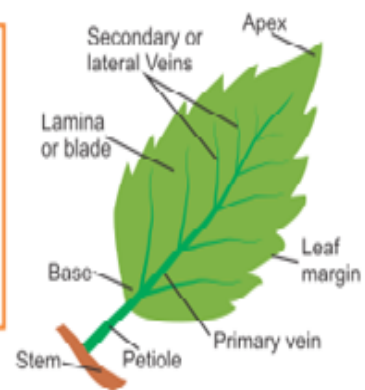


**Module 4 :**

Leaf is flat, thin and green in colour. It is called the kitchen of plant body as it prepares food.

**Structure of a leaf**

1. **Petiole** – stalk of a leaf
2. **Lamina/leaf blade** – the broad expanded part of leaf
3. **Mid-rib** – the central vein of the leaf
4. **Veins** – network of branches arising from the mid-rib

**Types of leaves**

1. **Simple leaf** - single leaf blade connected by a petiole to the stem. e.g. oak leaf, maple leaf



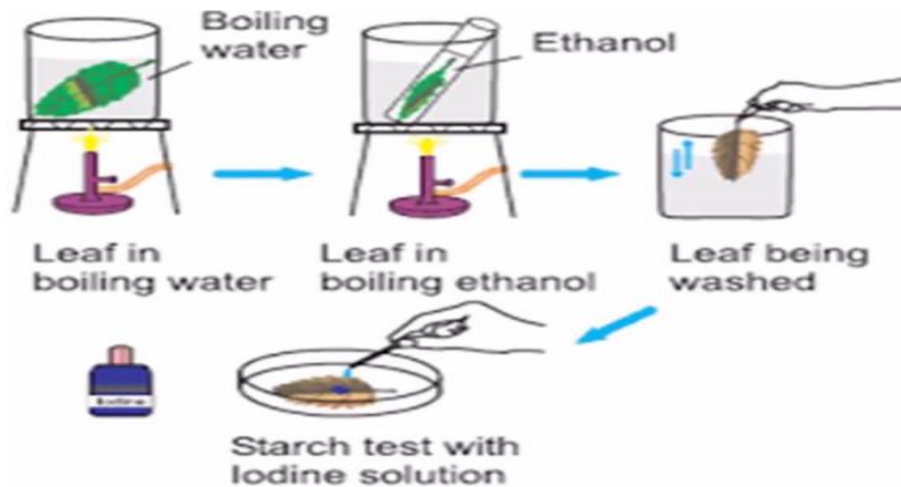
2. **Compound leaf** – leaf blade is divided into number of small leaves to form **leaflets**. They are attached by a petiole to the stem. e.g. rose leaf



**Photosynthesis:** Photosynthesis is defined as the process that helps leaves prepare food for the plant with the help of carbon dioxide and water. Photosynthesis occurs in the presence of sun and is aided by the presence of a green pigment in leaves called chlorophyll. Plants also release oxygen in the process. The food prepared is stored in various parts of the plant. In absence of photosynthesis, the plant is unable to utilize the water and minerals to prepare food for its nourishment and gradually dies.

### Activity:

In order to see if leaves really do perform photosynthesis, we take a leaf and immerse it in a test tube filled with spirit. Placing this test tube in a beaker filled with water, we heat the beaker. After the leaf loses its color, we wash it and pour iodine solution on it, as can be seen below, which shows the presence of starch in leaves.



### PARTS OF A LEAF:

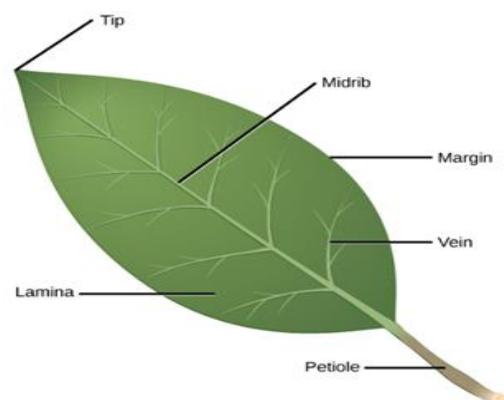
**Petiole:** This is the stalk via which the leaf is joined to the plant.

**Lamina:** This is the expanded part or the green portion of any leaf which is responsible for photosynthesis.

**Veins:** The many lines that run through the surface of the leaf are called veins and the design made by them is called leaf venation. They transport water and minerals.

**Midrib:** This is the central, prominent thick structure right in the middle of the leaf that

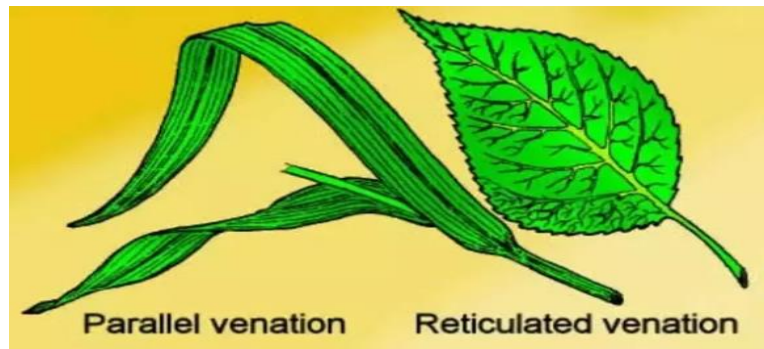
helps support the leaf and prevent it from breaking.



We distinguish between two major types of leaf venation.

*Reticulate venation* is said to exist when the veins form a net-like shape on either side of the midrib. This type of venation is seen to exist in dicots like guava and mango.

*Parallel venation* is said to exist when the veins run parallel to one another. This type of venation is seen to exist in monocots like banana, wheat, coconut etc.



**Functions of the leaf :**

- 1) They are the food factories of plant . The leaves help the plant to make food by the process called **PHOTOSYNTHESIS**. Food is stored in the form of starch .
- 2) They help in exchange of gases - Oxygen and carbon-di-oxide is exchanged between the plant and its surrounding.
- 3) They remove the excess of water absorbed in the form of water vapour . This is called **TRANSPIRATION**.