

BPSC 031 "Spring Wildflowers"

Lab 3. Reproductive morphology II (inflorescences and fruits)

1. Inflorescences

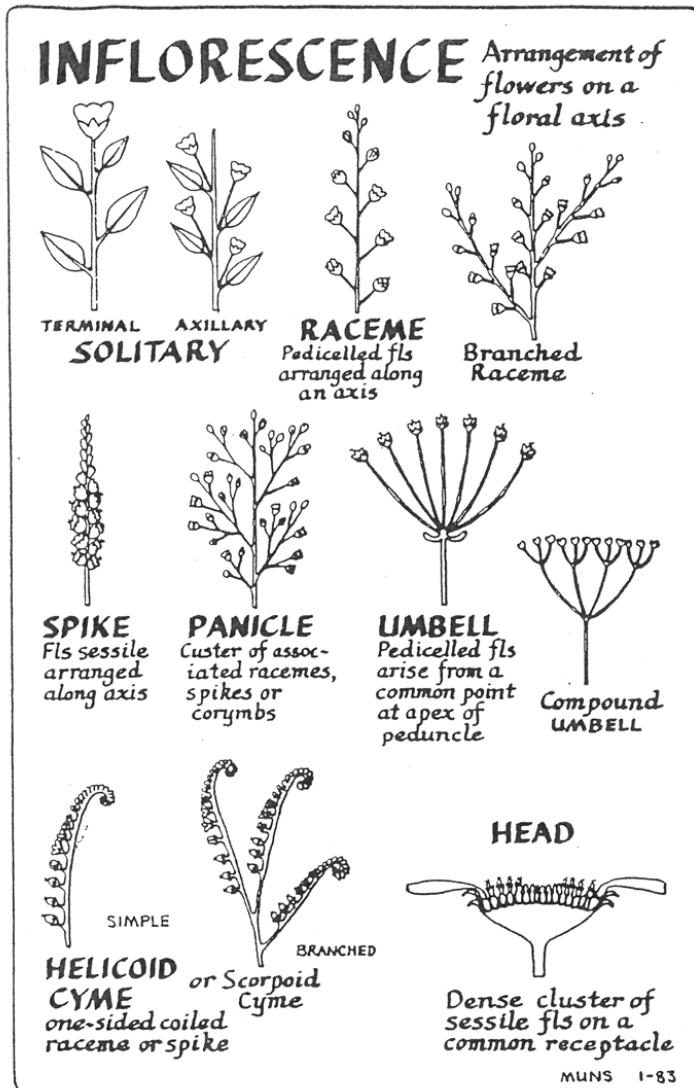
- a. Using the illustrated guides attached, observe the basic parts of an inflorescence. Identify the main stem or pedicel, the type of branching of the floral stem, and the vestigial leaves in the axils of the branches.
- b. Look at the branching pattern: are the flowers seated on the stem or do they have a peduncle? Are the older flowers along the lower branches, or is the oldest flower on top, near the apex? Do the primary branches divide in turn into secondary, or even tertiary branches?
- c. Using the illustrated guide, try to classify the inflorescence you have into one of the main types.
- d. Draw the inflorescence, describe the branching pattern, the shape, and any other characteristic of interest that may identify this plant.

2. Fruits

- a. From the fruits available in the lab, choose a fleshy and a dry fruit. Observe the basic parts of the fruit and try to distinguish with care the pericarp from the seed itself.
- b. From the visual inspection of the fruit, try to make some inference on the characteristics of the ovary. How are the seeds inserted in their placentas?
- c. In the dry fruit you have, try to make some inference about the mechanisms of seed release. Is the fruit dehiscent or indehiscent? Is it a capsule capable of retaining seeds for some time? Draw the fruit and label its main traits.
- d. In the fleshy fruit you have, try to observe the three layers of the pericarp: exocarp, mesocarp, and endocarp. Which one is the fleshy layer? Is the endocarp bony or woody? Draw the fruit and label its main traits.
- e. Using the attached figures (you may also consult your lecture notes), try to classify the two fruits you have into of the main types.

3. Dicotyledons and monocotyledons

- a. Take one of the plants you have in your table and observe it using monocots vs. dicots guide at the end of this chapter. Observe the leaf venation pattern, the roots, and the flower. Is it a monocot or a dicot? Explain in a short sentence why you think it belongs in one or the other group.



"Racemes" are the typical inflorescence found in the Brassicaceae (Mustard Family) [Examples: Black Mustard, Pepper Grass, Wallflower]

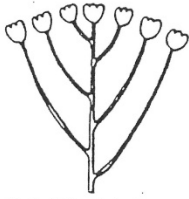
"Umbel" (usually the "Compound Umbel") is the major infl. found in the Apiaceae (Carrot Family) [Examples: celery, Fennel, Poison Hemlock, Lomatium, Sanicula]

The "Head" of the type shown, is the infl. of the Asteraceae (Sunflower Family) [Examples: Coreopsis, Everlasting, Tarweed, Goldfield, Chicory, Thistle]

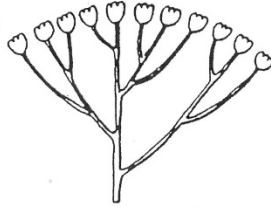
"Scorpioid Cyme", commonly called "Fiddleneck", is the infl. commonly found in the Boraginaceae (Borage Family) [Examples: Fiddleneck, Popcornflower, Forget-Me-Not] And sometimes in the Hydrophyllaceae [Examples: Phacelia]

"Solitary Flowers", "Spikes" & "Panicle" are found in many plant families.

INFLORESCENCE Arrangement of flowers on a floral axis



CORYMB
± Flat-topped
Cluster w pedicels
inserted along
the floral axis



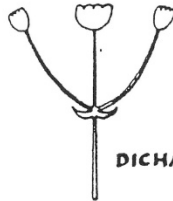
**Compound
Corymb**



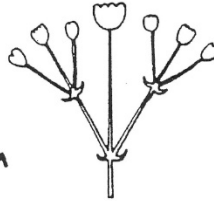
SPADIX
Spike w thick
& fleshy axis
with a spathe



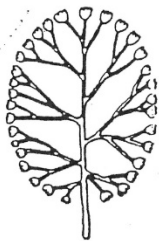
VERTICIL
Axillary whorl
of fls, as in
mint family



DICHASIMUM



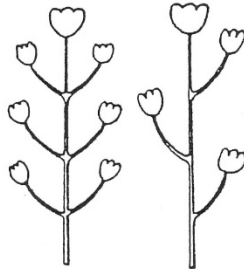
Simple CYME **Compound
CYME**
± flat-topped fl-
cluster, w central
flower opening first



THYRSE
Compact, ovate
panicle



CATKIN
unisexual
apetalous fls



**Raceme-like
Cymes**

MUNS 92

CORYMB~ a flat-topped or convex racemose flower-cluster, the lower or outer pedicels longer, their fls opening first.

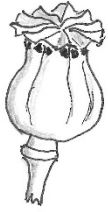
CYME~ A flat-topped or convex panicle flower-cluster, with central fls opening first.

A cyme may have either of 2 common forms, with opposite branching or with alternate branching. The alt branched form resembles a corymb, except that fl buds are on the rim & fruits in the center of the flat-topped cluster.

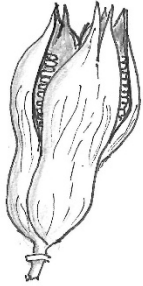
CYMOSE~ arranged in cymes.

VERTICIL~ A whorl, or circular arrangement of similar parts about the same point on an axis.

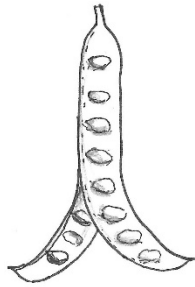
Fruit Types



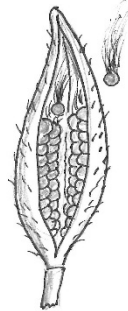
capsules



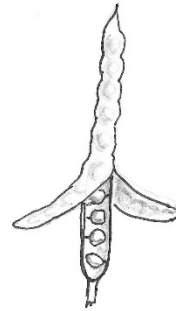
legume



follicle



silique



silicle

Dehiscent dry fruits



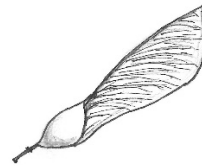
nut



achene

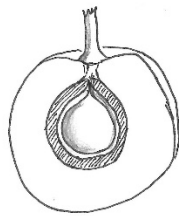


caryopsis

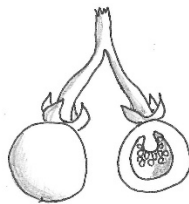


samara

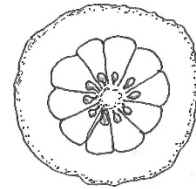
Indehiscent dry fruits



drupe



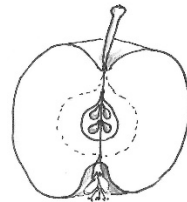
berries



hesperidium

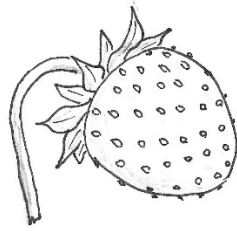


pepo



pome

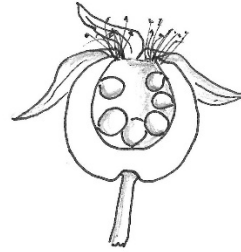
Fleshy fruits



accessory



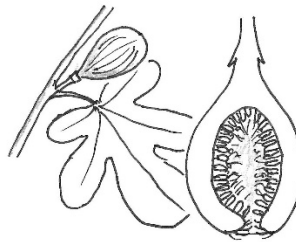
aggregate



hip



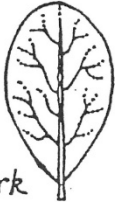



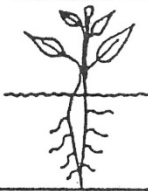

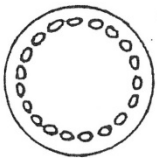
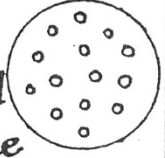
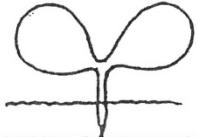
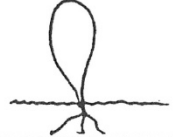
multiple



syconium

Aggregated or clustered fruits

The Difference Between DICOTS & MONOCOTS

DICOTS	MONOCOTS
Principal veins from midrib or base, not parallel, forming distinct network. 	Principal veins parallel to each other. 
Sepals & petals of fls arranged in 2's, 4's or usually 5's. 	Sepals and petals in 3's. 
Root system characterized by a taproot. 	Root system fibrous. 
Stem w vascular bundles in a single cylinder. 	Stem w vascular bundles scattered through pithy tissue. 
Cambium adding a new cylindrical layer of wood each year.	W/o a cambium, not increasing in girth by annual layers of wood.
Cotyledons two. 	Cotyledons one. 
EXAMPLES: Sunflowers, Oak Mints, Sweet Pea Roses, Carrot	Grasses Lilies, Rushes Sedges, Irises Orchids, Cat-Tails