

Modified Structures in Plants

Many shoot systems, both stems and leaves, have modifications for special purposes. Many stem, leaf, and shoot modifications are on display. Please note: This lab should be done in conjunction with the lecture materials for this section.

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. Bulblets (lateral buds) are common
- **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. Cormlets, lateral buds, are common

Bulbs and corms can easily be distinguished from each other when they are cut open.

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 dermal tissue, 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.
- **Tendrils** Modified leaves used for clinging and coiling around a support

D. Carnivorous plants

Some Examples of Modified Structures you can observe in the BCC environment and surrounding area.

Vines

- English Ivy
- Common bindweed

Tendrils

- Peas (modified leaves)
- Grapes (modified stems)

Rhizomes

- Many grasses
- *Equisetum* (horsetails)
- Some Ferns

Stolons or Runners

- Strawberry
- Spider plant

Tubers

- Potato
- Iris
- Ginger
- Some Begonias

Corms

- Water Chestnut
- Gladiolus
- Crocus

Bulbs

- Onion
- Daffodil
- Tulip

Propagation Plantlets

- *Kalanchoe*,
- A number of “Maternity” plants

Thorns

- Hawthorn
- Bougainvillea

Spines

- Barberry
- Cactus

Prickles

- Roses
- Blackberry

Succulents

- Most things in the Crassulaceae (succulent leaves)
- Cactus (succulent stems)
- A number of plants in the Euphorbiaceae, Compositae and Asclepiadaceae

Cladophylls

- Christmas cactus
- Ornamental Asparagus (called erroneously the asparagus fern)

Showy bracts

- *Poinsettia*,
- *Bougainvillea*
- Dogwood (*Cornus*)

Carnivorous plants

- Sundew
- Pitcher Plant
- Bladderwort
- Venus Fly-trap