

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INTRODUCTION

Organic compounds are any chemical compounds in which one or more carbon atoms are covalently connected to the atoms of other elements. In the simplest words, organic compounds are any chemical compounds that contain carbon; however this does not mean that any carbon-containing substance, such as cyanides, carbonates, and carbides, is considered organic. Methane is the greatest example of the simplest organic chemical. Cyclohexane, ethyne, ethane, and ethane are some examples of organic compounds.

Organic compounds are divided into two categories. First, we'll examine organic compounds that are based on "Structure," and then we'll talk about organic compounds that are based on "Function." Now we'll take a closer look at these organic compound classifications.

i. Acyclic or open chain compounds

ii. Closed-chain or cyclic compounds

Acyclic or open chain compounds: Because their molecules do not form a ring, acyclic compounds are the polar opposite of cyclic compounds. Because they have a linear structure, they are referred to as open chain compounds. Acyclic aliphatic chemicals and alkanes are the greatest examples of these compounds. Straight-chain and branched-chain compounds are both examples of open-chain compounds. Straight-chain compounds contain no side chains, but branched-chain compounds have atoms with a straight chain and one or more side chains attached.

Closedchain or cyclic compounds: "Ring compounds" are another name for cyclic compounds. Cyclic compounds, as their second name implies, are those in which one or more than one number of atoms are joined to form a closed ring. It is not necessary for all of these compounds' rings to be the same size.

Because humans come into contact with cyclic or closed-chain chemicals on a daily basis, they always take precedence in their daily lives. They're also separated into two groups. The first section focuses on "Heterocyclic," whereas the second division focuses on "Homocyclic." We'll go over each of these categories one by one now.

Heterocyclic: Heterocyclic compounds have a ring structure and are cyclic compounds with a ring structure. These compounds are similar to any other dominating branch of organic compounds in which two or more than two atoms connect in a ring shape in their molecules, which we can explain in a very basic explanation. Although they contain carbon atoms, it is important to note that they also contain at least one atom of another element. Synthetic colours, nucleic acids, and the majority of pharmaceuticals are all examples of these molecules.

Alicyclic heterocyclic compounds and Aromatic heterocyclic compounds are the two broad categories that heterocyclic compounds fall into. Now we'll take a quick look at each of these areas.

Homocyclic: When it comes to organic chemistry, Homocyclic compounds are cyclic compounds in which the ring structure is generated by the atoms, as opposed to heterocyclic compounds in which the ring structure is formed by the atoms. This ring structure is made up of atoms from the same element, which is carbon. Carbocyclic compounds are what they're named. This chemical cannot contain any elements other than carbon. Although, in inorganic chemistry, homocyclic compounds have ring structures created by diff-diff elements' atoms such as boron, sulphur, phosphorous, and so on, homocyclic compounds have ring structures generated by diff-diff elements' atoms such as boron, sulphur, phosphorous, and so on. Naphthalene, tetracene, benzene, and other similar compounds are good examples.

Simple lines can help us grasp these molecules. These compounds have one or more heteroatoms in their ring structures. Tetrahydrothiophene, tetrahydrofuran, and other similar molecules can help us understand these substances.

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