



SARALA BIRLA
PUBLIC SCHOOL

(SARALA BIRLA GROUP OF SCHOOLS)

SARALA BIRLA PUBLIC SCHOOL

Birla Knowledge City, Mahilong, Ranchi

CLASS-VII, (2020-21)

Sub: Biology
(Assignment-4)



Chapter 1 Nutrition in plants

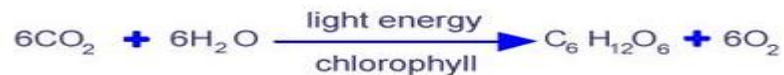
Activity based assignment

Aim - Activity to test the presence of starch in the leaves.

Introduction

Photosynthesis is the process by which light energy is harvested by chlorophyll and used to convert inorganic raw materials - carbon dioxide and water - to products - glucose and oxygen. Most photosynthesis takes place in the green parts of plants and more specifically, in the leaves.

The overall equation for photosynthesis is



Glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) is the product of photosynthesis, and is rapidly converted to granules of starch - a polymer of glucose - for storage. It is advantageous to the plant to convert glucose to starch. Starch is insoluble in water.

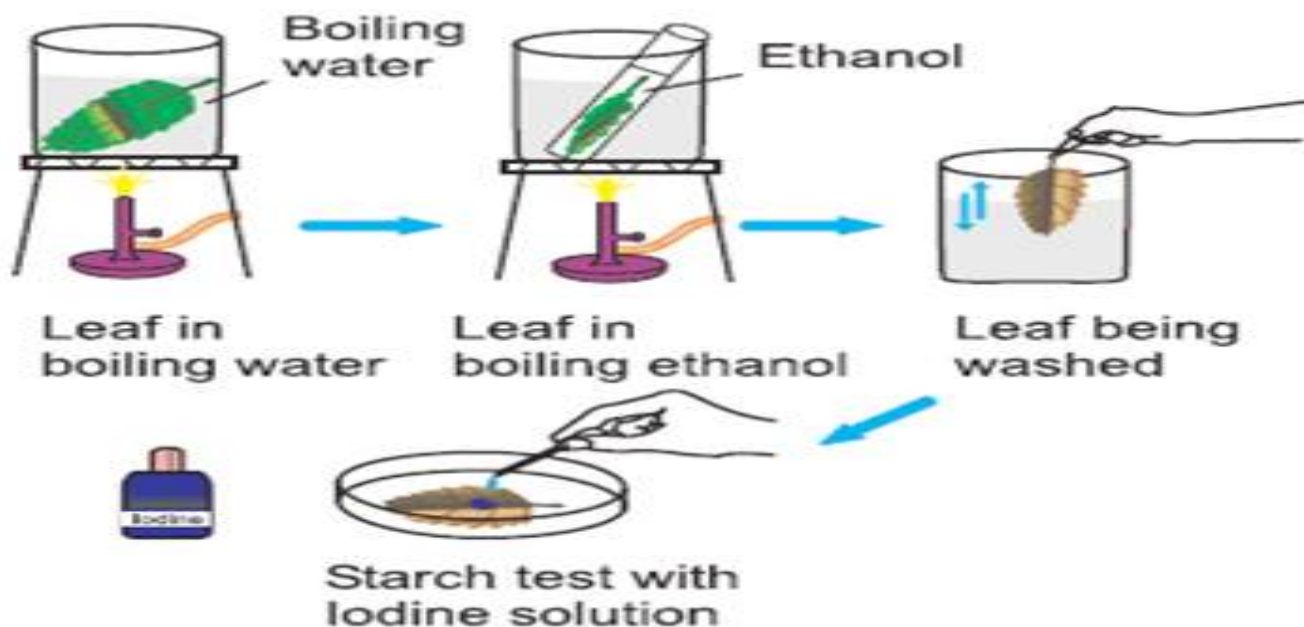
Procedure

1. Remove a green leaf from a plant that has been exposed to sunlight for a few hours.
2. Half-fill a beaker with water. Heat the water until it boils.
3. Use the forceps to place the leaf in the boiling water. Boil for 2 minutes.
4. Turn off the burner.
5. Place the boiled leaf in a boiling tube containing 90% ethanol.

6. Place the boiling tube in hot water and boil for 10 minutes or until the leaf decolorizes.
7. Gently remove the leaf and wash with a fine trickle of cold tap water.
8. Spread the leaf evenly on a white tile.
9. Add a few drops of iodine solution to the leaf and note any observation.

Observations/Results

- The leaf was flaccid (soft) after being boiled in water
- The ethanol changed from colorless to green.
- The leaf was brittle after being boiled in ethanol.
- The leaf becomes flaccid once more after being rinsed in cold water.
- After iodine solution was added color changed from brown to blue- black. It indicates the presence of starch in the leaves.



Questions based on the activity-

1. Name two chemicals used in the above activity.
2. Why do we heat the leaf in boiling water?
3. Why do we heat the leaf in alcohol? What is the significance of doing that?
4. State about the texture of leaf after boiling in ethanol.
5. What will be the change in the colour of iodine solution to show the

presence of starch in the leaf?

6. Glucose is synthesized during photosynthesis, but it is stored in another form in the plants. Name the form of carbohydrate in which glucose is stored. Why?
7. Name the elements present in the glucose.
8. Why is the alcohol-containing test tube not heated directly on the flame? What will you do to heat the alcohol containing test tube?
9. State the conditions, when the photosynthesis will not take place in the plants. What will be the result?
10. Is it possible that animals can do photosynthesis?