

Glossary - Botany-Laboratory-I

Androecium: see flower.

Angiosperm: (Gk. angion, a vessel; sperma, a seed) Literally, a seed borne in a vessel (carpel); thus one of a group of plants whose seeds are borne within a mature ovary (fruit) of dioecious plants; monoecious plants are considered an evolutionary reduction of dioecious plants; compare gymnosperm. The structure of angiosperm is made of the cotyledon, vegetative body (roots, stem, and leaves) and the reproductive body (flowering parts).

Anther: (Gk. anthos, flower) The pollen-bearing portion of a stamen.

Bark: The ruptured original cortex and epidermal layer of the seedling when secondary growth takes place; it consists mainly of periderm, underlying phloem and many layers of cork-cells that die but remain in place to make the outer protective bark.

(D = Borke) The dead outer often ruptured layers of periderm.

(D = Rinde) The periderm; living tissue sealing and protecting the plant from fungal spores, viruses and preventing loss of water.

Bud: (D = Knospe) In deciduous plants; the structural protection of the new generation of leaves and blossoms after a period of "hibernation"; an undeveloped sprout.

B. Protection:

B. Scale: (D = Knospen-Schuppe) Protective tissue of solid, firm structure protecting the developing sprout. Can be smooth, felt-like, sticky, mono-or multilayered.

Lateral B.:

Sleeping B.:

Terminal B.:

Bush: (D = Strauch) A perennial plant, revealing basitonic and sometimes mesotonic growth pattern, where the above-ground shoot grows for many seasons (compare shrub).

Carpel: (GK. karpos, fruit) One of the members of the gynoecium, or inner floral whorl; each carpel encloses one or more ovules. One or more carpels form a gynoecium.

Conifer: A cone-bearing tree like pines and firs etc.

Corolla: (L. corona, crown) The petals collectively; usually the conspicuously colored flower whorl.

C. **Tube:** A tubelike structure resulting from the fusion of the petals along their edges.

Cotyledon: (Gk. kotyledon, cup-shaped, hollow) Seed leaf; generally stores food in dicotyledons and absorbs food in monocotyledons (D. keimblatt).

Dicot.: Dicotyledons - One of the two classes of angiosperms; are characterized by having two cotyledons, net-veined leaves often revealing secondary growth; vascular bundles are arranged along a circular pattern; usually taprooted; flower parts usually in multiples of fours or five's.

Monocot.: Monocotyledons - plant embryo has one cotyledon; flower parts usually in multiples of three; no true secondary growth; fibrous root system; widely distributed vascular cambium.

Epicotyl: The upper portion of the axis of an embryo or seedling, above the cotyledons (seed leaves) and below the next layer of leaves.

Hypocotyl: The portion of an embryo or seedling situated between (as well as under the soil) the cotyledons and the radicle, e.g. taproots.

Cuticle: Waxy or fatty layer on the outer wall of epidermal cells facing the surrounding environment.

Dicot: see cotyledon.

Filament: The stalk of the stamen.

Floral Tube: A cup or tube formed by the fusion of the basal parts of the sepals, petals and stamen.

Flower: The reproductive structure of angiosperms; a complete flower includes pedicel, perianth (calyx, corolla), androecium (stamens), and gynoecium (carpels), but all flowers contain at least one stamen or one carpel.

Gynoecium: (Gk. gyne, woman; oikos, house) The aggregate of carpels in the flower of a seed plant and can be either:

- apokarp: (D = boden - oder mittelständig).
- synkarp: (D = verwachsen).

Androecium: (Gk. andros, man; oikos, house) The floral whorl that comprises the stamens, which bear the anther and the filament.

Perianth: (Gk. peri, around; anthos, flower) The petals (calyx) and sepals (corolla) taken together.

Pedicel: The stalk of an individual flower in an inflorescence.

Growth: In plants it is characterized by growth in height (primary G.) and thickness (secondary G.).

Monopodial G.: Trees like gymnosperms which due to the apical meristem (top terminal bud) grow along a straight axis - also known as acrotony.

Synpodial G.: Trees like angiosperms which due to lateral buds grow in a more or less crooked manner - two distinct growth pattern can therefore be distinguished:

- **Dichasial SG:** The blossom of the terminal bud “consumes“ the apical meristem, allowing the two lateral buds to take over, which consequently result in a fork-like continuation of growth.
- **Basitonic G.:** The new seasonal shoot arises allways from the base of the plant - in perennial plants such as ? ? (D = Strauch).
- **Mesotonic G.:** Similar to basitonic growth; but some terminal buds continue to grow for several seasons giving the plant a more tree-like appearance.
- **Monochasial SG:** One pseudoterminal bud (in a zweizeilige plant) dictates the direction of growth, resulting in a more or less straight line.

Gymnosperm: (Gk. gymnos, naked; sperma, seed) A seed plant with seeds not enclosed in an ovary; the conifers are the most familiar group (compare angiosperm).

Gynoecium: see flower.

Inflorescence: A flower cluster, with a definite arrangement of flowers.

Leaf: It is made of dermal tissue (upper and lower epidermis + stomata), ground tissue (mesophyll layer = palisade- + spongy parenchyma), and vascular tissue (venation by xylem and phloem).

L. **Scar:** A scar left on a twig when a leaf falls.

Lenticel: (L. lenticella, a small window) Spongy areas in the cork surface of the stem, roots, and other plant parts that allow interchange of gasses between internal tissues and the atmosphere through the periderm; occur in vascular plants; tiny little bursts due to secondary growth.

Meristem: (Gk. merizein, to divide) The undifferentiated, embryonic plant tissue from which new cell arise.

Apical M.: (L. apex, tip) The meristem at the tip of the root or shoot in a vascular plant, responsible for primary growth.

Lateral M.: Meristems that give rise to secondary tissue; vascular and cork cambium are responsible for secondary growth (absent in and annual plants like herbaceous).

-oecious: (Gk. oikos, house) Referring to their reproductive organs and their location.

Dioecious P.: (D = zweihäusig; Gk. di, two) Unisexual; having the male and female (or staminate and ovulate) elements on different individuals of the same species.

Monoecious P.: (D = einhäusig Gk. monos, single) Having the anthers and carpels produced in separate flowers on the same individual.

Petal: A flower part, usually conspicuously colored; one of the units of the corolla.

Perigyny: (Gk. peri, around; gyne, female) A form of floral organization in which the sepals, petals, and stamens are attached to the margin of a cup-shaped extension of the receptacle; superficially, the sepals, petals, and stamens appear to be attached to the ovary.

Pith: (D = Mark) Part of the stems ground tissue system; it is located at the center and serves as a reinforcing element increasing strength and stability.

Plant: The root and the shoot (stem and leaves); from the cell to tissue and organ (leaf) to the organism (plant).

Annual P.: A species with a life cycle which takes approximately 12 months or rather less to complete; e.g. staude.

Dioecious P.: (D = zweihäusig; Gk. di, two; oikos, house) Unisexual; having the male and female (or staminate and ovulate) elements on different individuals of the same species.

Flowering P.: The monocots and dicots (see cotyledon).

Monoecious P.: (D = einhäusig Gk. monos, single; oikos, house) Having the anthers and carpels produced in separate flowers on the same individual.

Perennial P.: (L. per, through; annus, year) The vegetative structures live year after year; e.g. strauch, tree.

Decidious P.: (L. decidere, to fall off) Shedding leaves at a certain season - acts as a water saving procedure when cold and icy winters limit the availability of liquid water.

Resin: A chemical viscous fluid sap used to plug nearby xylem- and phloem tubes, once the outer layers of the stem are injured, preventing infection (see radial system).

R. **Duct:** A tubelike intercellular space lined with resin-secreting cells (epithelial cells); contain resin.

Root: The usually descending axis of a plant, normally below ground, which serves to anchor the plant and to absorb and conduct water and minerals into it.

Prop R.: Aerial roots of plants increase mechanical support - as seen in tropical plants and palms.

Tap R: (D = Pfahlwurzler) The primary root of a plant formed in direct continuation with the root tip or radicle of the embryo: forms a stout, tapering main root from which arise smaller, lateral branches.

Sepals: (L. sepalum, a covering) One of the outermost flower structures, a unit of the calyx; sepals usually enclose the outer flower buds in the bud and generally are green in color.

Shrub: (D = Staude) An annual plant, revealing basitonic growth, where the above-ground shoot dies after one season (compare bush).

Sprout: (D = Trieb) young branches.

Long S.: (D = Langtrieb) Have longer internodial sections and mostly indicate the direction (axis) of growth to form into a branch.

Short S.: (D = Kurztrieb) Lateral outgrowths, with many internodial sections, commonly unbranched with a limited, short period of growth (limited life expectancy).

Stamen: (L. stamen, thread) The part of the flower producing the pollen, composed (usually) of anther and filament; collectively, the stamens make up the androecium.

Stem: The part of the axis of vascular plants that is above ground, as well as anatomically similar portions below ground, such as rhizomes or corm.

Tendrill: (L. tendere to extend) A modified leaf or part of a leaf or stem modified into a slender coiling structure that aids in support of the stems; tendrils occur only in some angiosperms.

Leaf T.: (D = Blattranke) A tendril borne out of the middle lamella of the leaf.

Petiole T.: (D = Blattstiel-Ranke) A tendril borne out of a stalk of a leaf.

Sprig T.: (D = Sprossranke) A tendril borne out of a ????

Tepal: One of the units of the perianth that is not differentiated into sepals and petals.

Whorl: A circle of leaves or of flower parts.