

- Medicinal plants

- Lab 6

Secondary metabolite

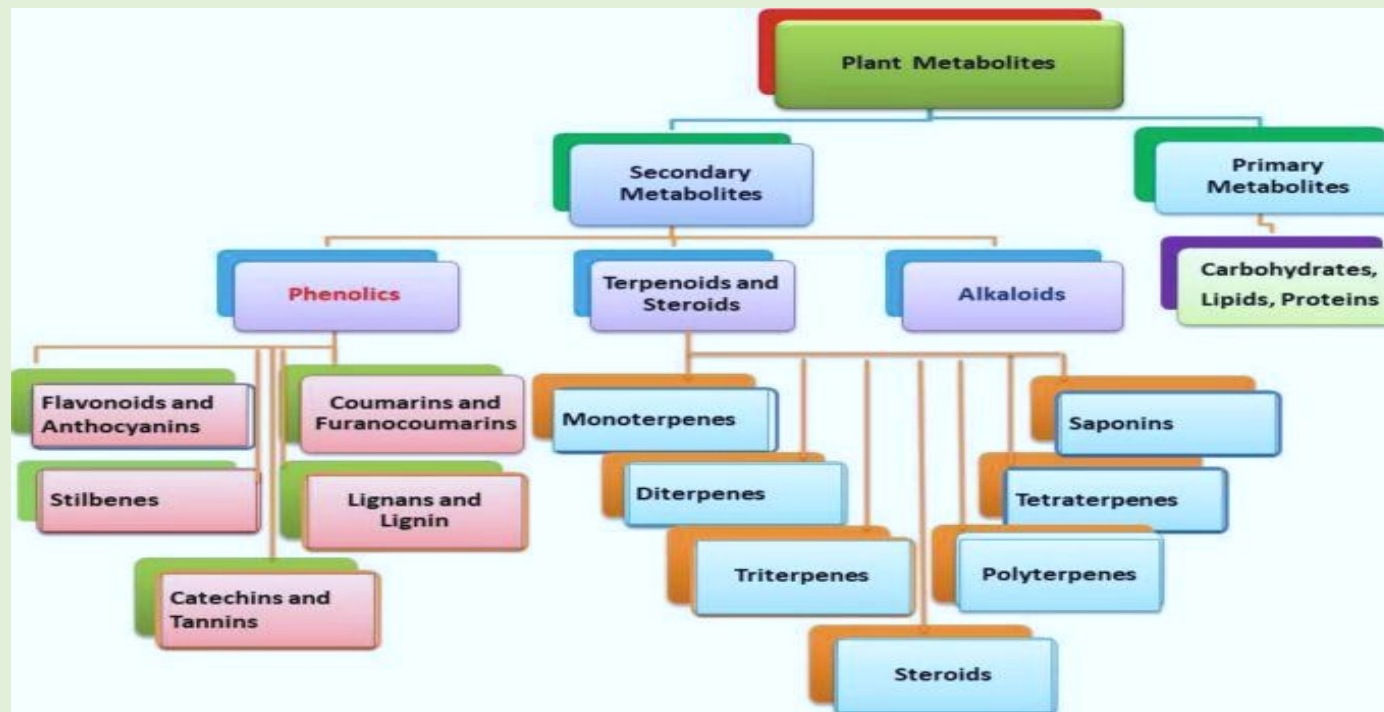


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Secondary metabolite

Secondary metabolites:- are **organic compounds** that are not directly involved in the normal growth, development, or reproduction of an organism. Unlike primary metabolites, absence of secondary metabolites does not result in immediate death, but rather in long-term impairment of the organism's survivability, fecundity, or aesthetics, or perhaps in no significant change at all. Secondary metabolites are often restricted to a narrow set of species within a **phylogenetic group**. Secondary metabolites often play an important role in plant and other interspecies defenses. **Humans use secondary metabolites as medicines, flavorings, and recreational drugs.**



Organic compound

- is any member of a large class of gaseous, liquid, or solid chemical compounds whose molecules contain carbon. For historical reasons discussed below, a few types of carbon-containing compounds, such as carbides, carbonates, simple oxides of carbon such as CO and CO₂, and cyanides are considered inorganic. The distinction between organic and inorganic carbon compounds, while "useful in organizing the vast subject of chemistry is somewhat arbitrary" Organic chemistry is the science concerned with all aspects of organic compounds. Organic synthesis is the methodology of their preparation. Organic compounds as containing carbon-hydrogen bonds, and inorganic compounds are compounds that do not contain such links. Thus, carbonic acid is an organic, while formic organic acid, meaning that the first fatty acid organic, although it can be called "carbonic acid will" also form the "anhydrous" monoxide Carbon is organic.

Alkaloids

- Alkaloids are **generated** by various living organisms, especially **by higher plants** - about 10 to 25% of those contain alkaloids. Therefore, in the past the term "alkaloid" was associated with plants. The alkaloids content in plants is usually within a few percent and is inhomogeneous over the plant tissues. Depending on the type of plants, the maximum concentration is observed in the
- **leaves** (black henbane), **fruits or seeds** (Strychnine tree), **root** (Rauwolfia serpentina) or **bark** (cinchona).
- - Furthermore, different tissues of the same plants may contain different alkaloids. Beside plants, alkaloids are found in certain types of fungi, such as psilocybin in the **fungus** of the genus **Psilocybe**, and in animals, such as **bufotenin** in the skin of some toads. Many marine organisms also contain alkaloids. Some **amines**, such as **adrenaline** and **serotonin**, which play an important role in higher animals, are similar to alkaloids in their structure and biosynthesis and are sometimes called alkaloids.

Plant groups containing alkaloids:-

- Are nitrogenous organic compounds combine with alkaline acid which is found in **all parts** of the plant, or in the **special parts** of the plant (such as **bark, roots, fruits, seeds, leaves**) An alkaline effect compounds ranges focus from 1-15% of the dry weight of the plant.
- The alkaloids of the most important groups in the world of medicine and treatment is fairly natural compounds that may be chemically or physiologic vary, but they share being organic materials containing nitrogenous bases complicated installation carrier Atoms of C, O, H, N These groups act as if the base which is having an impact in the physiology of the organism, even if found in plants in small quantities and this effect varies depending on the nature and amount of alkaloids have been separated so far more than 2,000 alkaloid.

Families containing alkaloids: -

- 1-Papaveraceae
- 2-Solanaceae
- 3-Liliaceae
- 4-Acanthaceae
- 5-Apocynaceae
- **Detection of alkaloids: -**
- To make this disclosure has been using one of two methods
- 1. Marquis reagent, which gives gray granulated evidence of the presence of alkali
- 2. Meyer detector that gives a white sediment is also evidence of the alkali

Alkaloids uses and benefits:-

- - Cocaine and morphine extracted from poppy
- - Quinine extracted from cinchona
- - There caffeine from coffee, tea cocaine from coca
- - ephedrine drug to treat colds, asthma, ephedra, a genus of plants, Rizrbin of Alrolivea Serbntinh.
- - Altupuk and Rrarin plant of curare poison extract. Material used toxic alkaloid extracted from the plant extract of curare in some primitive
- tribesmen to poison arrows.
- - It contains plant hemlock (SAM), which is used to execute the Greek philosopher Socrates plant, a lethal amounts of materials and semiUniversalist other alkaline.
- - Also, the Alkontin extracted from the plant is highly toxic Aconitum.
- - And nicotine extracted from tobacco is toxic to humans and is used to kill insects.

