

Modified Structures in Plants

Many shoot systems, both stems and leaves, have modifications for special purposes. The leaves of carnivorous plants are famous examples of modified structures which are used for trapping and digesting insects and other small organisms. Just for curiosity observe the many stem, leaf, and shoot modifications on display.

A. Common Underground Stems and Shoots

- **Rhizomes** Horizontal stems that grow at or below the soil surface.
- **Tubers** The tips of rhizomes, which become enlarged with the storage of food.
- **Bulbs** Large buds, each consisting of a small stem and numerous fleshy, storage leaves.
- **Corms** Stems that superficially resemble bulbs but consist mostly of stem tissue; the leaves are usually smaller and thinner (bractlike and papery) than those of bulbs.

B. Other Modified Stems

- **Tendrils** Modified aerial organs for climbing. (Leaves can also form tendrils)
- **Runners (Stolons)** Creeping stems that grow horizontally on the soil surface and often give rise to new plants at the nodes.
- **Thorns** Modified twigs that grow in the axils of leaves; they sometimes are branched.
 - Note: The epidermis of stems and leaves can also be very "thorny". Technically, the thorns on roses and blackberry bushes are modified epidermis cells, called **prickles**.

C. Specialized Leaves

- **Bud scales** Protect buds of woody plants.
- **Spines** Protection
- **Plantlets** Propagules which can form new plants.
- **Showy bracts** Leaves used to attract pollinating agents.

D. Carnivorous plants