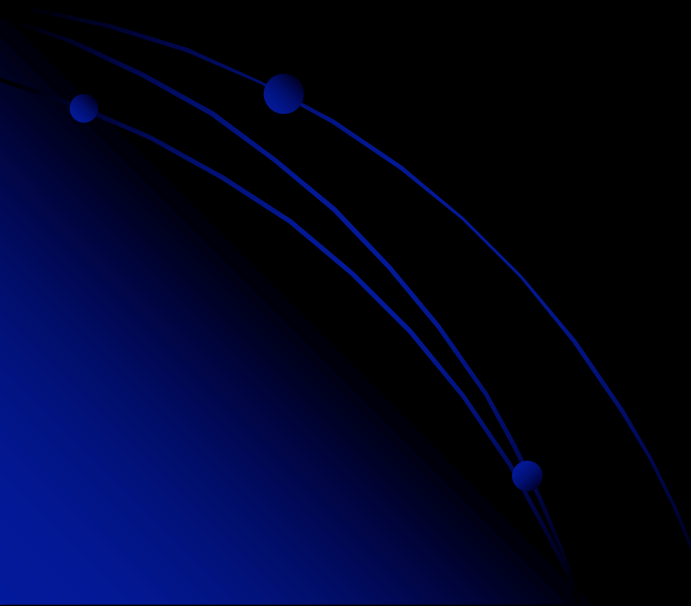


12-FRUIT TYPES AND SEED MORPHOLOGY



1. FRUIT


In botany, a fruit is the seed-bearing structure in flowering plants formed from the ovary after flowering. Or fruits are the mature ovaries or pistils of flowering plants plus any associated accessory parts.

Accessory parts are organs attached to a fruit but not derived directly from the ovary or ovaries, including the bracts, axes, receptacle, or perianth.



FRUIT TYPES

Fruit types are based first on fruit development. The three major fruit developments are **simple** (derived from a single pistil of one flower), **aggregate** (derived from multiple pistils of a single flower), or **multiple** (derived from many coalescent flowers);



1. SIMPLE FRUIT TYPES

The simple fruit types are classified based on a number of criteria, including (1) whether **fleshy** (succulent) or **dry at maturity**.

A. **Fleshy (succulent) Fruits**

Fleshy fruits are general adaptations for seed dispersal by animals, the succulent pericarp being the reward. Fleshy fruits are generally indehiscent. The pericarp of some fleshy fruits may be divided into 3 layers.

These pericarp wall layers are named the **endocarp** (innermost layer), **mesocarp** (middle layer), and **exocarp** (outermost layer).

1. Bacca: An indehiscent fruit derived from a single ovary having one or many seeds within a fleshy wall or pericarp.

For example, *Vitis vinifera* (grape)



2. Drupe: A drupe is an indehiscent fruit in which an outer fleshy part surrounds a single shell of hardened endocarp with a seed (kernel) inside.

For example, as in *Prunus* (peach, plum), *Cerasus sp.* (cherry).



B. Dry Fruits

The dry fruits are divided **two** basic grup; (1) **indehiscent** dry fruits and (2) **dehiscent** dry fruits.

1. Dehiscent Fruit Types

Most dry, dehiscent fruits open by means of a valve, pore, or mericarp.

1. Follicle: A follicle is a dry, dehiscent fruit derived from one carpel that splits along one suture.

For example, *Hellborus* or *Ranunculus* genera



2. Legume: A legume is a dry, dehiscent fruit derived from one carpel that splits along two longitudinal sutures; legumes are the diagnostic fruit type of the *Fabaceae*, the legume family.



3. Capsula: Capsules are generally dry, dehiscent fruits derived from compound ovaries. **Four types** of capsules can be recognized based on the type or location of dehiscence.

A. Loculicidal capsula: Loculicidal capsules have longitudinal lines of dehiscence radially aligned with the locules.

B. Septicidal capsula: Septicidal capsules have longitudinal lines of dehiscence radially aligned with the ovary septa

C. Pyxide Capsula: A circumscissile capsule (also called a pyxis or pyxide) has a transverse line of dehiscence, typically forming a terminal lid or operculum.

For example, in *Plantago*.

D. Septifragal Capsula: A septifragal or valvular capsule is one in which the valves break off from the septa, **For example,** in *Gernium*, *Erodium* genera



E. Poricidal capsul: It have dehiscence occurring by means of pores.

For examples, in *Papaver* (poppy).



4. Silicle: When the length is less than three times the width of the dried fruit it is referred to as a *silicle*.

For example, in *Thlaspi*, *Iberis*, *Capsella bursa-pastoris*, *Lunaria annua*



5. Siliqua: Siliqua is a botanical term for a fruit of two fused carpels with the length being more than twice the width.

For example, in *Brassica*, *Sisymbrium*, *Erysimum* genera



1. Indehiscent Fruit Types

Dry indehiscent fruits are one of the type of dry fruits, those in which there isn't a seedpod which open is known as indehiscent fruits

A. Achene: An achene is a one-seeded, dry, indehiscent fruit with seed attached to the pericarp at one point only.

For example, in all members of *Asteraceae* family

B. Caryopsis: A grain or caryopsis is a one-seeded, dry, indehiscent fruit with the seed coat adnate to pericarp wall; grains are the fruit type of all Poaceae (grasses).

C. Nut: A nut is a one-seeded, dry indehiscent fruit with a hard pericarp, usually derived from a one-loculed ovary.

For example, *Corylus* (**filbert**), *Juglans* (**walnut**), *Amygdalus* (**almond**)

D. Schizocarp: a schizocarp is a dry, dehiscent fruit type derived from a two or more loculed compound ovary in which the locules separate at maturity.

For example, members of *Apiaceae*, *Boraginaceae*, *Malvaceae*, and *Lamiaceae* family

2. AGGREGATE FRUIT

An aggregate fruit is one derived from two or more pistils of one flower. In determining the aggregate fruit type, one first identifies the unit fruit that corresponds to a single pistil.

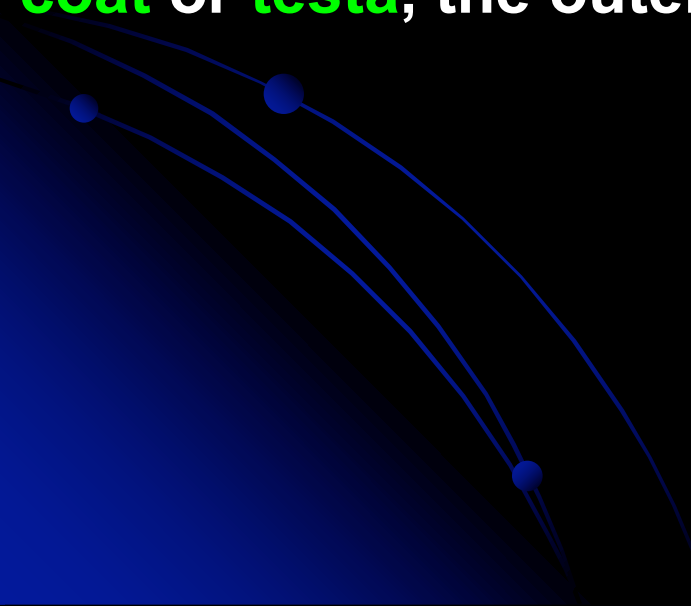
3. MULTIPLE FRUIT

A multiple fruit is one derived from two or more flowers that coalesce. In determining the multiple fruit type, one may also identify the unit fruit corresponding to a single pistil of a single flower.

SEEDS

A **seed** is a small embryonic plant enclosed in a covering called the **seed coat (testa)**, usually with some stored food.

Aspects of seed morphology can be important systematic characters used in plant classification and identification. Some valuable aspects of seed morphology are size and shape, as well as the color and surface features of the **seed coat** or **testa**, the outer protective covering of seed derived.



The main components of the embryo are:

- **The cotyledons**, the seed leaves, attached to the embryonic axis. There may be one (monocotyledons), or two (dicotyledons).
- **The epicotyl**, the embryonic axis above the point of attachment of the cotyledon(s).
- **The plumule**, the tip of the epicotyl, and has a feathery appearance due to the presence of young leaf primordia at the apex, and will become the shoot upon germination.
- **The hypocotyl**, the embryonic axis below the point of attachment of the cotyledon(s), connecting the epicotyl and the radicle, being the stem-root transition zone.
- **The radicle**, the basal tip of the hypocotyl, grows into the primary root.

Thanks ...

