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Class : Deg. II (Subs.)

Topic : Photosynthesis

Lecture No. - 95

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• Photosynthesis in Green Plants:

• Definition :

• Photosynthesis on the basis of energy conservation:

Photosynthesis is the only natural process on the biosphere, in which light energy converts into electric energy and that electric energy converts into chemical energy.

• Photosynthesis on the basis of Metabolism:

Photosynthesis is one of the two examples of sum total of metabolic processes (Other process is growth), in which light phase or photochemical reaction is catabolic process (eg. photolysis of water), while dark phase or biochemical reaction is the anabolic or reduction or synthetic process.

• Site of Photosynthesis:

Process of photosynthesis takes place in a specific organelle known as chloroplast. Chloroplast is one of the two semiautonomous bodies. It consists of specific structure known as thylakoid (Mehner, 1961), which is the actual site of light phase.

②  
Thylakoid is membranous, vesicular, flattened structure containing pigments coupling factor (CF), different enzymes, carrier molecules related to ETC etc. 20-50 thylakoids present in the form of stack is known as granum.

Thylakoid between two grana is known as intergranal or stromal thylakoid.

Photochemical reaction in light phase takes place in thylakoid. There are 40-100 grana present in one chloroplast.

#### • Photosynthetic Units:

Photosynthetic unit is a group of ~~related~~ selected pigment molecules, that take part in the process of photochemical reaction (Hill Reaction).

Photosynthetic unit is made up of:

① Photocenter and ② Light harvesting Pigment molecules.

• Photocenter consists of specialized pigment molecules, while LHPC (Light Harvesting pigment chlorophyll or carotenoid) molecules consists of outer antenna molecules and inner core molecules.

It is estimated that light harvesting pigment molecules are approximately 200 in number.

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