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Class 7 biology lesson 4 plantlife

Answer the following in detail.

Question 1. Demonstrate an experiment to prove that chlorophyll is needed for photosynthesis.

Answer 1. Aim: to test the need of chlorophyll for photosynthesis.

Materials required: A variegated plant, Petri dish, diluted. Iodine solution

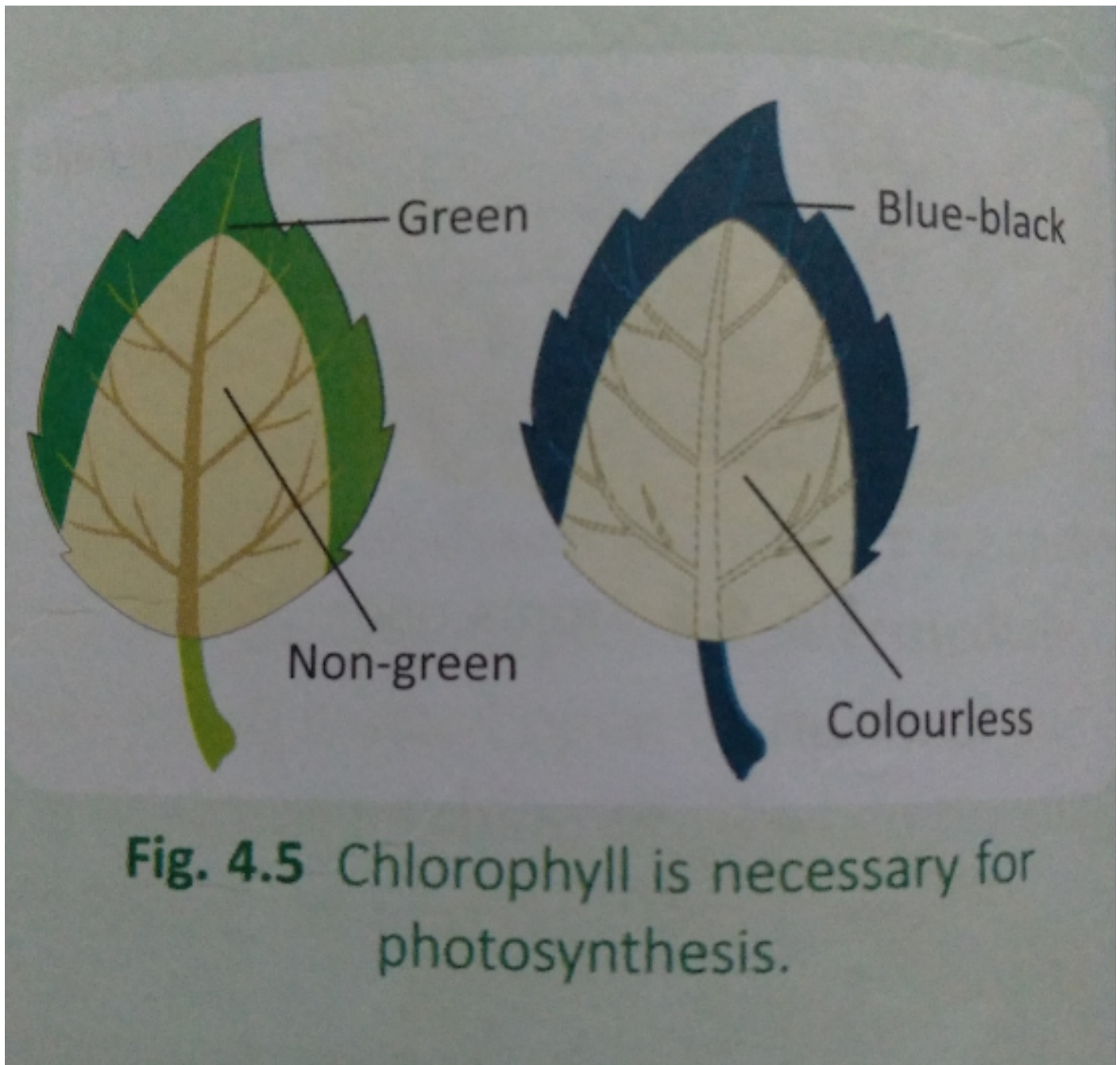
Procedure: pluck leaf from a plant which was exposed to sunlight for 5 to 6 hours. Place the leaf in a petri dish.

Draw an outline on the leaf separating its green and non green parts. Put a few drops of iodine solution on it.

Observation: the green portion of the leaf turns blue black.

Inference: the green part of the leaves shows the presence of starch in it.

Explanation: the leaf appears green due to the presence of chlorophyll. In the presence of chlorophyll ,photosynthesis took place in these areas. The glucose produced during photosynthesis gets store as starch in green areas of the leaf and gives blue black colour with the iodine solution.



Question 2. Explain how respiration is different from photosynthesis.

Answer 2. Photosynthesis:

1. It is responsible for synthesis of food from carbon dioxide and water.
2. Oxygen is released as a byproduct of the process.
3. It takes place in cells that contain chlorophyll and appears green such as leaves and young green stems.
4. It occurs only in the presence of light.
5. Food is manufactured in this process.

Respiration:

1. It is responsible for oxidation of food into carbon dioxide, water and release of energy.
2. Carbon dioxide, water and energy are released as a byproduct of the process.
3. It takes place in living cells, example in the cells of the plant.
4. It occurs all the time, that is throughout the day and night.

5. Food is broken down in respiration.

Question 3. Differentiate between aerobic and anaerobic respiration.

Answer 3. Aerobic respiration:

1. Aerobic respiration takes place in the presence of oxygen.
2. Complete breakdown of food occurs in aerobic respiration.
3. The end products in aerobic respiration are carbon dioxide and water.
4. Aerobic respiration produces a considerable amount of energy.

Anaerobic respiration:

1. Anaerobic respiration takes place in the absence of oxygen.
2. Partial breakdown of food occurs in anaerobic respiration.
3. The end products in an aerobic respiration may be ethanol and carbon dioxide or lactic acid.
4. Much less energy is produced in anaerobic respiration.

Answer the following questions in short.

1. Do all cells use oxygen to produce energy?

Ans. No ,not all cells used oxygen to produce energy .

2. Define photosynthesis.

Ans. The process by which green plants make their own food from carbon dioxide and water by using sunlight energy in the presence of chlorophyll is called photosynthesis.

3. Define respiration.

Ans. Process of oxidation of food into carbon dioxide ,water and energy is called respiration.

4. Name one substance which is produced in anaerobic respiration by an organism but not in aerobic respiration.

Ans. Ethyl alcohol is one substance which is produced in anaerobic respiration.

5. Out of the photosynthesis and respiration in plants which process occurs:

- a. All the time?
- b. Only at day time?

Ans.a) respiration

b) photosynthesis

6. State the function of stomata.

Ans. Stomata helps the leaves in exchanging of gases.

7.How is glucose utilised by plants?

Ans. Glucose is immediately utilised by the cells or is stored in the form of insoluble starch. It may also get converted into sucrose or is used in synthesizing fats and proteins.

Choose the correct option:

1. In which of the following cells organelles does photosynthesis occur?

Ans.b) chloroplast

2. Which sugar is produced during photosynthesis?

Ans.c) glucose

3. Which of the following forms of carbohydrate is broken down during respiration?

Ans.c) glucose

4. Which of the following is a by product of anaerobic respiration?

Ans.c) ethyl alcohol

5. In which pair of cell organelle does cellular respiration take place?

Ans.c) mitochondria, cytoplasm

6. In plants comedy lentils are found on

Ans.a) Woody stems, mature roots

### Fill in the blanks.

1. Oxygen gas is released during photosynthesis.
2. The green pigment called chlorophyll present in Green Leaves help in absorbing energy from sunlight.
3. The process of releasing energy from food is called respiration.
4. Aerobic respiration is the process that involves oxidation of food to release energy.
5. In anaerobic respiration, the microorganism like east break down glucose in the absence of oxygen to form alcohol and carbon dioxide and release energy.

### State whether true or false.

1. The process of photosynthesis takes place inside the chloroplast. True
2. The sunlight provides energy required to carry out the chemical reaction involved in the preparation of food. True
3. Each stomatal pore is surrounded by a pair of guard cells. True
4. During respiration, the plants take CO<sub>2</sub> and release O<sub>2</sub>. False
5. Energy can be produced in cells without oxygen. True
6. With increase in intensity of light there is decrease in the rate of photosynthesis. False