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## CHAPTER – 7

### GETTING TO KNOW PLANTS

- Plants are usually grouped into herbs, shrubs, trees, and climbers based on their height, stems and branches.
  - Classification of Plants on the of Growth Habit:
    - (a) **Herbs:** Have soft, green and week stems. Example: rice, wheat, maize, sunflower, mint, etc.
    - (b) **Shrubs:** They are bushy and have hard stems that do not bend easily. These are plants with the stem branching out near the base. Example: lemon, china rose, jasmine, Nerium, etc.
    - (c) **Trees:** These are big plants which have a tall and strong stem (trunk). Stems have branches in the upper part, much above the ground. Live for many years. Example: mango, neem, banyan, coconut, etc.
    - (d) **Climbers:** Have weak stems and cannot stand erect. They take support of other trees and climb on them. Example: pea, grape, vine, etc.
    - (e) **Creepers:** Plants which creep on the ground and spread out. Example: pumpkin and watermelon.
  - Classification of plants on the basis of their Life Cycle:
    - (a) **Annuals:** Plants whose life cycle is completed in the one season. These are generally herbs. Example: wheat and mustard.
    - (b) **Biennials:** Plants whose life cycle requires two seasons for completion. They are generally herbs and rarely shrubs. Example: carrot, radish and potato.
    - (c) **Perennials:** Plants whose life cycle runs for more than two seasons example: guava, babul and palm trees.
  - Parts of a Plants:
    - (a) **Root system:** It is the underground portion of the plant.
      - (i) **Tap Root:** It is the main primary root arises from lower end of the stem. A number of tiny braches called secondary roots. Example: mustard, neem, rose, etc.
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- (ii) **Fibrous Root:** A bunch of roots arises from the base of stem. Example: wheat, maize, etc.

Functions of root system:

- (i) Roots absorb water and nutrients from the soil.
- (ii) Roots help the plant to stand erect.
- (iii) Roots check soil erosion.
- (iv) Roots store food.
- (v) Prop roots offer extra support.

(b) **Shoot system:** The part of the plant which grows above the soil. It includes stems, branches, leaves, flowers and fruits.

- (i) **Stem:** Gives rise to a number of branches that bear leaves. The stem bears leaves, flowers and fruits.
- (ii) **Leaf:** Leaf arises from the leaf base. A leaf usually has a petiole and a lamina.

**Parts of leaf:**

(a) **Petiole:** Stalk of the leaf with which it joined to the stem.

(b) **Leaf lamina:** The flat green portion of the leaf.

(c) **Veins:** These are the network of small, narrow, tube-like structures on both sides of the midrib present in the middle of leaf.

- (iii) **Flower:** It is the reproductive organ of the plant.

• **Function of Stem:**

- (i) It provides support to plant.
- (ii) It bears important plant parts.
- (iii) It helps in transportation of water and food.
- (iv) Underground stems store food.
- (v) Thick and fleshy stems make food.
- (vi) Stem modified into tendrils give extra support for plants.

• **Function of Leaf:**

- (i) **Transpiration:** Process of loss of water by the leaves of a plant.
- (ii) Preparation of food by the process of photosynthesis.

• **Function of Flowers:**

- (i) Help in reproduction.
  - (ii) These become fruits that store food and seeds.
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(iii) Modified flowers like cauliflower, broccoli are rich sources of vitamins.

- **Parts of Flower:**

(i) **Pedice:** Stalk of the flower through which the flower is joined to the branch. It has joined to the branch.

(ii) **Sepal:** Small green leaf-like structures on the thalamus. They protect the flower.

(iii) **Petals:** Brightly colored leaf-like structures present inside the sepals. Petals attract the insects and help in the process of reproduction.

(iv) **Stamens:** These are long, thin and needle-like structures. These are male organs of the flower. It consists of two parts: Anther, Filament.

(a) **Anther:** The swollen tip of each stamen that encloses in it a small powdery substance called pollen grains.

(b) **Filament:** Long stalk-like structure that joins the anther with thalamus.

(v) **Carpel:** It is a flask-shaped organ in the centre of flower. It is the female organ of the flower. It consist three parts: Style, Stigma and Ovary.

(a) **Style:** Long thin tube-like structure which is swollen at the base.

(b) **Stigma:** Small, round and sticky part of the carpel at the top of the style the traps the pollen grains.

(c) **Ovary:** Swollen part of carpel that contains ovules.

- The pattern of veins on the leaf is called venation. It can be reticulate or parallel.
  - Leaves give out water vapour through the process of transpiration.
  - Green leaves make their food by the process of photosynthesis using carbon dioxide and water in the presence of sunlight.
  - Roots absorb water and minerals from the soil and anchor the plant firmly in the soil.
  - Roots are mainly of two types: tap root and fibrous roots.
  - Plants having leaves with reticulate venation have tap roots while plants having leaves with parallel venation have fibrous roots.
  - The stem conducts water from roots to the leaves (and other parts) and food from leaves to other parts of the plant.
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