NUTRITION IN PLANTS

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Plants play role of producers in nature. are producers, which produce food for all living organic. They utilize sun's radiant energy & convert into chemical energy. In this way, they also plays role of converter. Plants use sunlight in photosynthesis. During photosynthesis in the presence of sunlight CO_2 & H_2O convert in to carbohydrate & O_2 molecules.

> MECHANISM OF PHOTOSYNTHESIS

 $6CO_2 + 6H_2O \xrightarrow[Chlorophyll]{Light} C_6H_{12}O_6 + 6O_2$

Steps of photosynthesis :

- Chlorophyll traps the sunlight.
- CO_2 & water molecule used as raw material.
- Now the chlorophyll convert the raw material into carbohydrate.
- Oxygen is generated as a by product in this process.

REQUIREMENT OF PHOTOSYNTHESIS

Green plants need the following things to prepare their own food :

- **Carbon Dioxide :** Plants take up carbon dioxide from the atmospheric air through stomata present on the undersurface of the leaves. Guard cells around stomata regulate their opening and closing.
- Chlorophyll : It is the green pigment presents in the leaf. The green colour of leaves is due to the presence of chlorophyll. It is usually present in special cell organelle

called **chloroplast.** Chlorophyll captures solar energy during photosynthesis.

- **Sunlight :** Sunlight comes from the sun. It is essential as it provides the energy required for the reaction.
- Water and Minerals : Roots of the plants absorb water along with minerals from the soil and transport them to the leaves for photosynthesis.

SITE OF PHOTOSYNTHESIS

Photosynthesis occurs in the chlorophyll of leaves & sometimes in the stem which are green in colour.

Importance of photosynthesis :

- It is primary source of food production for all other living organisms.
- It maintain balance oxygen & CO_2 in the atmosphere.

> NUTRITION IN NON GREEN PLANTS

Non green plants like bacteria & fungi do not contain chlorophyll. So they cannot prepare their food by photosynthesis. These types of plants are heterotrophic plants.



- (1) **Parasites :** Plants which depends on other living organism for their nutritional requirement known as parasitic plants. Dodder (Amarbel) is a plant parasite which produces special sucking roots called haustoria. For absorption of food from the host plant.
- (2) Saprophytes : Plants which depends on dead organic matter for their nutrition, known as saprophytic plants. For example Bacteria & fungi.

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(3) Carnivorous & insectivorous plants : Some plants also take food just like animals. Their food consists of small insects. For example – Pitcher plants.

In a pitcher plant leaf is modified into a pitcher like structure when any insects sits on it, the lid is closed & the insect is trapped in pitcher. It is then digested by the secretion of enzymes.



(4) Symbiosis : It is a partnership between two organisms in which both partner get benefited from each other.

For example : Lichen.

Lichen is a combination of an alga & a fungus. In which, the fungus provides water & minerals to the alga whereas the alga supplies organic food to fungus.



► HETEROTROPHIC NUTRITION IN ANIMAL

Animals and non-green plants like fungi, etc. cannot manufacture their own food. For their food, they depend upon green plants, directly or indirectly. Therefore, they are called heterotopous and their mode of nutrition is known as heterotrophic nutrition.

All animals are divided into three categories on the basis of their eating habits :

- Herbivorous Animals : Animals which feed directly on plants are called herbivorous animals or herbivores. Examples are cow, buffalo, goat, etc.
- Carnivorous Animals : Animals which eat the flesh of other animals are called carnivorous animals or carnivores. Examples are lion, tiger, etc.
- Omnivorous Animals : Animals which eat both plants and flesh of other animals are called omnivorous animals or omnivorous. Examples are human beings, pig, crow, cockroach, etc.

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