Faculty of Science

Department of Medical Technology

((General plant sciences))

1st stage

Lab (10)

Diversity in Plant

By

Mm. Ali Al-Awadi

Lab 10: Diversity in plant

Classification of Plant Kingdom

1- Division Thallophyta

These are the lowermost plants of the plant kingdom, without a well-differentiated body design. This means that the plant body is not differentiated as roots, stem, and leaves. They are commonly called algae, are permanently aquatic.

Algae are a collective term for all those chlorophyll-bearing organisms which are thalloid. The plant body of these organisms is showing no differentiation into true tissue, so it never forms true roots, stems and leaves, and thus called a **thallus**.

- **General algal characteristics to primary classification:**

1. Photosynthetic pigments.
2. Type of food storage product resulted from photosynthesis.
3. Type, number, position and length of the flagella on motile algal cell.
4. Chemical composition of cell wall structure.

The details of vegetative and sexual or asexual reproductive cells are useful for algal classification only at the level of families, genera and species.

And can be classified as follow:

- Cyanobacteria – blue-green
- Chlorophyta – green algae
- Charophyta – stoneworts
- Dinophyta – dinoflagellates
- Chrysophyta – golden algae
- Bacillariophyta – diatoms
- Phaeophyta – brown algae
- Rhodophyta – red algae

Taxonomic Group	Chlorophyll	Photosynthetic pigments	Storage products

Bacillariophyta	a, c	-carotene rarelyfucoxanthin	Chrysolaminarin oils
Chlorophyta **(green algae)**	a, b	-carotene rarely carotene and lycopene, lutein	Starch, oils
Chrysophycophyta (golden algae)	a, c	fucoxanthin	Chrysolaminarin oils
Cyanobacteria **Cyanophayta** **(blue green algae)**	a, c	phycobilins C-phycocyanin and C-phycoerythrin	cyanophaycene
Phaecophycophyta (brown algae)	a, c	fucoxanthin, violaxanthin	Laminarin, soluble carbohydrates, oils
Dinophyta (dinoflagellates)	a, c	peridinin, neoperididnin, dinoxanthin, neodinoxanthin.	Starch, oils
Rhodophycophyta **(red algae)**	a, rarely d	zeaxanthin, β carotene	Floridean starch, oils

2- Division Bryophyta

These are small terrestrial plants. They show differentiation in the body design, with stem, leaf-like structures, and root-like structures. But, they do not have any specialized tissue to conduct water and other substances. They live in damp and sandy habitats and are often referred to as the amphibians of the plant kingdom. Examples are *Riccia, Funaria, and Marchantia*

3- Division Pteridophyta

These are supposed to be the oldest vascular plants. The plant body is differentiated into roots, stem, and leaves, apart from having a specialized tissue for conduction. This tissue helps in the conduction of water and other substances from part of the plant to the other.

These plants have naked embryos called spores. The reproductive organs in these plants are inconspicuous. Examples: *Marselia, Ferns*

4- Division Phanerogamae

Phanerogams are seed-bearing plants. The plant body is well differentiated with stem, leaves, and roots. There are well differentiated reproductive tissues that produce seeds. These plants also have a well-developed vascular system.