

Plant Taxonomy Practical

Lab -1-

Plant taxonomy: is the branch of botany focused on identifying, describing, classifying, and naming plants based on shared characteristics and evolutionary relationships. It organizes plant diversity into a hierarchical structure—ranging from species to kingdom—using morphological, anatomical, and genetic data to classify species scientifically.

Key Components of Plant Taxonomy

- **Identification:** Determining that a specimen belongs to a known or unknown taxon.
- **Description:** Cataloging the key characteristics (morphology, anatomy, genetics) of a species.
- **Classification:** Placing plants into groups (taxa) such as families, genera, and species, often based on structural similarities.
- **Nomenclature:** Assigning accepted, universal scientific names to plants, adhering to international rules.

❖ **Carolus Linnaeus**, the **father of taxonomy**, introduced the binomial nomenclature system and laid the early groundwork for modern nomenclature systems. Organisms were given two names: genus and species, based on characteristics.

- **Genus:** The genus forms the first part of the binomial scientific name of a plant. It always appears in Italics and should be capitalised. Examples include the genera *Gladiolus* and *Plectranthus*.
- **Species:** Genera comprise groups of different species that share certain common characteristics and are closely genetically related. A species is an interbreeding group of individuals that are capable of producing fertile offspring that can reproduce themselves. It always appears in Italics and lower case, for example, *Leucospermum prostratum*.

Plant Classification according to life span (Duration)

1- Ephemerals Plants: Plants with very fast life cycles, completing their growth in just a few weeks or months (e.g., some desert plants or *Cucumis*).

2- Annuals Plants : These plants complete their entire life cycle—germinating, growing, flowering, fruiting, and dying—within one growing season or year.

Examples: Corn, wheat, rice, watermelon, marigold.

3-Biennials Plants :These plants require two years or growing seasons to complete their life cycle.

First Year: Vegetative growth (roots, stems, and leaves).

Second Year: Flowers, fruits, and dies.

Examples: Carrot, cabbage, onion, sugar beet.

4- Perennials Plants :These plants live for more than two years and often persist for many years, sometimes for decades or centuries. They often develop strong root systems such as trees and shrubs.



Cucumis



Corn



Carrot



Nerium oleander

Plant Classification according to plant Habit (growth form)

1-Herbs: short plants with soft, green, delicate stems without woody tissues. They complete their life cycle within one or two seasons. Generally, they have few branches or are branchless. include *parsley*, *basil* and *mint*.

2-Woody plants : are perennials that have strong roots and wooden stems ,produce secondary growth in the form of wood .these plants divided to:

- **Shrubs:** medium-sized, woody plants that are taller than herbs but shorter than trees. They have bushy, hard, woody stems with many branches. The lifespan of these plants largely depends on the species. Such as *Rosa*.
- **Trees:** large and tall plants. They have very thick, woody and hard stems known as the trunk. This single main stem or the trunk gives rise to many branches that bear leaves, flowers and fruits, such as *Phoenix dactylafera*.

3-Climbers: They have a very thin, long and weak stem which cannot stand upright, but they can use external support to grow vertically. These types of plants use special structures called tendrils to climb. Such as *Vits* .

4-Twining plants: plants with wrapped stems around other plants such as *Convolvulus*.

5-Caulescent plants: plant that have distinguish stem that arise above the soil such as *Ricinus* .

6- A Caulescent plants: plant that have no distinguish stem that arise above the soil such as *plantago* .

7- Succulent plants: plant that have soft, fleshy and thick leaves and stem such as *Portulaca*.



Basil



Rosa



Phoenix dactylafera



Vitis



Ricinus



Convolvulus



Plantago



Portulaca