



Department of biology

((Plant groups))

Stage 2

First lecture

Introduction to plant groups

By

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Introduction of Plant groups

- Plants are multicellular Eukaryotes that consider primary producers in the food chain. All the members of the plant kingdom can make their own food by utilizing sunlight, carbon dioxide, and water. They have photosynthetic pigments such as chlorophyll a, b, and carotenoid pigments. This process is known as photosynthesis.

Introduction of Plant groups

- Only plants can make their food. All other living organisms are dependent on plants to derive food and energy. All the members of the plant kingdom can make their own food by utilizing sunlight, carbon dioxide, and water.

Introduction of Plant groups

- Kingdom Plantae was first separated from heterotrophic fungi and unicellular prokaryotic cyanobacteria by Whittaker in 1969 while proposing a five-kingdom classification system. According to this classification, all the known living organisms on the earth were divided into five categories:

Kingdom Monera

Kingdom Protista

Kingdom Fungi

Kingdom Plantae

Kingdom Animalia

This science is concerned with three main areas

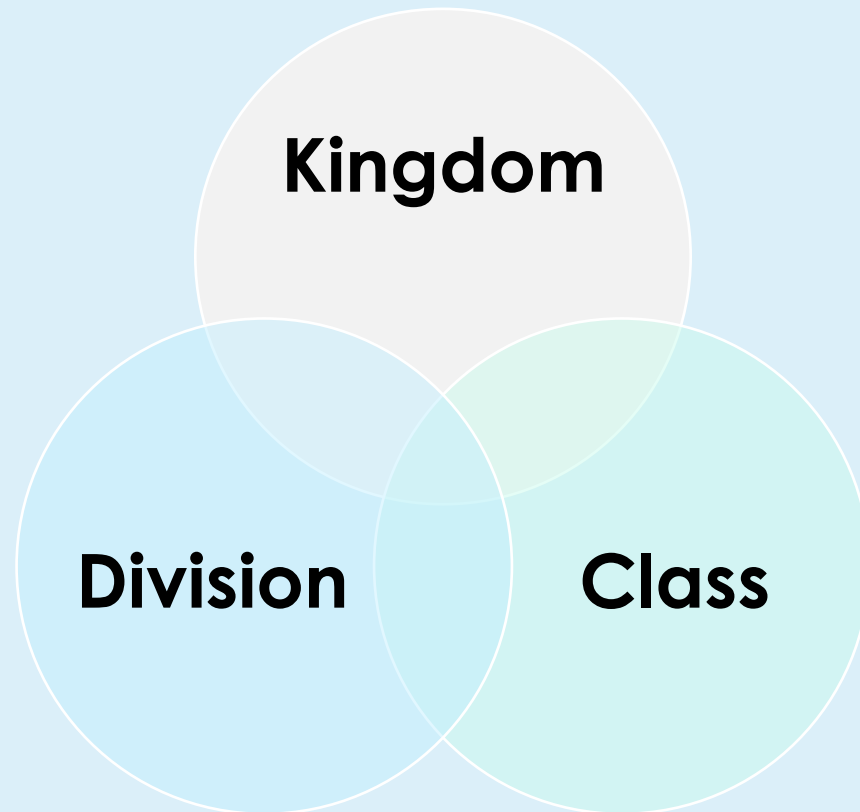


Identification

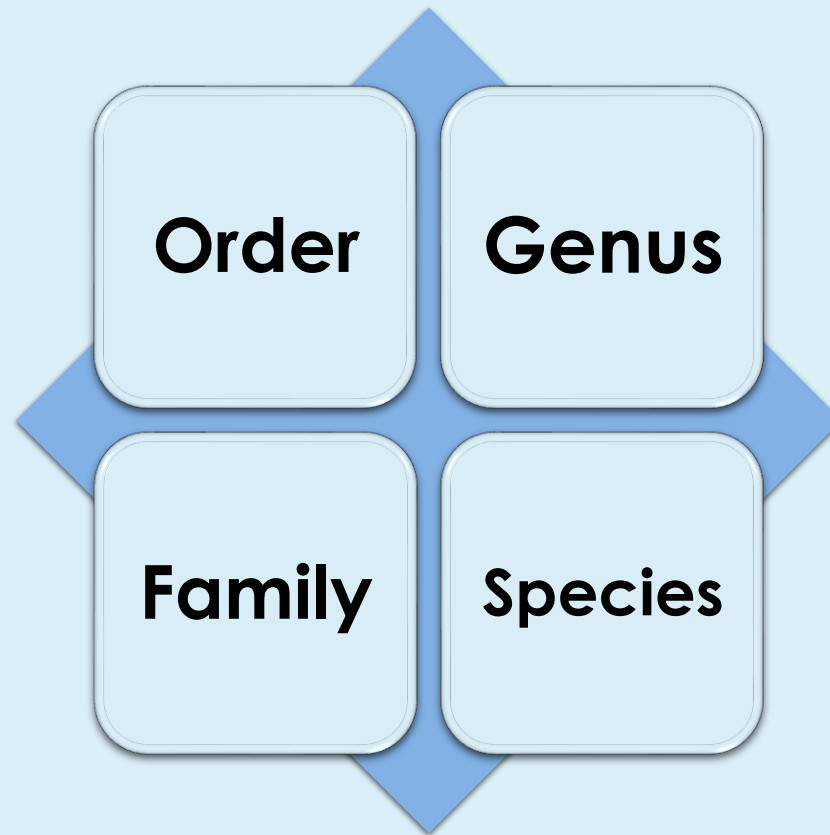
Naming

Classification

The classification of the taxa into two groups of the major taxa includes **the Major taxa**



And includes Minor taxa



Requirements for writing the scientific name

- **1- Must be written in Latin letters.**
- **2- Must be written in italics or non-italic letters with the lower part of the letter.**
- **3- The name of the genus must begin with a capital letter and the name of the species with a small letter.**

Example

- **Maize / *Zea mays***
- **Potato / *Solanum tuberosum***
- **Lettuce / *Lactuca sativa***
- **Carrot / *Daucas carota***
- **Apple / *Malus domestica***

Basics of Plant Classification

1- Morphology

It means the attributes that determine the appearance of the plant, such as the shape of the leaves,, for example, the shape of the bases of the leaves, the shape of the pollen, and the shape of the flowers. And the shapes of the leaves and the cups and the shapes of the roots and the attributes related to the leaves , and the pestle and its forms.

2-Anatomical attributes

It means the attributes related to the internal structure of plant organs and the area of this structure with the function it performs. For example, plants can be divided based on the presence or absence of transport vessels (Xylem and phloem) into vascular and non-vascular plants, or depending on the internal anatomy, into monophyletic or biphyletic plants.

3- Cellular characteristics

Among these qualities, for example, the composition of the plant cell wall, the presence of the nuclear envelope, the presence of pigments, the presence of stored nutrients, the presence of whips or any other distinctive structures, as well as the forms of plastids and the nature of cellular aggregates.

4- Chemical properties

The chemical properties of the compounds contained in different plant cells and tissues in terms of quality and quantity play an important role in the classification of plants.

5- Fossils

Fossils are living creatures that lived millions of years ago, and when they died, they turned into rocks, where they left impressions or patterns indicating the shape of extinct living things. These fossils are the ancestors of living things that live at the present time.

6- Embryology

Embryonic studies sometimes help to distinguish between closely related species, through the comparison between insemination processes (mixed or personal) and through the process of fertilization, the stages of insemination and fertilization, the formation of embryos and the development of the fruit and seeds, all these things can help in distinguishing between closely related species.

7- Reliance on computer programs

Computers have been widely used in many fields, including the field of writing books, and this method is characterized by finite accuracy as well as the speed of completion, where through the attributes that are gathered about the desired plant and by comparing those attributes with the information stored in the computer, the plant can be diagnosed with finite accuracy.

Classification of Kingdom Plantae

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graph TD; A[Classification of Kingdom Plantae] --> B[Vascular Plant]; A --> C[Non-Vascular Plant]; B --> D[Seedling]; B --> E[Seedless]; D --> F[Gymnosperms]; D --> G[Angiosperms];
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Vascular Plant

Non-Vascular Plant

Seedling

Seedless

Gymnosperms

Angiosperms


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graph TD; A([Seedling]) --> B[Gymnosperms]; A --> C[Angiosperms]
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Seedling

Gymnosperms

Angiosperms

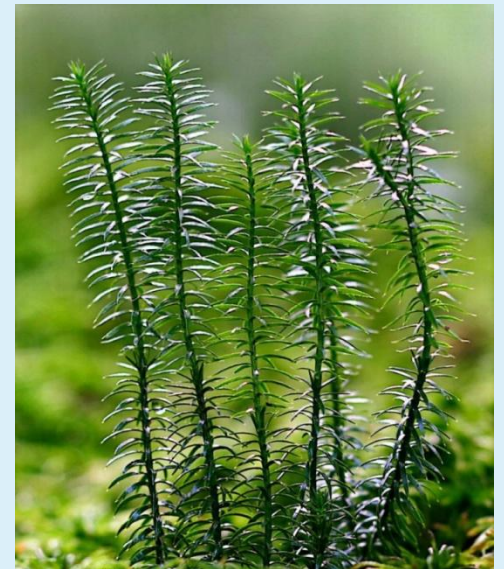
Seedling

- They are plants that reproduce by seed It is divided into:
- 1. **Gymnosperms** : Its seeds are exposed, such as pine.
- 2. **Angiosperms** : **Flowering plants** that contain seeds inside the fruit , divided into dicotyledonous and monocotyledonous plants such as apricot.

Non-Vascular Plant

- These plants lack composed vascular tissue, which is one of their characteristics. The root, stem, and leaves, as well as from wood and bark, and reproduces by spores.

- **A. Thallophyta**
- **B. Bryophyta (Mosses)**



(Bryophyta)

Includes

nonvascular plants
such as mosses,
which are small
plants that grow in
moist environments
and reproduce by
spores

(Thallophyta)

Includes

simple plants that
do not have true
roots, stems, or
leaves, such as
algae and fungi.
They often live in
aquatic or moist
environments

Vascular Plant

- These plants have actual vascular tissue made of Xylem and phloem as one of their distinguishing characteristics. They also have leaves, roots, and stems that reproduce by seeds and spores.
- The vascular plants are divided into two groups :
 - **a) Seedless b) Seedling**

A large, irregular splash of teal and blue watercolor paint serves as the background for the text. The colors are layered, with darker blues in the center and lighter teals towards the edges, creating a soft, painterly effect.

Thank You