# INFLORESCENCE

- A flower is a modified shoot in which shoot apical meristem changes to floral meristem.
- Internodes do not elongate and axis gets condensed and at the node floral appendages are found instead of leaves.
- The arrangement and distribution of flowers on a plant is called inflorescence.
- The stalk of inflorescence is known as Peduncle.

## Types of Inflorescence:

It is of five types

**(1) Solitary** **(2) Racemose** **(3) Cymose** **(4) Specialized**

## (1) Solitary:

Flower occurs singly, when shoot tip changes into flower, it is always solitary.

They are of two types -

**(a) Solitary Axillary :** Single flower occurs in the axils of leaves. **e.g. *Lagenaria*, China rose**.

**(b) Solitary terminal :** Single flower occurs at the tip of main stem and its branches. **e.g. Poppy, Lily.**

| **Resonate the Concept** |
|---|
| • Actually solitary flower is primitive feature while inflorescence is an advanced feature. |

**Fig : Racemose inflorescence**

## (2) Racemose:

❖ Main axis of inflorescence does not end in a flower and axis continues to grow. The development of flowers is **acropetal** (youngest towards apex while oldest towards base) or **centripetal manner**.

**It is of following types;** 1. Simple Recemose 2. Compound Racemose

1. **Simple Racemose:** In this type, the peduncle is unbranched.
2. **Compound Racemose inflorescence:** It is a kind of inflorescence in which peduncle is branched.

Simple Racemose is of following types**.**

**(a) Raceme**: Peduncle is unbranched and bears pedicellate flowers in an acropetal fashion. **e.g. *Delphinium***, **Radish.**

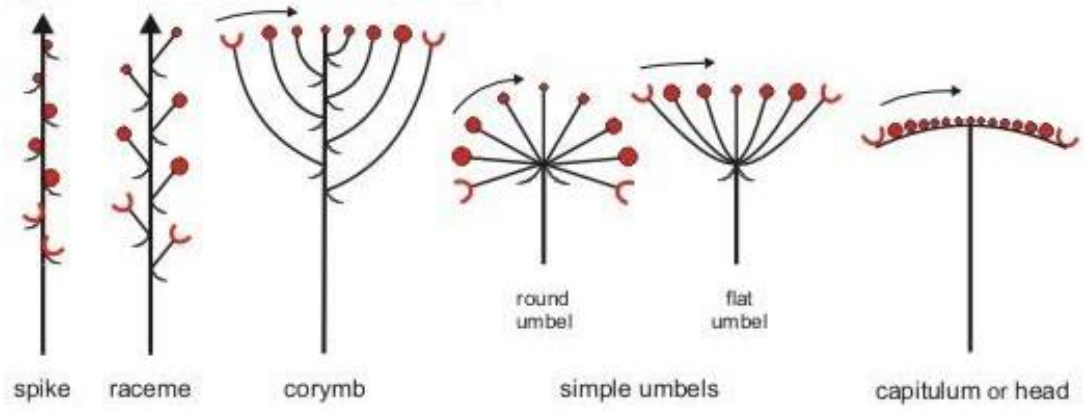


**Fig.: Types of Simple Racemose**

**(b) Corymb:**

❖ An unbranched peduncle have pedicellate flowers in an acropetal fashion but the lower flowers have long pedicels than upper ones.

❖ So that all the flowers are brought to the same level. **e.g.** Candytuft or *Iberis amara***.**

**(c) Corymbose raceme:**

❖ The young flowers show corymb inflorescence but in mature state the longer pedicels of the lower flowers do not bring them to the level of upper ones. **e.g. Mustard.**

**(d) Umbel:**

❖ The main axis is short and all flowers appear to be arising from the same point at the base of flowers, cluster of bracts forms involucre. **e.g. *Centella asiatica*** (Umbeliferae)

**(f) Spike:**

❖ It is unbranched, elongated, simple and indefinite inflorescence in which flowers are sessile. **e.g. *Adhatoda vasica, Achyranthus aspara*.**

**(g) Catkin:**

❖ It is pendulous spike, which bears unisexual and sessile flowers. **e.g. *Salix*, Mulberry.**

**Fig.: Mulberry (Catkin)**

**(h) Spikelet:**

- It is a compact spike of few flowers borne on axis called rachilla and surrounded by two scales called glumes.
- Each flower has at its base a bract called lemma (lower palea) and a bracteole called palea (upper palea) **e.g. Wheat, Grasses.**

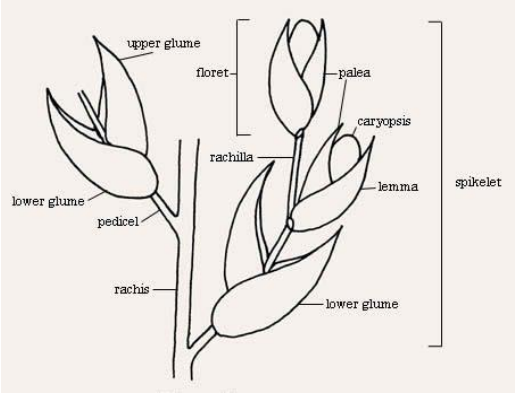


**Fig.: Spikelet**

**(i) Spadix:**

- It is spike inflorescence with fleshy axis which bears both Staminate and Pistillate flowers.
- It is covered by a large coloured bract called spathe. **e.g.** *Colocasia, Arum***.**

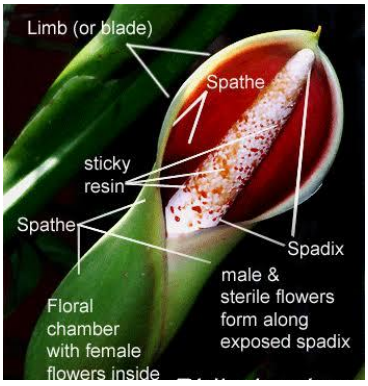


**Fig.: Spadix**

**(j) Head or Capitulum:**

- ❖ The peduncle **is flattened** to form a receptacle which bears small sessile flowers called florets.
- ❖ The florets are arranged in centripetal fashion.
- ❖ Peripheral florets are called ray florets while central florets are known as disc florets. **e.g.** Sunflower**.**

  It is of two types.

  **(i) Homogamous:** It is made up of only one type of florets, either all ray florets.
  **e.g. *Chrysanthemum*** or all disc florets. **e.g. *Ageratum*.**

  **(ii) Heterogamous:** It consists of both disc florets and ray florets. **e.g. Sunflower.**

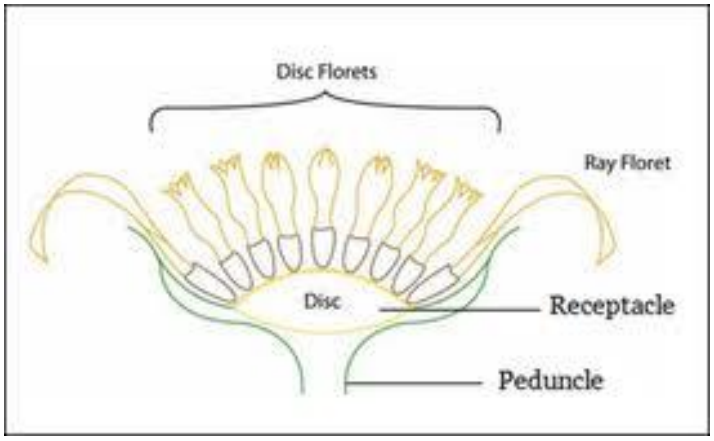


**Fig.: Heterogamous capitulum**

### (3) Cymose:

- ❖ In this inflorescence the apex of the main axis terminates in a flower and further growth continues by one or more lateral branches, which also bear flower at their apex as main axis.
- ❖ The arrangement of flowers is basipetal (youngest towards base while oldest at apex) and opening of flower is centrifugal.

  It is of following types -

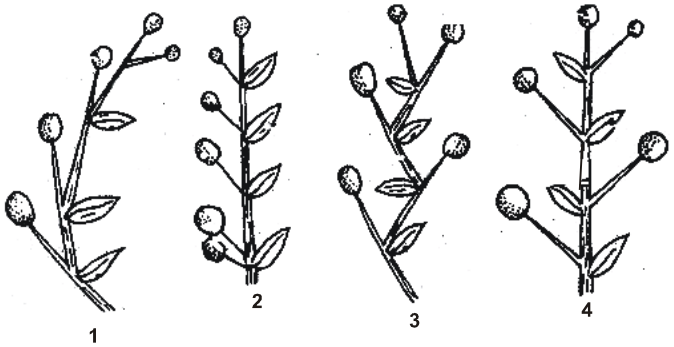


**Fig :- 1, 2 : Uniparous Helicoid Cyme, 3,4 : Uniparous scorpioid Cyme**

**(a) Monochasial or Uniparous cyme:** The main axis ends in flower. A single lateral branch pushes it to one side but also itself ends in a flower. It is of two types-

**(i) Helicoid:** All the flowers are borne on the same side forming a sort of helix. **e.g. *Drosera, Bigonia, Heliotropium*.**

**(ii) Scorpioid:** Flowers are alternately borne on both the sides. **e.g. *Ranunculus bulbosus*.**

Modification of scorpioid cyme is Rhipidium. Here all the flowers are borne in one plane. **e.g. *Solanum nigrum.***

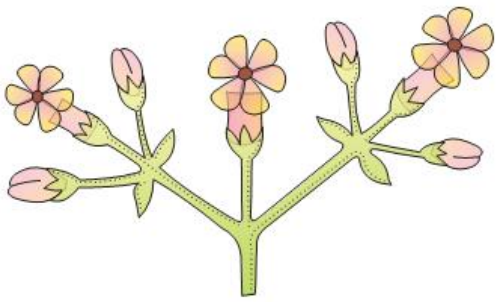

**Fig.: Cymose inflorescence (Biparous Cyme)**

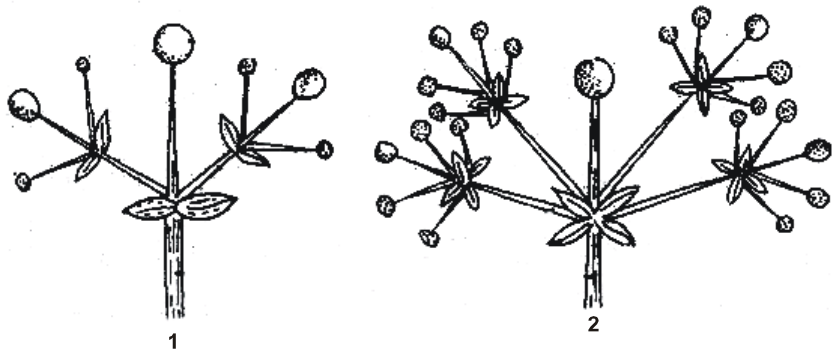


**Fig :- 1- Biparous Cyme, 2- Multiparous Cyme**

**(b) Dichasial or Biparous cyme:** A terminal flower is subtended by two lateral branches which also end in flowers. **e.g. *Ixora, Mussaenda, Stellaria media*.**

**(c) Multiparous or polychasial cyme:** More than two lateral branches continues the growth of the inflorescence when the parent axis ends in a flower. **e.g. *Calotropis, Hamelia*.**

| Type of infloresence | | |
|---|---|---|
| **S.No.** | **Racemose** | **Cymose** |
| 1 | Peduncle or floral axis is monopodial | Peduncle is multipodial or sympodial |
| 2 | Flower arises laterally on Peduncle | Flower originates on terminal part of peduncle |
| 3 | The formation of flowers is indefinite | A definite number of flowers is formed |
| 4 | The arrangement of flowers is acropetal | The arrangement is basipetal |

## (4) Special inflorescence:

**(a) Cyathium:**

- It possess a small conical receptacle surrounded by an involucre of five green or coloured bracts.
- A single centrally placed, Achlamydeous Pedicellate & terminal female flower, which is surrounded by numerous centrifugally arranged male flowers each male flower has a pedicel and a single stamen. **e.g. Euphorbiaceae.**

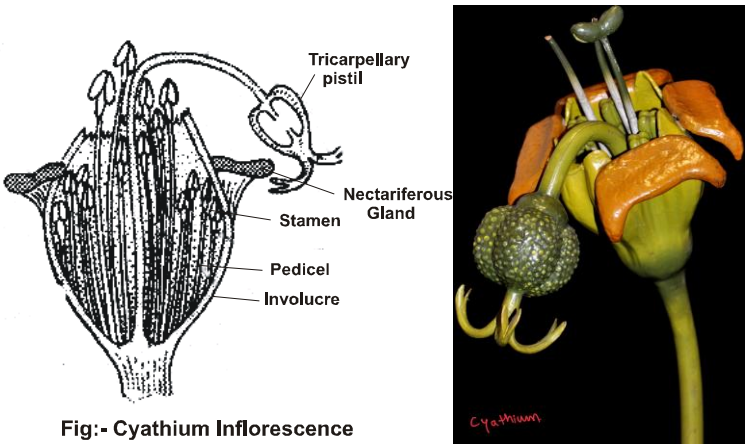


Fig:- Cyathium Inflorescence

**(b) Verticillaster :**

- Two cluster of flowers develop on a node in the axils of opposite leaves.
- Each cluster consists of a dichasial cyme with monochasial branches.
- The two opposite clusters often give the appearance of whorl. **e.g. *Ocimum, Salvia*.**

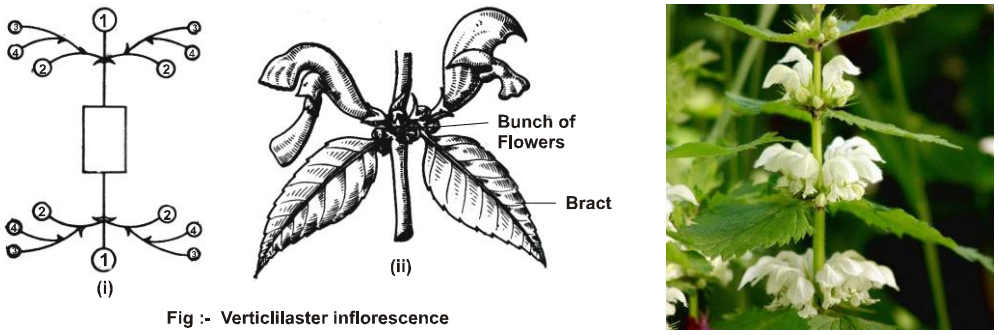


Fig :- Verticlilaster inflorescence

**(c) Hypanthodium:**

- Fleshy flask shaped receptacle forming a narrow canal and a terminal pore at one end.
- The pore is covered by few scales.
- Internally the male flowers are found towards pore while the female flowers towards the base of thalamus.
- Gall flowers occur in between the two groups. **e.g. Banyan (*Ficus bengalensis*), Peepal (*Ficus religiosa*), fig (*Ficus carica*).**

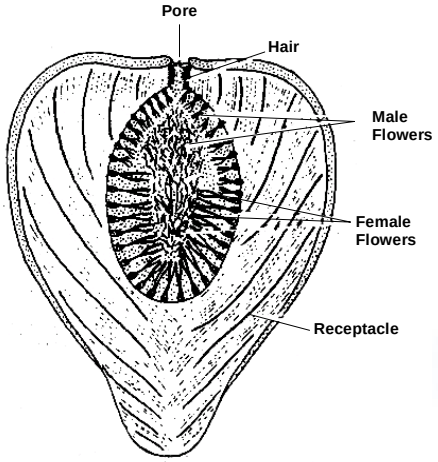


**Fig:- L. S. of *hypanthodium***

## Resonate the Concept

- **Compound Racemose inflorescence –**
  - **(a) Compound Raceme – e.g. *Delonix regia*, Margosa.**
  - **(b) Compound Corymb (Corymb of Corymbs) - e.g. Cauliflower, *Pyrus*.**
  - **(c) Compound umbel: e.g. Coriander.**
  - **(d) Compound spike (Spike of Spikes): e.g. *Amaranthus*.**
  - **(e) Compound Spadix - e.g. Date palm, Coconut.**
  - **(g) Compound Capitulum - e.g. *Echinops*.**

- **Mixed Inflorescence:**

  Two or more types of inflorescence get mixed up to form mixed inflorescence. It is of following types

  **(a) Scapigerous cyme umbel**: Scape bears an umbellate cyme covered by one or more spathes. **e.g. onion.**

  **(b) Mixed spadix:** Spadices with cymose inflorescence arranged acropetally on a fleshy axis. **e.g. Banana.**

  **(c) Panicle of spikelet - e.g. Rice, oat.**

  **(d) Thyrsus:** Cymose clusters borne acropetally on an axis. **e.g. *Vitis vinifera*.**

  **(e) Corymb of capitula e.g. *Ageratum conyzoides*.**

- **Example of specialised inflorescence –**

  **Coenanthium:** Receptacle is saucer shaped and its margins are somewhat curved and florets arranged as hypanthodium. **e.g. *Dorstenia*.**

## Test your Resonance with concept

**1.** Hypanthodium is the characteristic of
(1) *Ficus* (2) Mulberry (3) Pineapple (4) Poinsettia.

**2.** The inflorescence of Rice/family Gramineae is
(1) Spike (2) Thyrsus (3) Spikelet (4) Raceme

**3.** The inflorescence present in *Euphorbia* is
(1) Cyathium (2) Capitulum (3) Helicoid cyme (4) Verticillaster.

**4.** Inflorescence is
(1) Group of flowers (2) Occurrence of flowers
(3) Arrangement of flowers (4) Arrangement of flowers on the floral axis

**5.** The most advanced type of inflorescence is
(1) Corymb (2) Capitulum (3) Spadix (4) Polychasial cyme.

**Answers**

**1.** (1) **2.** (3) **3.** (1) **4.** (4) **5.** (2)