Practical plant taxonomy for 2nd. Stage, Dept. of Biology/ College of Science/ Mustansiriyah University 2026

Lab.6 Inflorescences

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Flowers occur singly or are separated from other flowers of the same plant by vegetative regions.

Solitary flowers are formed by direct transformation of shoot tips into flowers. They are of two types:

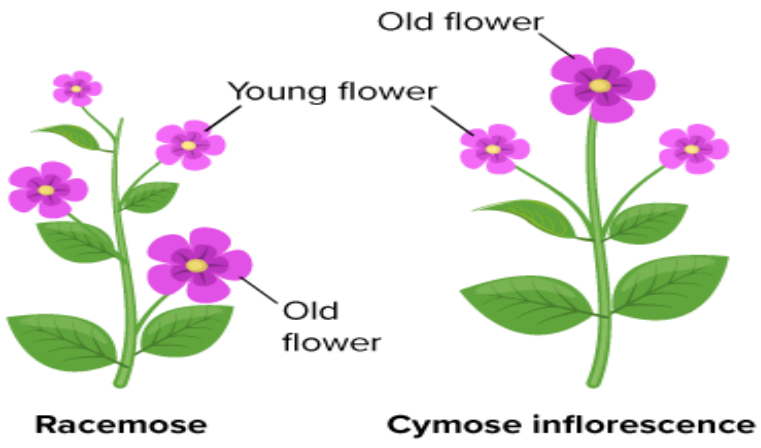
(i) Solitary Terminal: Single flowers occur at the tips of the main stem and its branches, e.g., Poppy.

(ii) Solitary Axillary: Single flowers occur in the axils of ordinary green or foliage leaves, e.g., Petunia.

Inflorescence:- It refers to the arrangement of flowers on a floral axis known as the peduncle. The way flowers are organized not only influences the plant's ability to attract pollinators but also affects how efficiently seeds are dispersed.

Types of Inflorescences

The structure of the inflorescence is determined by the behaviour of the apical meristem—whether it continues to grow or is converted into a flower. This distinction leads us to the two major types of inflorescences: **Racemose (Indefinite) and Cymose (Definite).**



Racemose Inflorescence

In racemose inflorescence, the main axis (peduncle) continues to grow indefinitely. The flowers are arranged laterally along this axis in what is called an **acropetal succession,** meaning that the older flowers are located at the base and newer ones are formed progressively towards the apex.

There are several subtypes of racemose inflorescence based on the branching and structure of the floral axis:

1- Raceme – In a raceme, the main axis grows indefinitely and bears **pedicellate flowers**, that is, each flower is attached to the axis by a small stalk called a pedicel. Ex. Mustard (*Brassica*).

2- Spike – This subtype resembles a raceme, but the difference is that the flowers are **sessile,** meaning they lack pedicels and are directly attached to the main axis. Ex. wheat (*Triticum aestivum*).

3- **Catkin** – A catkin is a specialized, spike-like inflorescence composed of small, usually unisexual and often inconspicuous flowers. The flowers are sessile and densely arranged on a pendulous axis, which aids in wind pollination. Ex. mulberry (*Morus*) and willow (*Salix*).

4-Spadix – It is a thickened, fleshy inflorescence axis bearing sessile flowers, typically enclosed by a large, showy bract called a **spathe**. The spathe may be colorful and plays a role in attracting pollinators. This type is characteristic of banana (*Musa*) and Date palm.

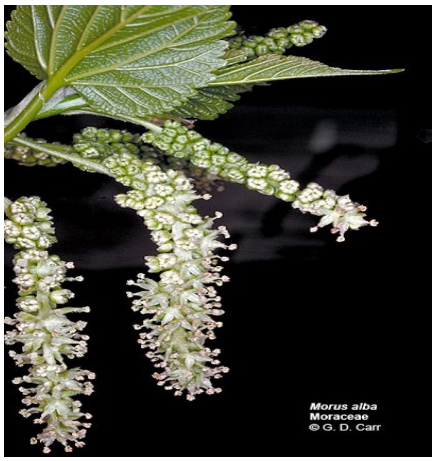
5- Corymb –The flower stalks (pedicels) arise from different points along the main axis but grow to unequal lengths, such that all the flowers reach approximately the same height, creating a flat-topped or slightly convex arrangement. Ex. *Lepidium draba*.

6- **Umbel** – All the flower pedicels arise from a common point at the tip of the peduncle, resembling the ribs of an umbrella. Ex. Onion (*Allium cepa*) and members of the family Apiaceae.

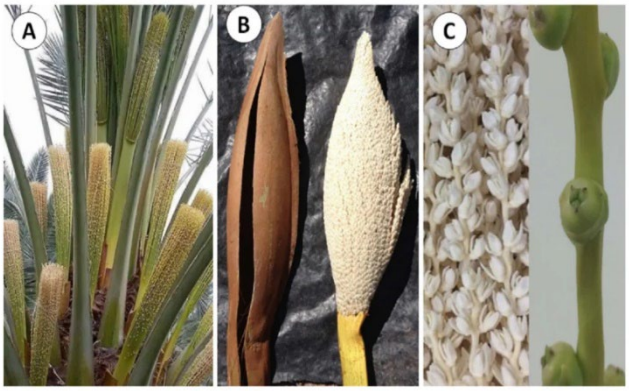
7- **Capitulum** (head) – The capitulum, or head inflorescence, is a highly condensed structure where numerous small, sessile flowers (florets) are arranged closely on a flat or slightly convex receptacle. Ex. Sunflower (*Helianthus annuus*) and other members of the family Asteraceae.

Raceme Inf.

Spike Inf.



Catkin Inf.

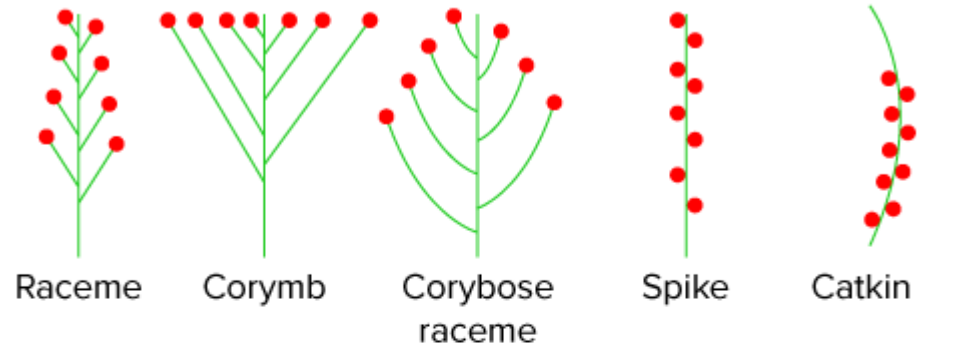


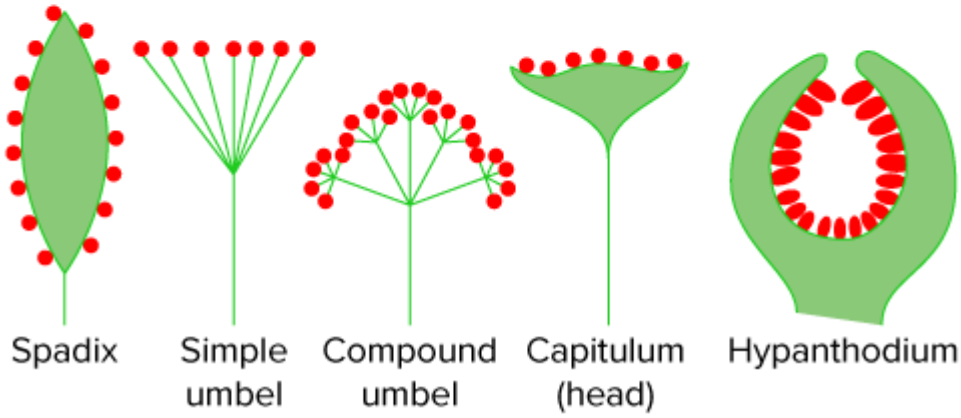
Spadix Inf.

Corymb Inf.

Umbel Inf.

Head Inf.





2. Cymose Inflorescence

Types of cymose inflorescence vary based on how the lateral branches are arranged:

1- Uniparous (Monochasial) Cyme – In a uniparous cyme, only one lateral branch develops below the terminal flower at a time. This lateral branch then itself ends in a flower and gives rise to the next branch, this type is further divided into two forms:

A- Helicoid cyme: In this type, the inflorescence rise to form a spiral or coiled pattern, resembling a helix. Ex. *Drosera*.

B- Scorpioid cyme: the lateral branches develop alternately on opposite sides of the axis, producing a characteristic zig-zag pattern. Ex. cotton (*Gossypium*)

C- Biparous (Dichasial) Cyme – Two lateral branches arise simultaneously below the terminal flower. Each of these branches then ends in a flower and may produce further dichotomous branching. Ex. jasmine (*Jasminum*)

2- Multiparous (Polychasial) Cyme – In a multiparous cyme, more than two lateral branches arise from beneath the terminal flower at the same time. All branches bear flowers and may continue further branching. Ex. *Calotropis procera*