

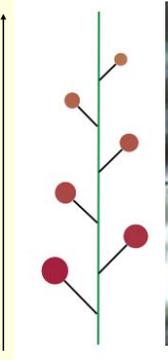
### Inflorescences - Floral Displays



The vast majority of flowering plants possess flowers in clusters called an **inflorescence**.

These clusters facilitate pollination via a prominent visual display and and more efficient pollen uptake and deposition than with single flowers widely spaced.





**Raceme**



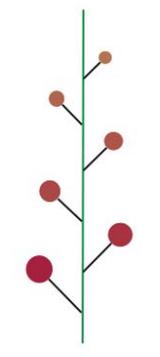
(*Prunus* or cherry)

The shift from widely spaced single flowers to an inflorescence required condensation of shoots and the loss of the intervening leaves.

The simplest inflorescence type would thus be **indeterminate** with the oldest flowers at the base and the younger flowers progressively closer to the apical meristem of the shoot.

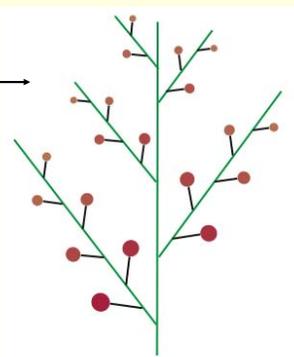
= a **raceme**

One modification of the basic raceme is to make it compound

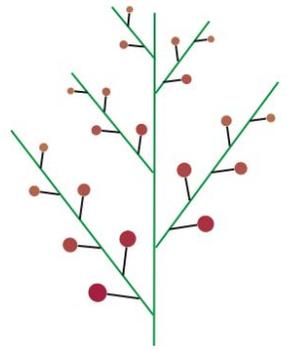


**Raceme**

→ compound →



**Panicle**

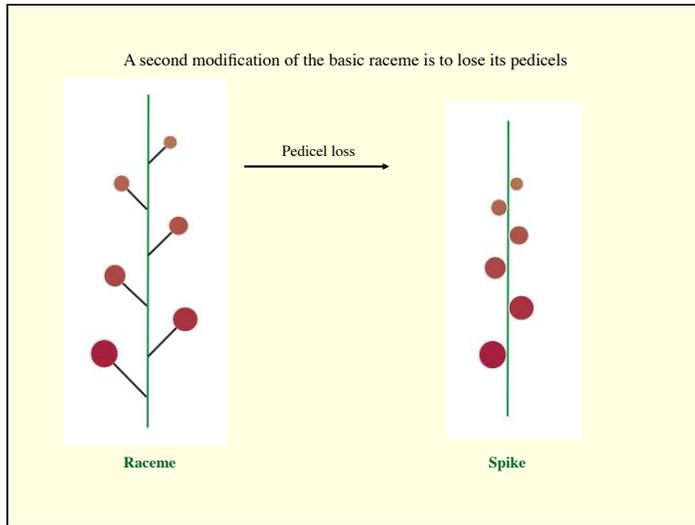


**Panicle**



(*Zigadenus* or white camass)

The **panicle** is essentially a series of attached racemes with the oldest racemes at the base and the youngest at the apex of the inflorescence.



The diagram shows a vertical stem with red flowers attached directly to the axis, labeled "Spike". To its right are two photographs of plant spikes. The top photograph shows a dense, elongated spike of small flowers, labeled "(Plantago or plantain)". An arrow points to it with the text "wind pollinated". The bottom photograph shows a more open spike with larger flowers, labeled "(Verbena or vervain)". An arrow points to it with the text "insect pollinated".

The **spike** is usually associated with congested reduced flowers and often, but not always, with wind pollination.

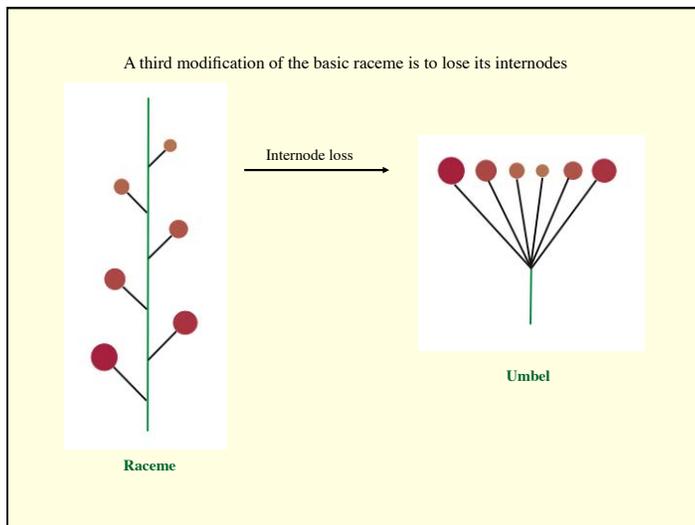
wind pollinated

insect pollinated

Spike

(Plantago or plantain)

(Verbena or vervain)



The diagram shows a single point from which several pedicels radiate outwards to support the flowers, labeled "Umbel". To its right are two photographs of plant umbels. The left photograph shows a cluster of small white flowers, labeled "(Cicuta or water hemlock)". The right photograph shows a cluster of small yellow flowers, labeled "(Zizia or golden alexander)".

The **umbel** characterizes specific families (carrot and ginseng families for example).

These families typically show a compound umbel - smaller umbellets on a larger umbel.

Umbel

(Cicuta or water hemlock)

(Zizia or golden alexander)

A fourth modification of the basic raceme is for the stem axis to form a head

Raceme

Stem head

Head or capitulum

Head or capitulum

*Helianthus*

The **head or capitulum** characterizes specific families - most notably the Compositae or Asteraceae. Not surprisingly, this family is closely related to families possessing umbels.

(*Helianthus* or sunflower)

Besides these indeterminate inflorescences based on the raceme, there is a series of inflorescence types based on **determinate** shoots (shoot can not grow up indefinitely). The simplest is the **dichasium**.

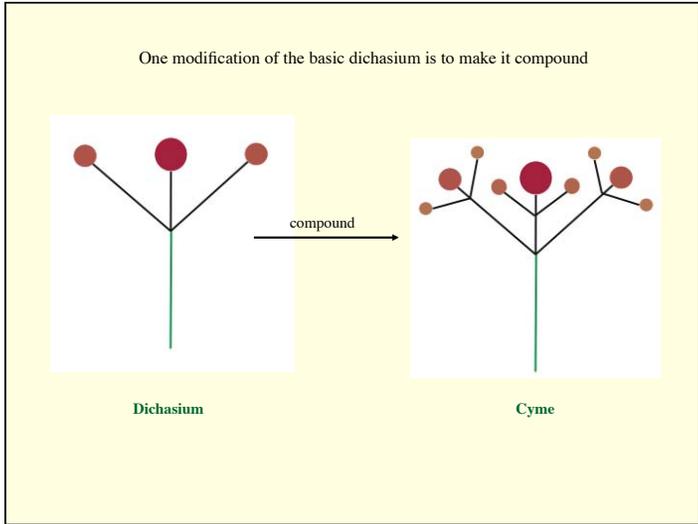
Raceme

Dichasium

Dichasium

(*Clematis* or virgin's-bower)

The **dichasium** inflorescence is terminated (i.e., determinate) by the oldest flower and flanked by two lateral younger flowers.



The **cyme** characterizes specific families - most notably the Caryophyllaceae - the pink or carnation family . . .

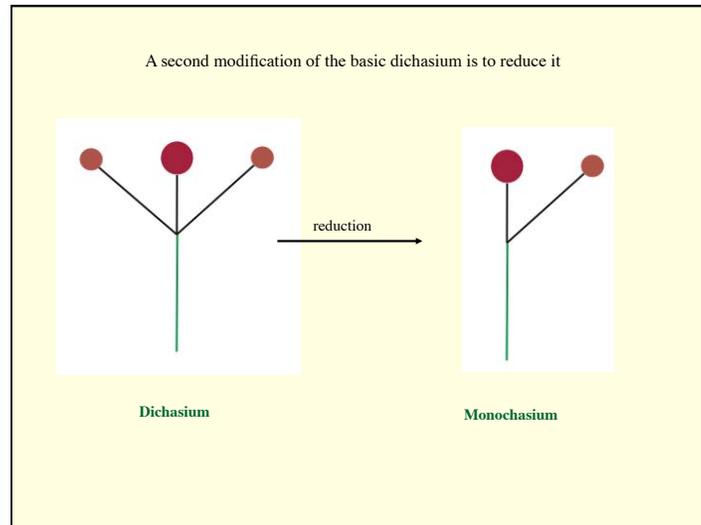
Cyme

(*Silene* or campion)

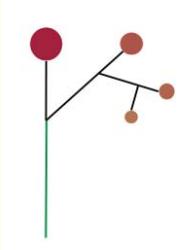
or the Gentianaceae - the gentian family.

Cyme

(*Lisianthus*)



The **monochasium** is most often seen in compound form as a **scirpoid** inflorescence. The Boraginaceae (Virginia bluebell family) is characterized by this distinctive inflorescence.



Scirpoid



(*Mertensia* or bluebell)

Another specialized inflorescence is the **catkin** or **ament**

- unisexual cluster of small flowers
- apetalous (without petals)
- hard bracts around the flowers
- wind pollinated
- falls as a unit

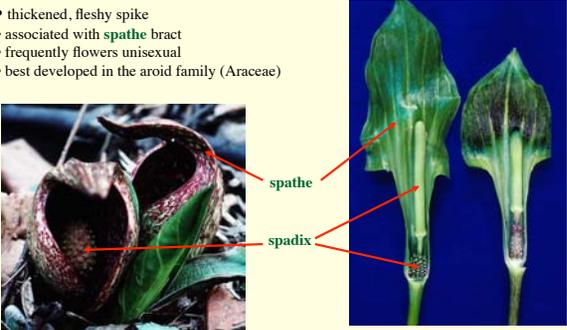


[male catkin] [female catkin] [male catkin]

(*Populus* or cottonwood) (*Quercus* or white oak)

A final specialized inflorescence is the **spadix**

- thickened, fleshy spike
- associated with **spathe** bract
- frequently flowers unisexual
- best developed in the aroid family (Araceae)



spathe

spadix

(*Symplocarpus* or skunk cabbage) (*Arisaema* or Jack-in-the-pulpit)