12. PLANT ANATOMY AND PLANT PHYSIOLOGY

Learning Objectives

At the end of this lesson the students will be able to:

- ❖ Understand vascular tissue system- their types and functions.
- ❖ Know the structure of dicot root, stem, leaf and monocot root, stem, leaf.
- ❖ Differentiate the internal structure of dicot root, stem, leaf with that of monocot root, stem, leaf.
- ❖ Name the different pigments found in chloroplast.
- ❖ Elaborate on the structure and functions of plastids.
- ❖ Enumerate the steps involved in photosynthesis.
- ❖ Understand the structure of mitochondria
- ❖ List the basic events of aerobic and anerobic respiration.

Important Points and Notes

- ⌗ ATP - Adenosine Triphosphate
- ⌗ ADP - Adenosine Diphosphate
- ⌗ NAD - Nicotinamide Adenine Dinucleotide
- ⌗ NADP- Nicotinamide Adenine Dinucleotide Phosphate
- ⌗ A cell cannot get its energy directly from glucose. So in respiration the energy released from glucose is used to make ATP (Adenosine Triphosphate).

- Artificial photosynthesis is a method for producing renewable energy by the use of sunlight. Indian scientist C.N.R. Rao who was conferred the Bharat Ratna (2013) is also working on similar technology of artificial photosynthesis to produce - Hydrogen fuel (renewable energy).

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Tissue System	Components	Funtions
Dermal Tissue System	Epidermis and Periderm (in older stems and roots)	• Protection • Prevention of water loss
Ground Tissue System	Parenchyma tissue Collenchyma tissue Sclerenchyma tissue	• Photosynthesis • Food storage • Regeneration • Support • Protection
Vascular Tissue System	Vascular tissues - Xylem tissue - Phloem tissue	• Transport of water and minerals • Transport of food