Inflorescence

- **Definition:**

  It is the aggregation of the flowers on the plant.

- **Kinds of inflorescence:**

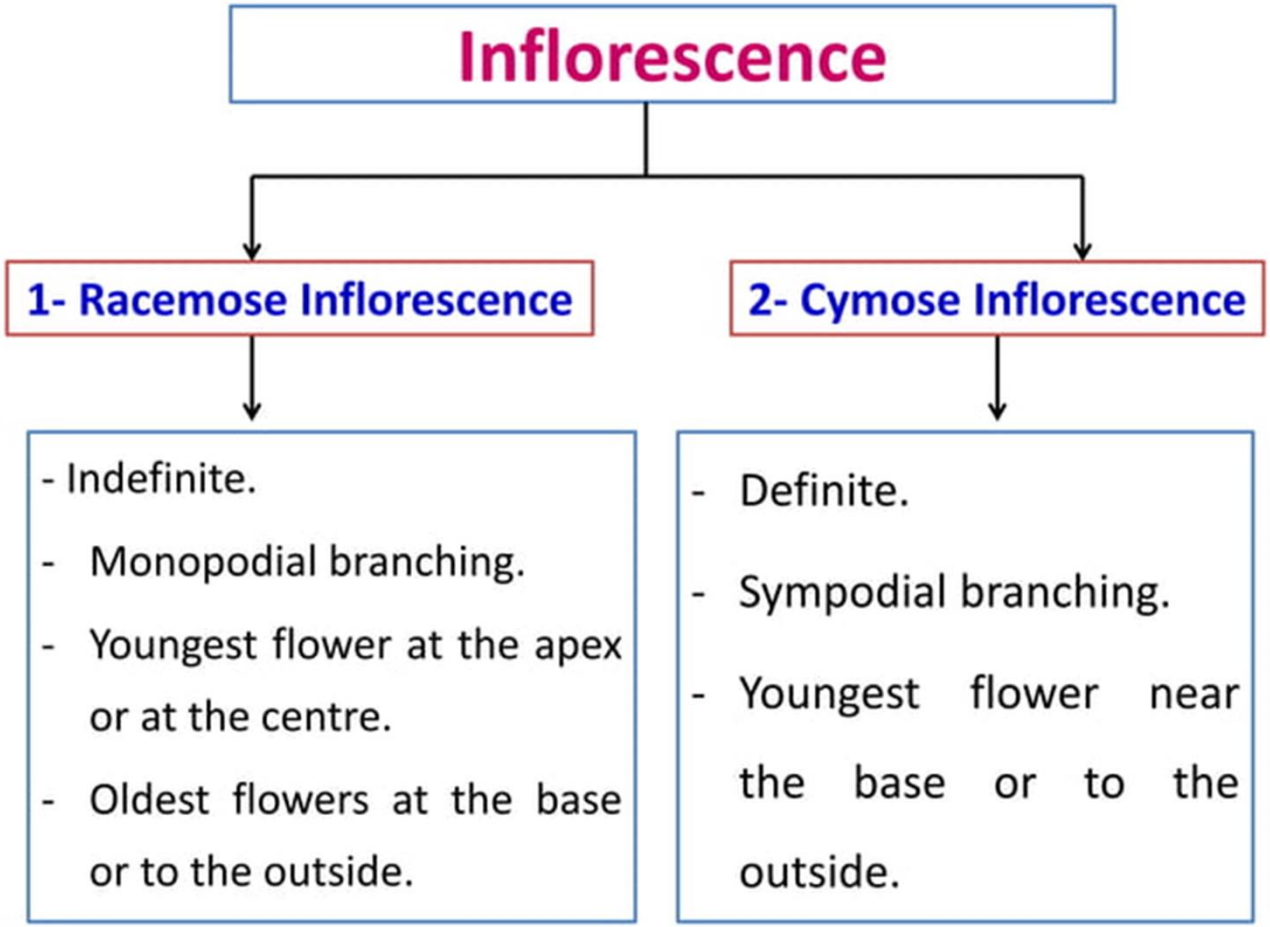
  (According to the mode of branching)

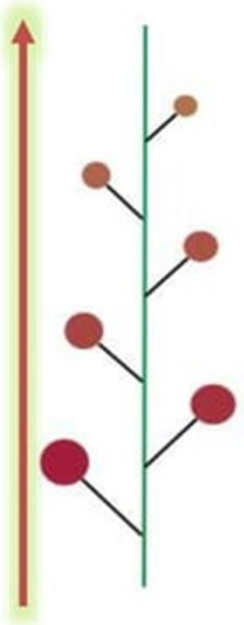
  I- Racemose inflorescence.

  II- Cymose inflorescence.

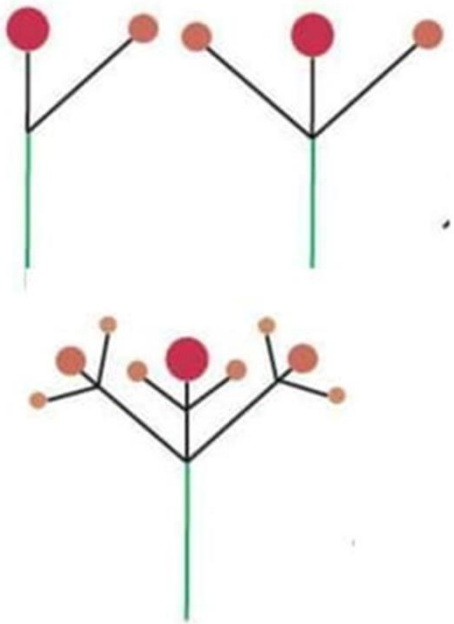
  III- Mixed inflorescence.

- Inflorescence is the modified shoot system bearing flowers.
- The stalk of the inflorescence is called peduncle. The floral axis of an inflorescence bearing flowers is called is called rachis and
- the stalk of the individual flower is called pedicel.

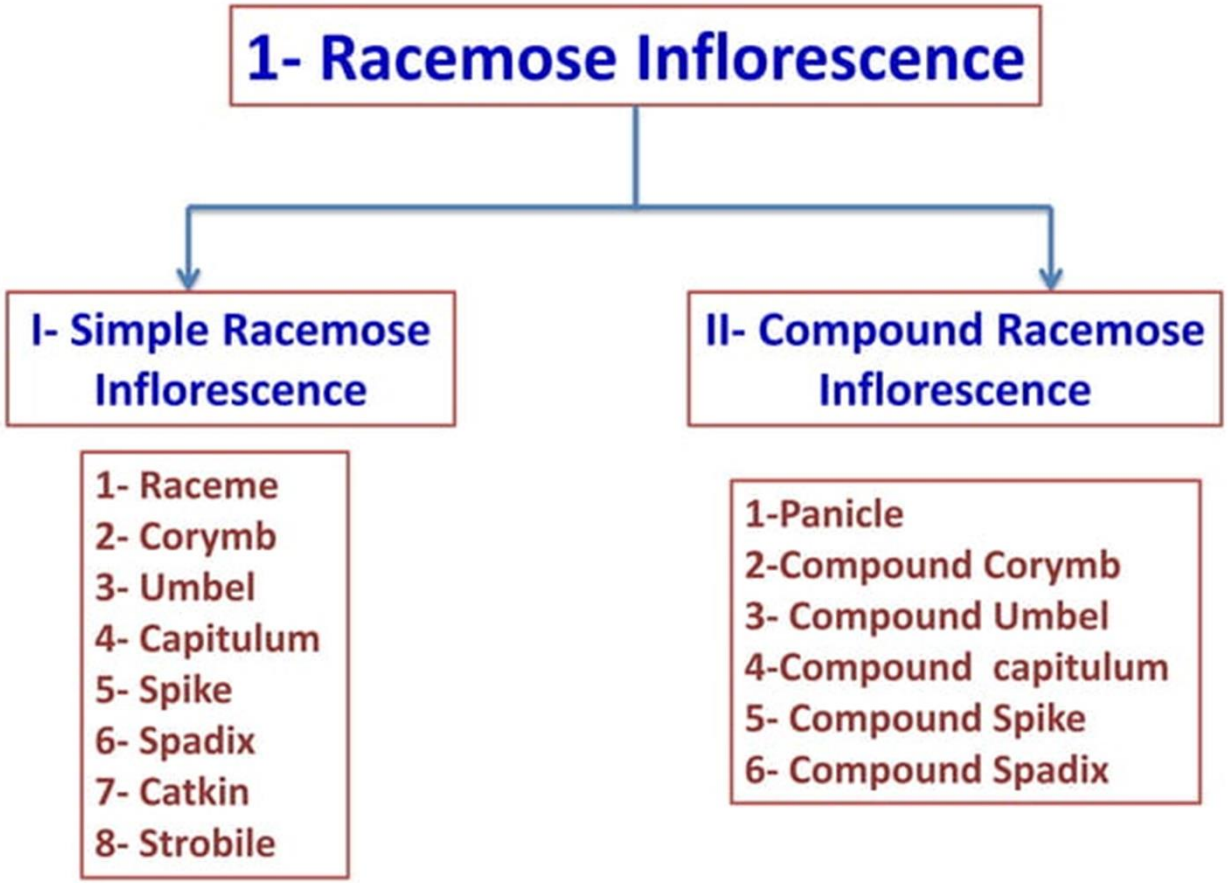

Inflorescence
1- Racemose Inflorescence
2- Cymose Inflorescence
- Indefinite.
- Monopodial branching.
- Youngest flower at the apex or at the centre.
- Oldest flowers at the base or to the outside.
- Definite.
- Sympodial branching.
- Youngest flower near the base or to the outside.



1- Racemose Inflorescence



2- Cymose Inflorescence


1- Racemose Inflorescence
I- Simple Racemose Inflorescence
II- Compound Racemose Inflorescence
1- Raceme
2- Corymb
3- Umbel
4- Capitulum
5- Spike
6- Spadix
7- Catkin
8- Strobile
1-Panicle
2-Compound Corymb
3- Compound Umbel
4-Compound capitulum
5- Compound Spike
6- Compound Spadix

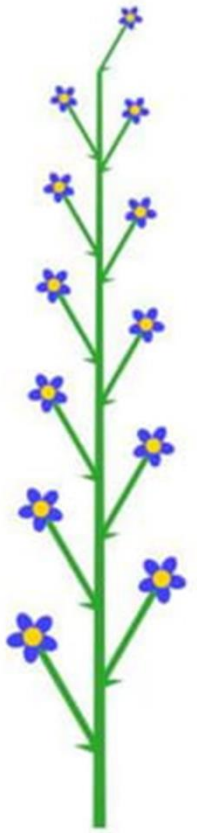
Racemose: In this type of inflorescence the primary floral axis never terminated by a flower but apical bud continuing to grow, thus bearing oldest flower towards the base and the younger flower towards the apex i.e. in acropetal order.

This type is again divided in to two category i.e. **simple and compound** depending upon the branching of the floral axis.

I. Simple Racemose Inflorescence

1. Raceme:

- with elongated axis carrying pedicellate flowers (pedicels of equal lengths **e.g. Lobelia**).

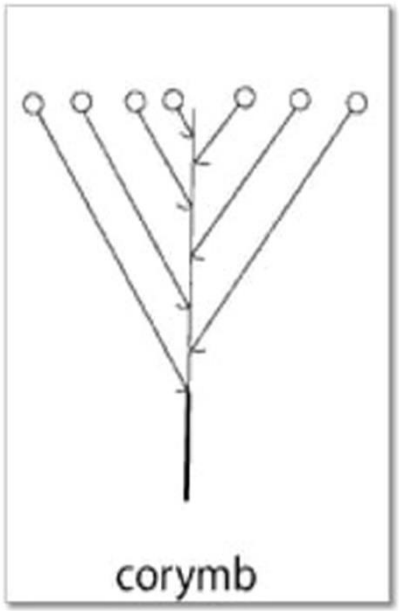


Raceme: It is a typical Recemose inflorescence with single axis bearing pedicellate flowers.

E.g. *Cleome sp . Lobelia sp.* and *Crotalaria juncea*

2. Corymb:

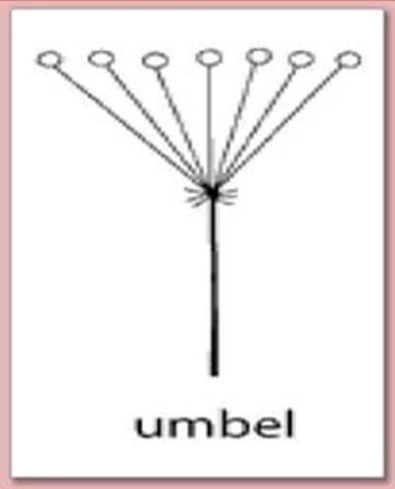
- with elongated axis carrying pedicellate flowers (pedicels of different lengths, **e.g. F: Cruciferae**.



- **Corymb: It is a flat topped Recemose inflorescence with longer lower pedicels and shorter upper pedicels so that all flowers become the same level.**
- **E.g. *Cassia sp.* and *Iberis sp.***

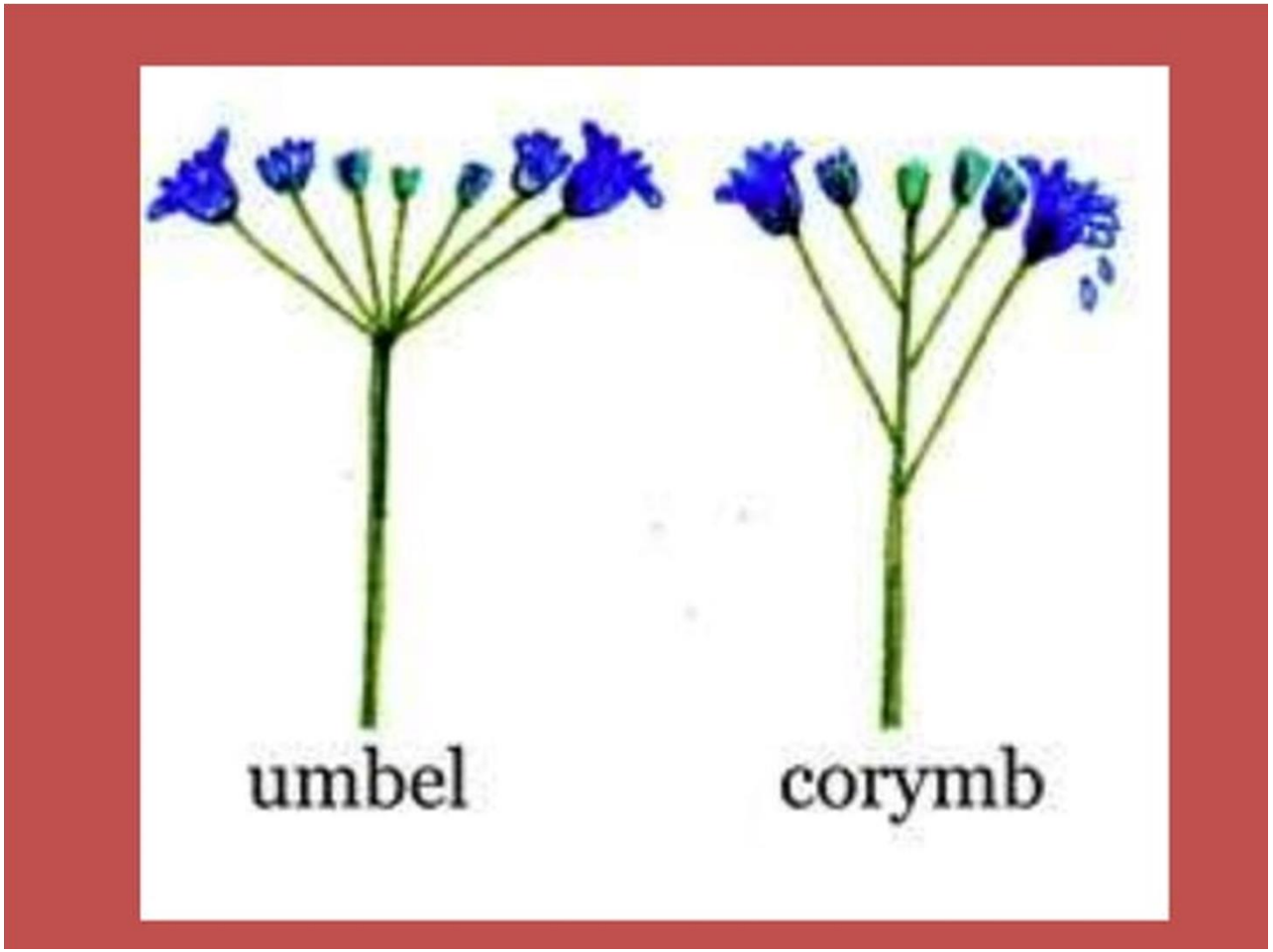
3. Umbel:

- with very short axis carrying pedicellate flowers (pedicels of equal lengths are radiating), **e.g F: Umbelliferae**.



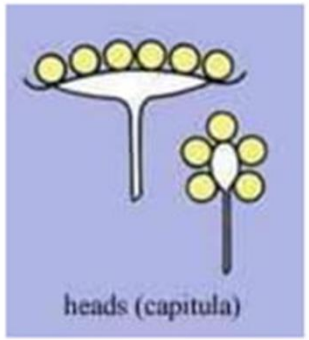
Umbel: Here flowers arising from one point due to condensation of floral axis, with oldest flower towards periphery and youngest flowers towards centre.

E.g. Umbelliferae.


umbel
corymb

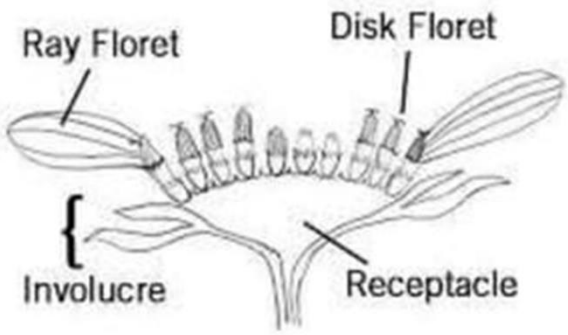

EHSI'S PHOTOWORKS

4. Capitulum (= flower head)



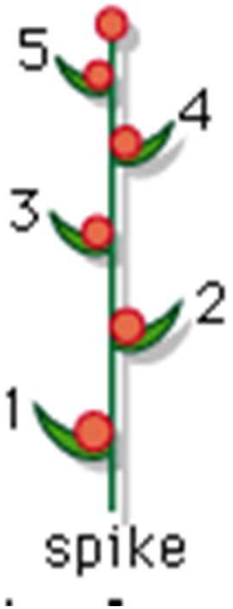
- It is a racemose inflorescence having very short swollen flattened axis and on which are inserted sessile flowers.
- It is encircled by **involucre** consisting of bracts, the flowers are generally small and called **florets**.

- There are two types of florets inserted on the same capitulum:
- The central which have tubular corolla and called **tubular or disc florets**.
- The marginal which have strap-like corolla and called **ligulate or ray florets**.



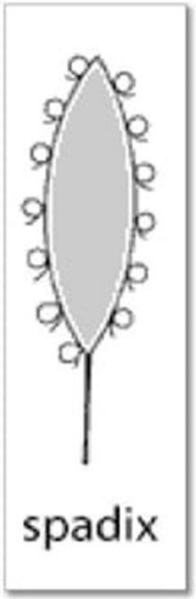
Spike

Similar to raceme but with sessile flowers. E.g *Aerva aspera*



6. Spadix :

- with elongated, thick and fleshy axis carrying sessile florets usually unisexual flowers, **e.g. F: Acarus**.



Spadix: It is modified spike with fleshy rachis and large bract called spathe covering the inflorescence. E.g. *Colocasia sp* (Araceae family)

7. Catkin:

- pendulus axis carrying sessile florets of unisexual type either male or female, **e.g F:Fagaceae**.

Catkin or Amentum: It is a spike of reduced unisexual flowers with weak drooping peduncle.

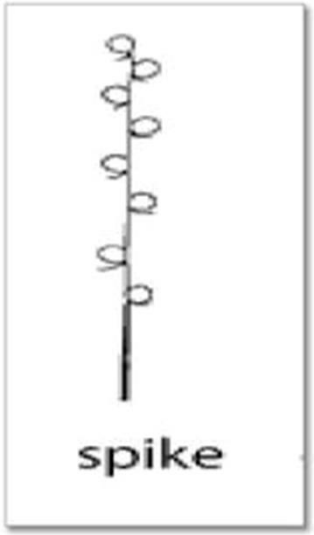
E.g. *Salix tetrasperma* (Salicaceae)

Acalypha hispida

Acalypha hispida

8. Strobile:

- A spike with large membranous scales (bract or bracteoles), as in Humulus.

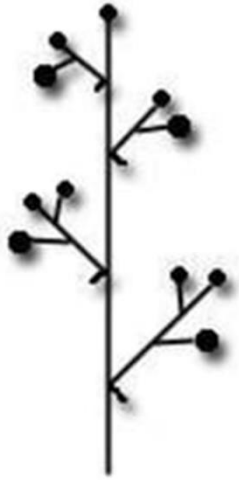


Compound Racemose inflorescence

- It is simply modified form of Simple Racemose inflorescence.
- Here rachis bears secondary branches upon which flowers also develops.
- It is following types.

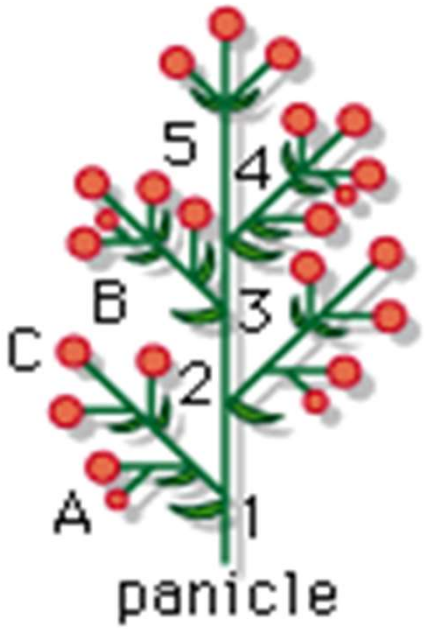
- **II. Compound Racemose Inforescence**

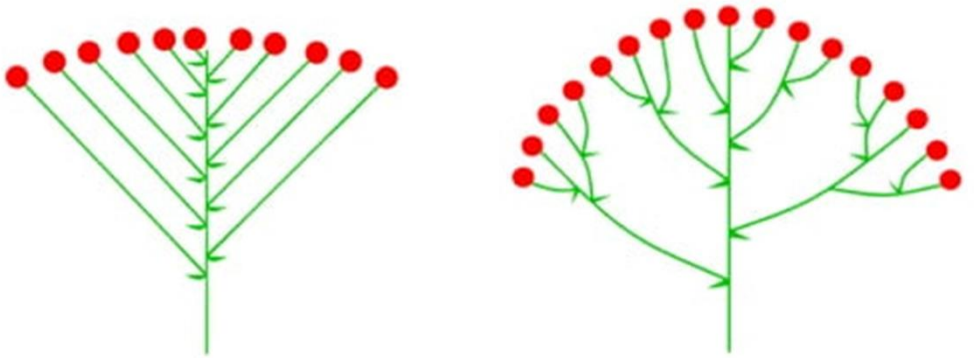
1. **Panicle:** a compound raceme consisting of racemes arranged in racemose manner **e.g Eguevia**



Panicle

- It is compound raceme and flowers are develop on the branches of main axis as well as on the primary axis directly. E.g. *Mangifera indica.*





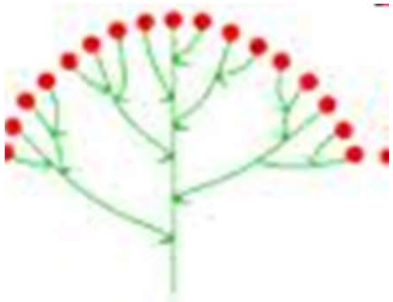
Corymb

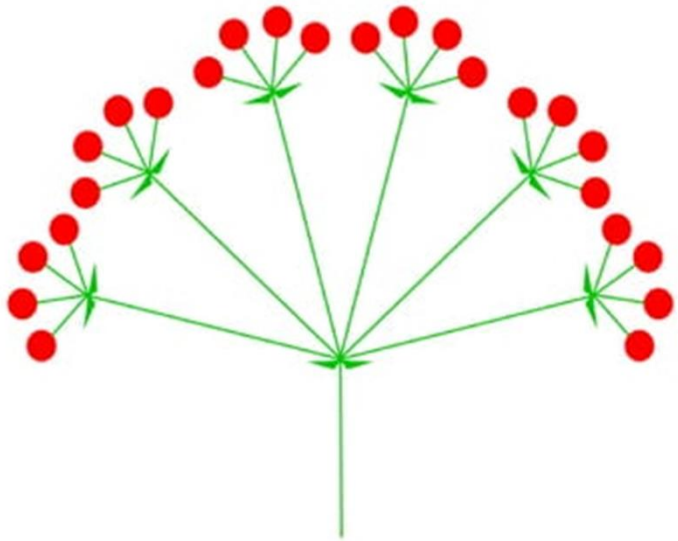
Compound Corymb

2. Compound Corymb: as in F: Cruciferae.

Compound Corymb

Compound corymb: In this case flowers are borne in corymbose manner on the branches of main axis. E.g. *Cassia seamea*

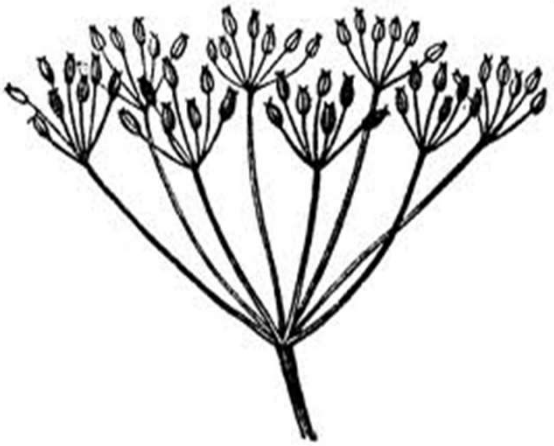


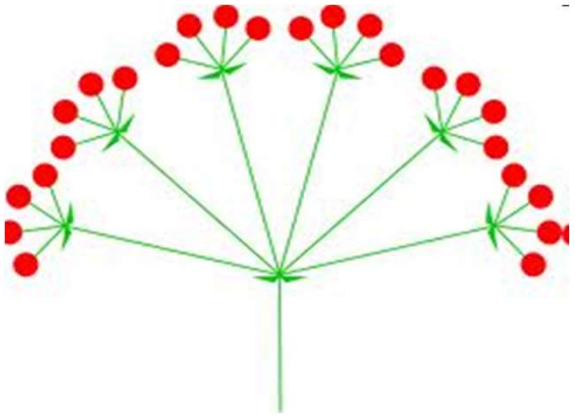


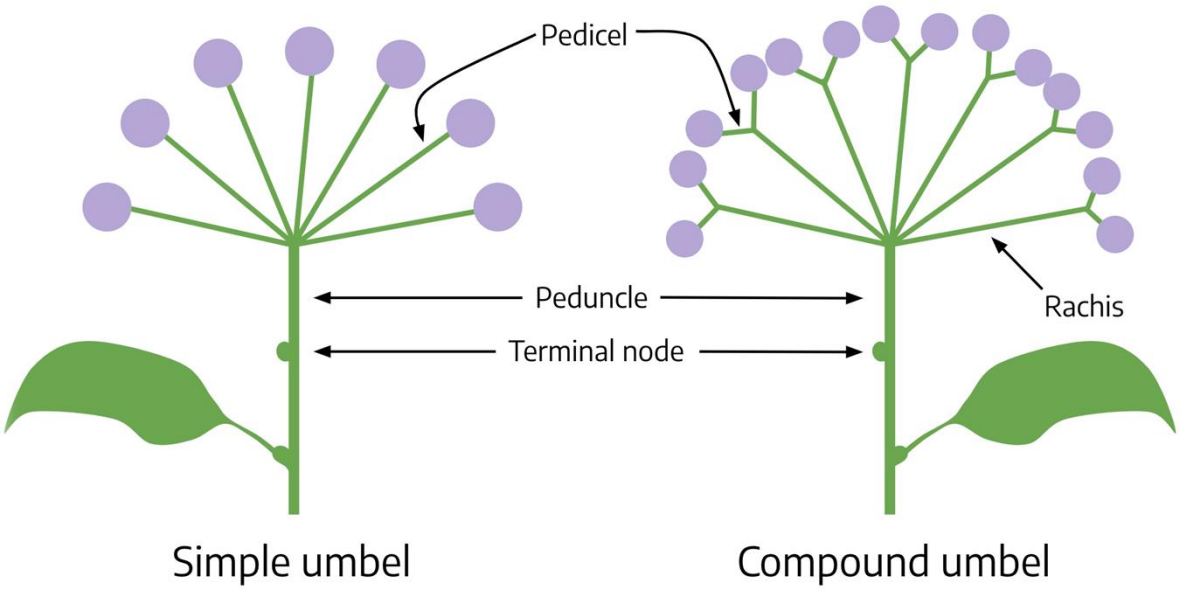
3. Compound Umbel: as in F: Umbelliferae.

Compound Umbel:

This type of inflorescence are formed by the division of primary axis of simple umbel. E.g. Umbelliferae family , *Foeniculum* sp. *Coriandrum* sp.





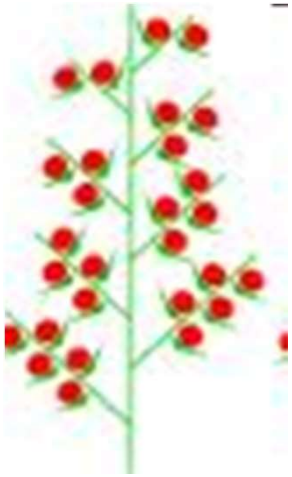

Pedicel
Peduncle
Terminal node
Rachis
Simple umbel
Compound umbel

4- Compound Spike: as in Wheat.

Compound spike:

When sessile flowers are develop on the branches of main axis in a spikate manner.

E.g. *Amaranthus spinosus*



5- Compound Capitulum: as in F: Composiate.

Compound Capitulum:

It is a flat topped inflorescence bearing crowed of sessile flowers.

***E.g. Mimosa* sp. and *Acacia* sp.**

6- Compound Spadix: as in Palm.

Compound spadix:

Here the fleshy axis of spadix branches and the sessile flowers arise from the branches of main axis.

E.g. Cocos nucifera, Phoenix sylvestris and Amorphophallus titanum

II- Cymose inflorescence

- Cymose inflorescence is characterized by the sympodial branching with the oldest flowers present on the top of the elongated pedicel or occupied in the central position of the flat receptacle. The primary axis and the daughter branches end in a flower i.e. growth of the axis is limited by the formation of a flower.

- Cymose inflorescence may be either simple or compound.

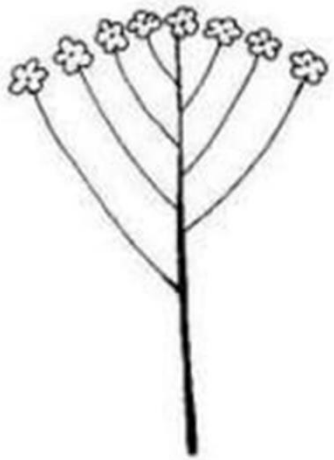
- **Cymose inflorescence/ Definite inflorescence:**

- **Here the growth of primary axis is terminated by a flower and young flowers occurs below it.**

  These are following types

1- Simple Cyme:

The main axis terminate in a flower and one, two or more stalked flower arises on its pedicel, thus resemble the simple umbel but differ from the umbel in that the oldest flower is present in the centre.



Cyme

2- Compound Cymose

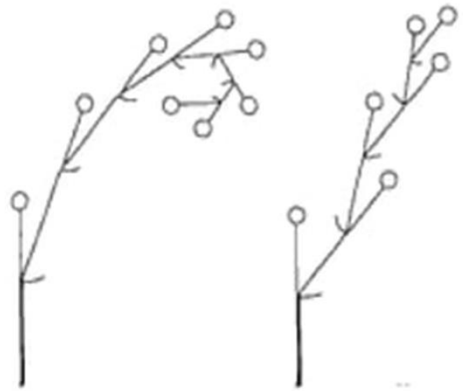
- In which the lateral branches continue to give further branches. It may be:

1- Monochasium (or one sided cyme): where the main axis terminate in a flower, the pedicel of which posses two bracteoles, one of which develop one branch from the bud in its axil and so on. There are two kinds:

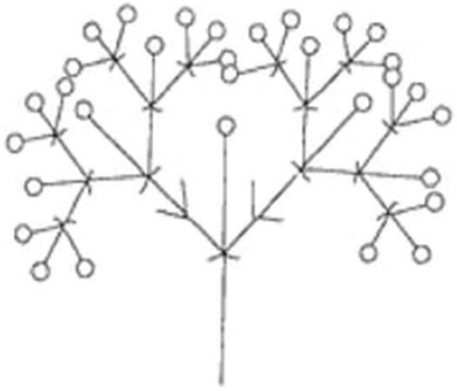
a- Helicoid cyme: produced as a development of the bud of only one side (either right or left e.g. Juncus).

b- Scorpoid cyme: produced as a development of the bud of two sides (right and left) alternatively, e.g Iris.

cymose



monochasial cymes



dichasial cyme

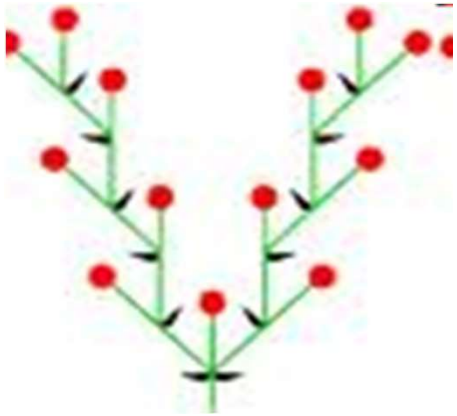
Monochasium or uniparous cyme:

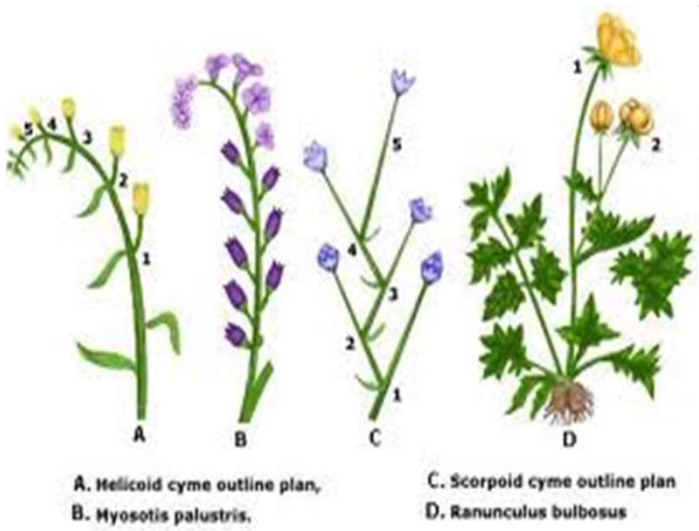
Here the primary axis ends by a flower and one lateral branch is produced ending in a flower& this process is continued for several times.

These are following two types.

Scorpoid (Cincinus) Cyme:

Successive branches with single flower are borne on alternate sides. *Heliopropium sp* , *Ranunculus bulbosus*.

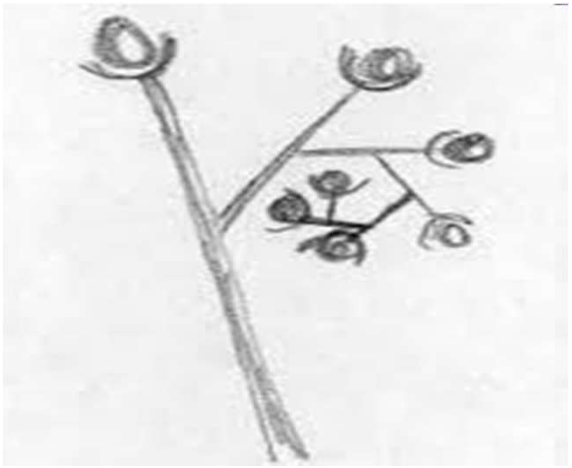




A. Helicoid cyme outline plan,
B. Hyosotis palustris.
C. Scorpoid cyme outline plan
D. Ranunculus bulbosus

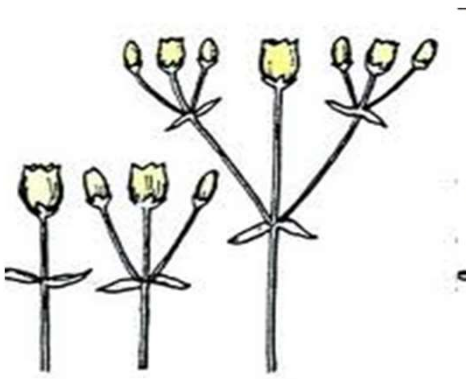
Helicoid (Bostryx):

Here successive branches with single flower are borne on same side so that inflorescence is often coiled. *Commelina benghalensis*



Dichasium or Biparous cyme:

In this case the primary axis is terminates in to a central flower which open first and behind this apical flower two lateral branches of flower are arise. The lateral branches may again give rise flowers in the same manner. E.g *Dianthus* sp, *Jasmanium* sp



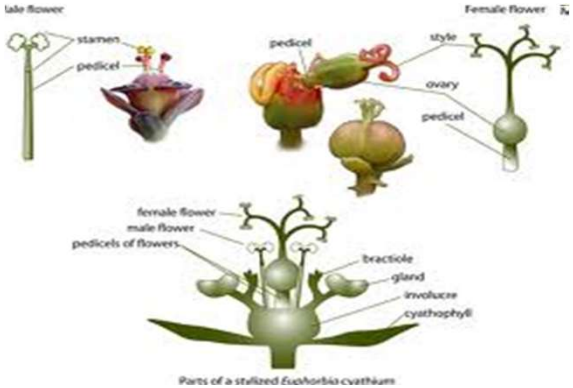
Polychasium:

When more then two branches arising at each node below the terminal flower.

So that a broad inflorescence of several flowers is formed . E.g. Carissa sp. and Viburnum sp.

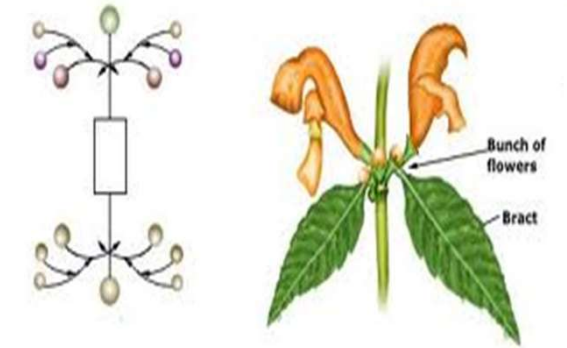
1. Special types of inflorescence: Cyathium:

In this case the receptacle terminates in to a single female flower consisting of tricarpellery gynoecium only and this again surrounded by numerous male flowers which contain only single stamen and these male flowers are arranged in scorpoid cyme and the whole inflorescence is covered by glandular involucre. E.g. *Euphorbia* sp, *Pedilanthus* sp.



2. Verticillaster:

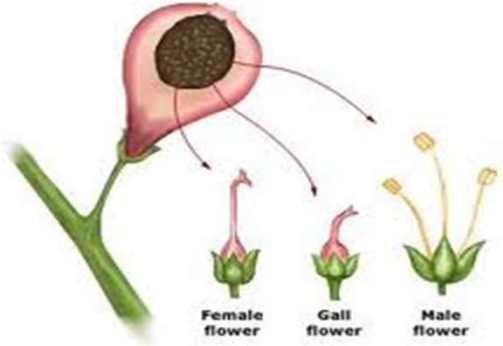
It is a compound cyme. In the axils of opposite leaves a dichasium is produce first then each branches of dichasium subsequently becoming monochasium through scorpoid fashion. The sessile flowers are crowd round the stem. E.g *Ocimum* sp, *Leonurus* sp



Verticillaster inflorescence (Ocimum) A. Outline plan, B. Actual inflorescence

3. Hypanthodium:

In this case three closely placed rachis fused to form a cup shaped concave receptacle nearly closed structure with small opening and the unisexual flower (male, fertile female and sterile female) are arranged all over the inner surface of receptacle. *Ficus* sp



Hypanthodium inflorescence (ficus)