

Obj. – Morphology of Stem and their modification

Function: Renders support to the branches and leaves and fixes them in their position in order to receive light to the maximum. Hence, they form the main skeleton of the plants.

Monocot Stem

It is erect, aerial, woody or herbaceous and branched usually.

They are typically distinguished into hollow internodes and solid nodes. The internodes in maize are solid.

The stem in some plants is altered into underground structures such as rhizome (example: ginger), bulb(example: onion)

Dicot Stem

Typically erect, long, woody or herbaceous, branched and cylindrical.

It has discrete and solid internodes and nodes.

In some plants, they are altered into the tendril.

They can be five-angled or four-angled.

The underground stem in potato is altered into tubers.

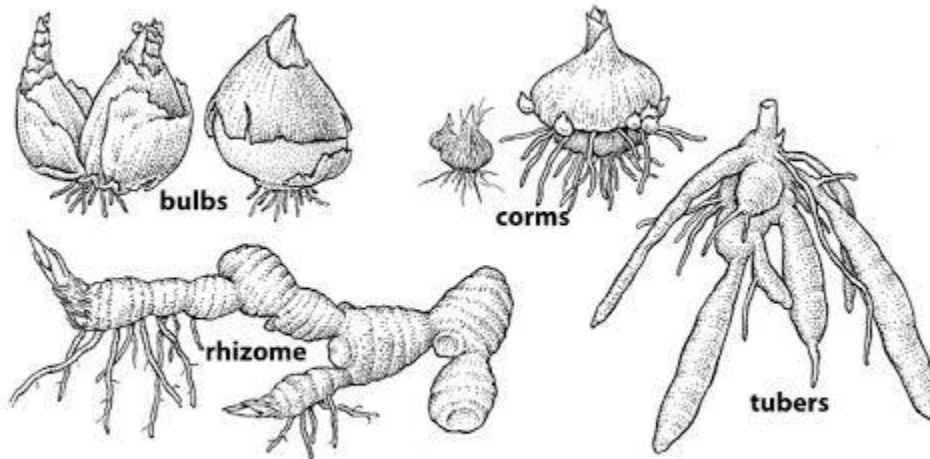
Modified stems can be categorized into three types:

Underground –

1. Rhizome - Rhizomes are underground stems that grow on the soil surface. They grow horizontally and function as the organs of asexual reproduction and food storage. Ex. Ginger, banana and bamboo
2. Bulb - True bulbs consist of layers of modified leaves and contain a miniature flower or sprout in the center. Ex. Onion, garlic, tulips, daffodils and lilies
3. Corm - Corms look like true bulbs but they are solid, so they do not have layers of modified leaves. As the leaves and flowers grow, they absorb the

nutrients and the corm shrivels up and disappears. Ex. crocus, Gladiolas and tuberous begonias

4. Tuber - Tubers can be easily recognized by the eyes from which the stems grow. These types of plants can be cut into pieces and re-grown as long as each piece contains an eye. Ex. Potato, dahlias and caladiums.



Subaerial –

Runner - slender stem that grows horizontally along the ground, giving rise to roots and aerial (vertical) branches at specialized points called nodes. Ex. spider grass, peppermint, strawberries and Bermuda grass

Sucker - An underground shoot arising adventitiously from the roots or lower stem of a tree or shrub and emerging from the soil to form a new plant. Ex. Chrysanthemum, banana, pineapple.

Offsets - Stems of offset type are soft and can bend without any difficulty. The stem has only one internode and spreads over the ground surface. It is usually found in free- floating hydrophytes like Eichhornia, Pistia, etc.

Stolon - Stolon is a horizontal branch of a plant that forms a base for buds to develop into identical plants. Ex. strawberries, ginger, mint and other mint family members, different types of grass.

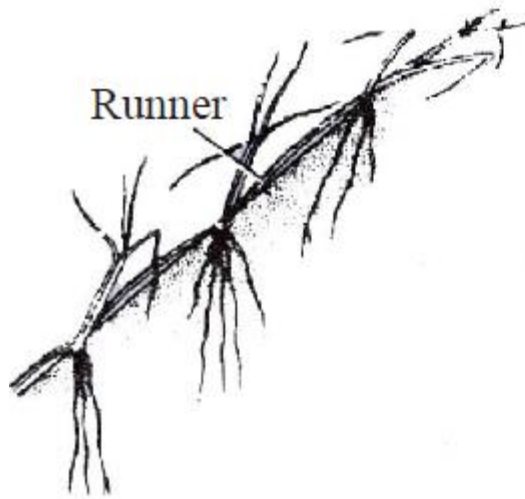


Fig. : Runner

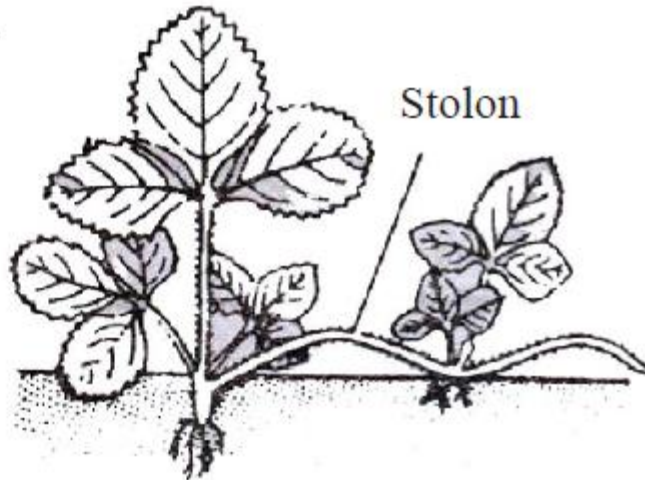


Fig. : Stolon

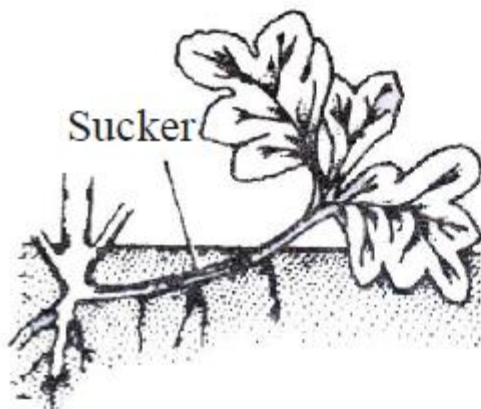


Fig. : Sucker

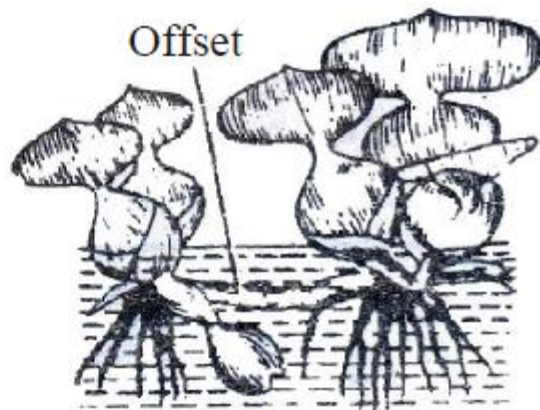


Fig. : Offset

Aerial –

Tendrils, Thorn, Bulbils, Cladode, Phylloclade

Aerial modification of stem

