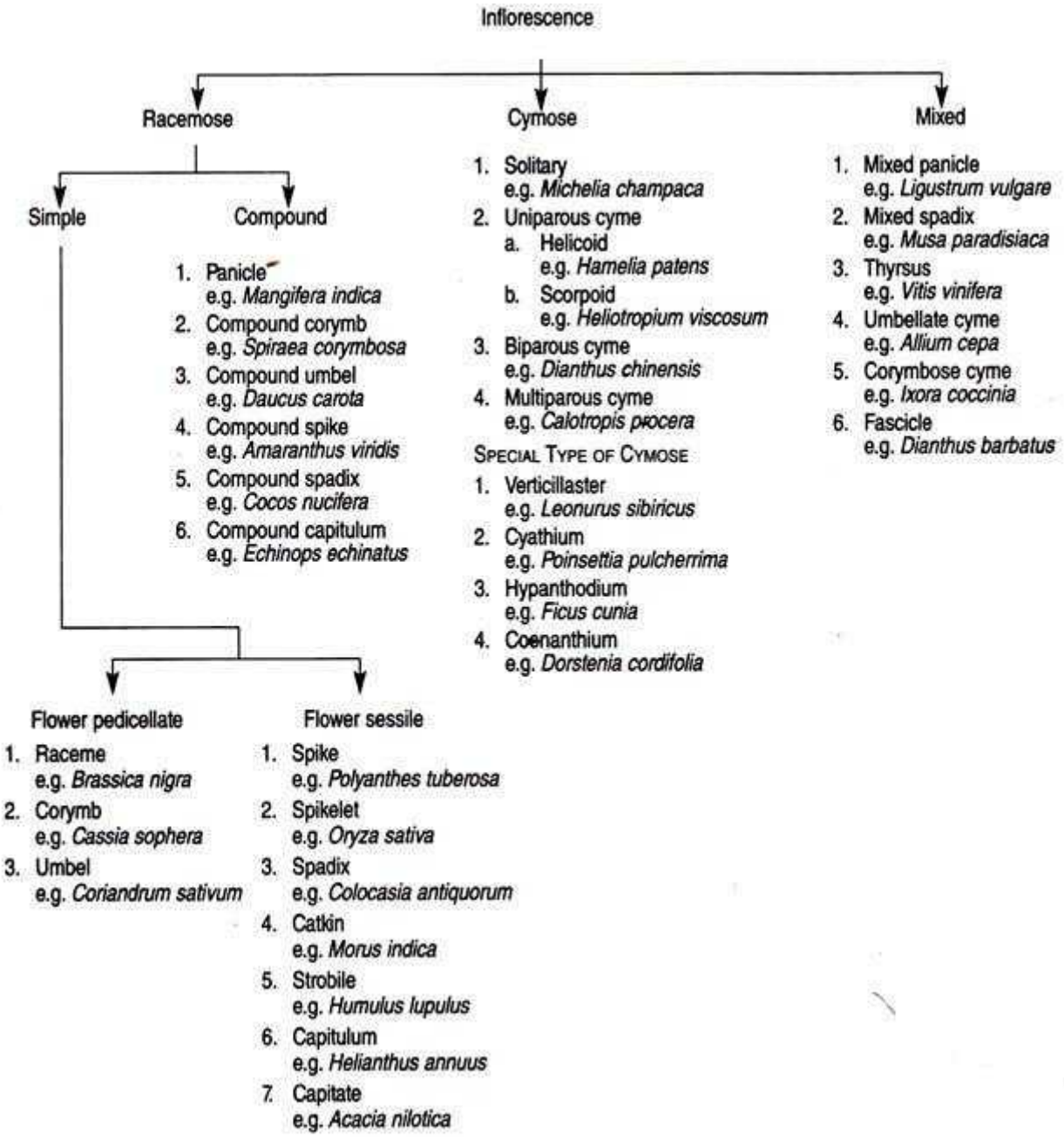
INFLORESCENCE

Flowers are arranged in various ways in different plants. The arrangement of flowers on the floral axis (shoot system) of a plant is called inflorescence.

Types of Inflorescence: There are three major types of inflorescence:
I. Racemose (indefinite or indeterminate),
II. Cymose (definite or determinate) and
III. Mixed.



I. Racemose Inflorescence:

This type is also called indefinite or indeterminate or botryose inflorescence. A racemose inflorescence is one whose rachis (simple or branched) never ends in a flower and it continues to elongate by means of a persistent growing point. In this type, stalked or sessile flowers are produced directly or on its branches in a more or less indefinite succession.

The flowers open acropetally (i.e., oldest flower towards the base and gradually the youngest flowers and buds towards the apex) or centripetally (i.e., the oldest flower towards the margin and the youngest one at the centre on a fleshy and dilated rachis called receptacle).

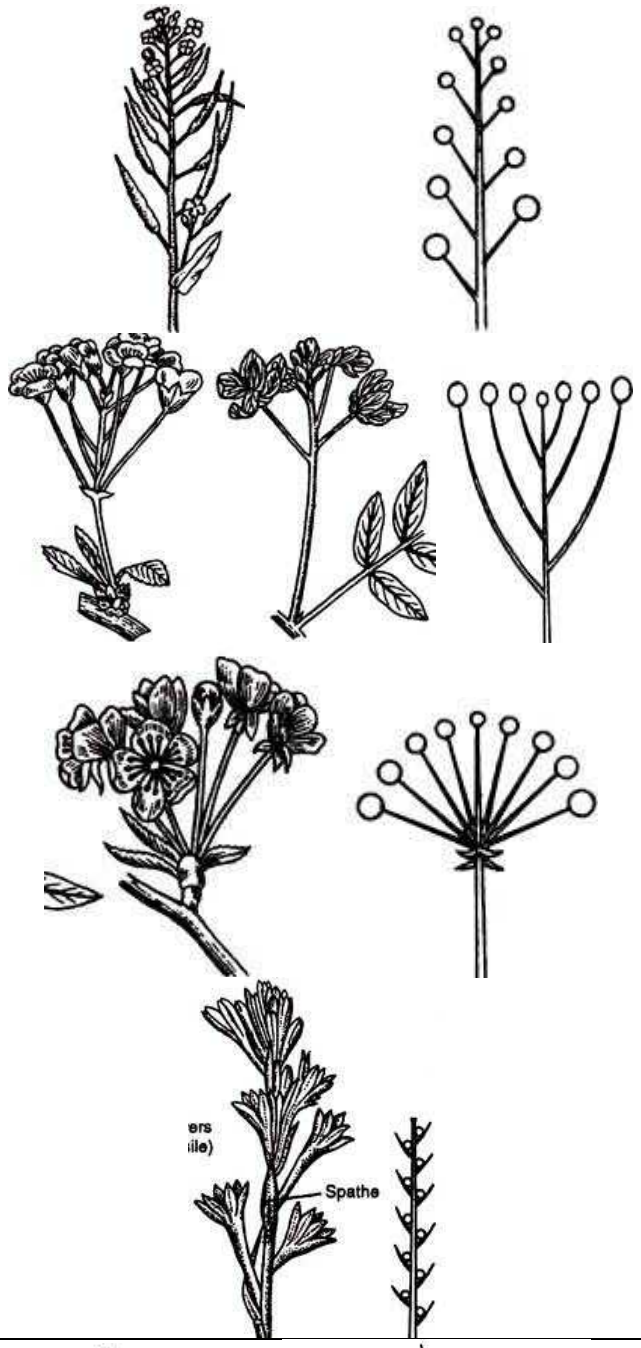
The racemose inflorescence can be divided into two groups: Simple racemose and Compound racemose.

Simple Racemose Type:
In this type pedicellate (stalked) or sessile flowers are directly borne on the main axis.
Flowers pedicellate (stalked).
Raceme:
The main axis has indefinite growth, where more or less equally pedicellate flowers are borne, e.g., radish, Raphanus sativus and mustard, *Brassica nigra* of Brassicaceae; *Gynandropsis gynandra* and *Polanisia icosandra* of Capparidaceae etc.

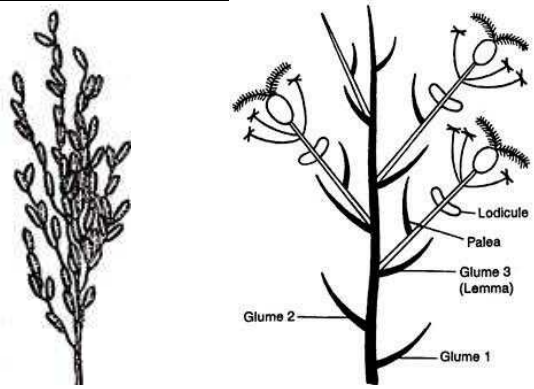
Corymb:
The main axis is comparatively shorter and the lower flowers have much larger pedicels than the upper ones, so that all the flowers are brought more or less at the same level, e.g., cherry, Prunus cerasus of Rosaceae , *Cassia sophera* of Fabaceae; candytuft, *Iberis amara* of Brassicaceae etc.

Umbel:
The main axis is much shortened and the flowers appear to develop from the same point. The older flowers are towards the periphery and the younger flowers towards the centre.

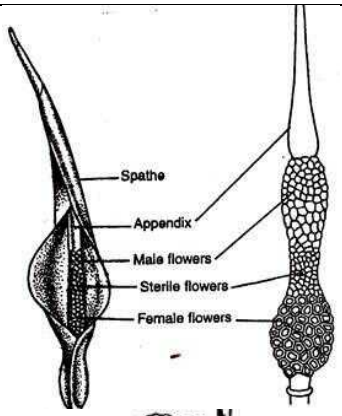
Thus, it looks like an open umbrella. Flowers are usually bracteate and the bracts collectively form an involucre at the base of the pedicellate flowers, e.g., Indian pennywort, *Centella asiatica* and *Coriandrum sativum* of Apiaceae (Umbelliferae); cherry, *Prunus cerasus* during young stage
Flowers Sessile:
Spike:
The main axis is of indefinite growth, where sessile flowers are borne on it, e.g., long pepper, Piper longum of Piperaceae; prickly chaff-flowers, *Achyranthes aspera* of Amaranthaceae; basak, *Adhatoda vasica* of Acanthaceae; tuberose, *Polianthes tuberosa* of Amaryllidaceae; etc.



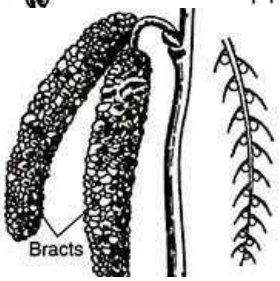
Spikelet or Locusta:
It is a small spike where one or more flowers are borne on rachilla. Commonly, each spikelet bears many flowers as in wheat, *Triticum aestivum*, but in paddy, *Oryza sativa* , it bears only one flower.



Spadix:
It is a spike with fleshy axis having both male and female flowers. Entire structure is surrounded by a large bract called spathe. In some aroids like *Acorus calamus*, the spathe is absent.
The female flowers are always found towards the base of the axis and male flowers towards the apex, whereas the sterile flowers are situated between these two. The terminal portion is barren and called as appendix, e.g., *Colocasia antiquorum* of Araceae.

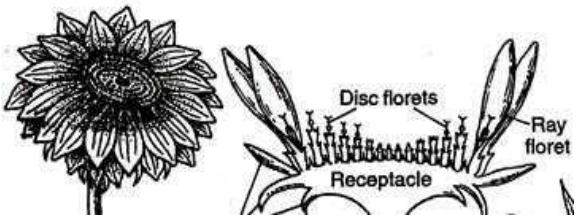


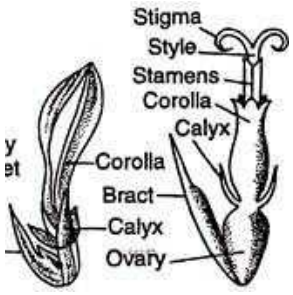
Catkin or Amentum:
It is the pendulous spike with fleshy and delicate axis which bears naked unisexual flower that falls as a unit at maturity. Viz. hazel, *Corylus* sp. of Betulaceae; mulberry, *Moms indica* of Moraceae;



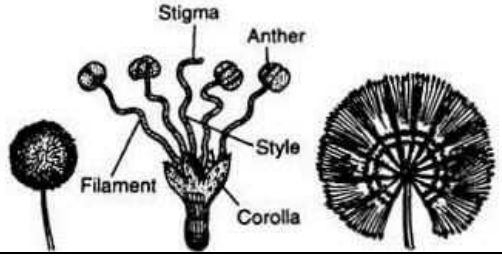
Strobile:
It is a modified spike, where the pistillate flowers are borne singly in the axil of a persistent membranous bract, e.g., hops, *Humulus lupulus* of Cannabinaceae etc.

Capitulum or Anthodium or Head:
In this type, the main axis is much shortened and broadened out to form a flat or more or less convex receptacle on which numerous sessile and small florets are arranged in a centripetal manner i.e., youngest at the centre and oldest towards the periphery. Individual florets are bracteate. The cluster of florets is surrounded by a whorl of bracts collectively called involucre.
Two kinds of florets are distinguished: ray florets those at the periphery with strap-shaped corolla. These florets are female and are always zygomorphic, arrange in one or two whorls.
Disc florets are grouped at the centre and are bisexual and actinomorphic. This inflorescence is the characteristic feature of the family Asteraceae (Compositae), e.g., sunflower, *Helianthus annuus*; *Tridax procumbens*, of Asteraceae.





Capitate:
In this type, a dense cluster of sessile flowers arise upon a compressed rachis; thereby they give rise to a somewhat globose structure. e.g., *Acacia nilotica, Mimosa pudica , Albizzia lebbek* of Fabaceae.



II. Cymose Inflorescence:

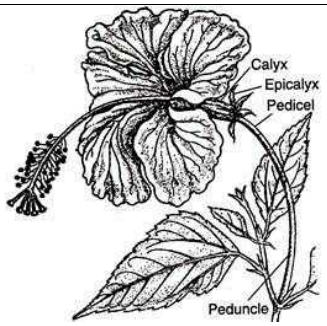
This type is also called definite or determinate inflorescence. A cymose inflorescence is one whose rachis (simple or branched) becomes terminated by a flower bud at an early stage and subsequent buds are developed gradually towards the lower side of the axis.

The flowers open basipetally i.e., oldest flower at the apex and gradually the youngest flowers and buds towards the base or centrifugally i.e., the oldest flower towards the centre and the youngest one at the periphery on a fleshy and dilated rachis, called receptacle.

The cymose inflorescences are divided into the following four types:

Solitary:

It is the simplest type of cymose. Here the rachis is unbranched and always terminated by a flower, e.g., *Magnolia grandiflora* and *Michelia champaca* of Magnoliaceae; china-rose, *Hibiscus rosa-sinensis* of Malvaceae etc.



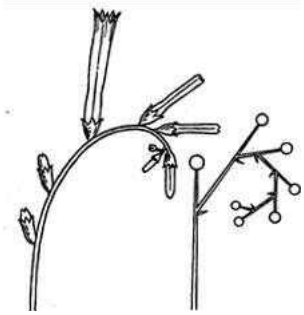
Uniparous Cyme or Monochasial Cyme or Monochasium:

In this type, the primary axis ends in a flower and gives rise to only one daughter axis, which behaves as the mother.

It is of two types:

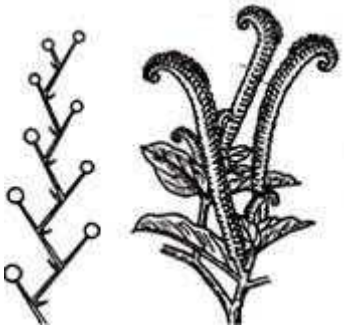
i. Helicoid Cyme or Bostryx:

In this type, the flowers are developed on one side, either clockwise or anti-clockwise of the subsequent daughter axes, e.g., *Hamelia patens* of Rubiaceae; forget-me-not,



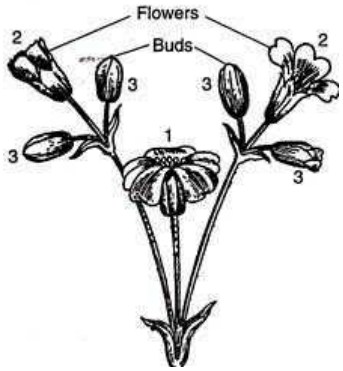
ii. Scorpioid Cyme:

In this type, the flowers are developed alternately on either side of the successive daughter axes, thereby it appears as a zigzag structure, e.g., *Heliotropium ovalifolium* of Boraginaceae,



Biparous Cyme or Dichasial Cyme or Dichasium

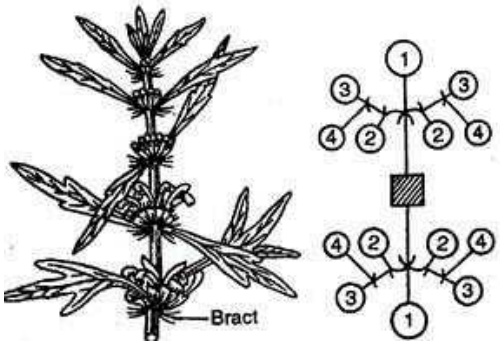
In this type, the primary axis ends in a flower and develops two daughter axes with apical flower bud from a single node, a little distance behind the apex, e.g., jasmine, *Jasminum* sp. and *Nyctanthus arbor-tristis* of Oleaceae; *Clerodendrum viscosum* of Verbenaceae ;



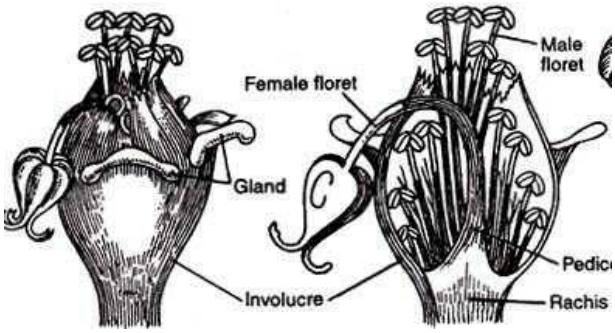
Multiparous Cyme or Polychasial Cyme or Polychasium or Pleiochasium:
In this type, the primary axis ends in a flower and develops more than two daughter axes with apical flower bud from a single node, a little distance behind the apex. The daughter axes, in their turn, also behave like mother, e.g., *Kleinhovia hospita* and Dombeya mastersii of Sterculiaceae; *Calotropis procera* of Asclepiadaceae;

Special types of cymose inflorescence:
The special types of cymose inflorescence are of the following four types:

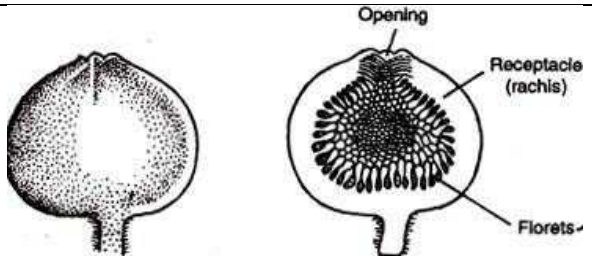
Verticillaster:
It is a condensed cymose inflorescence, each occurs in the axil of opposite leaves having sessile or slightly stalked flowers. Each inflorescence is initially a dichasial cyme and the two lateral sides become reduced to two scorpioid cymes
The entire inflorescence appears like a cluster of sessile flowers forming a false whorl at the node, e.g., *Leucas linifolia, Leonurus sibiricus* of Lamiaceae (Labiatae).



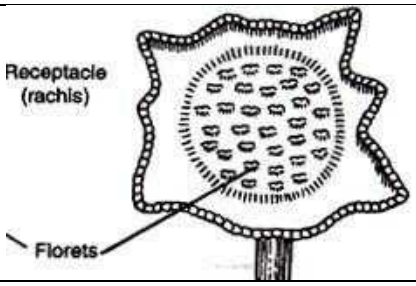
Cyathium:
It is a specialised cymose inflorescence, but looks like a single flower. The axis becomes suppressed to form a convex receptacle. In the centre of the receptacle, there is a long-stalked, naked female flower with tricarpellary gynoecium, surrounded by a large number of male flowers arranged in a scorpioid cyme.
The male flowers consist of a single stamen joined to a short stalk i.e., the pedicel and each one develops in the axil of a hairy bracteole. The entire inflorescence is surrounded by a cup-shaped green involucre formed by the union of bracts. The involucre is with one or two nectar glands on its outer wall or often without gland. The flowers are developed in centrifugal manner i.e., from inner to outer side, e.g., *Poinsettia pulcherrima* and some other members of Euphorbiaceae.

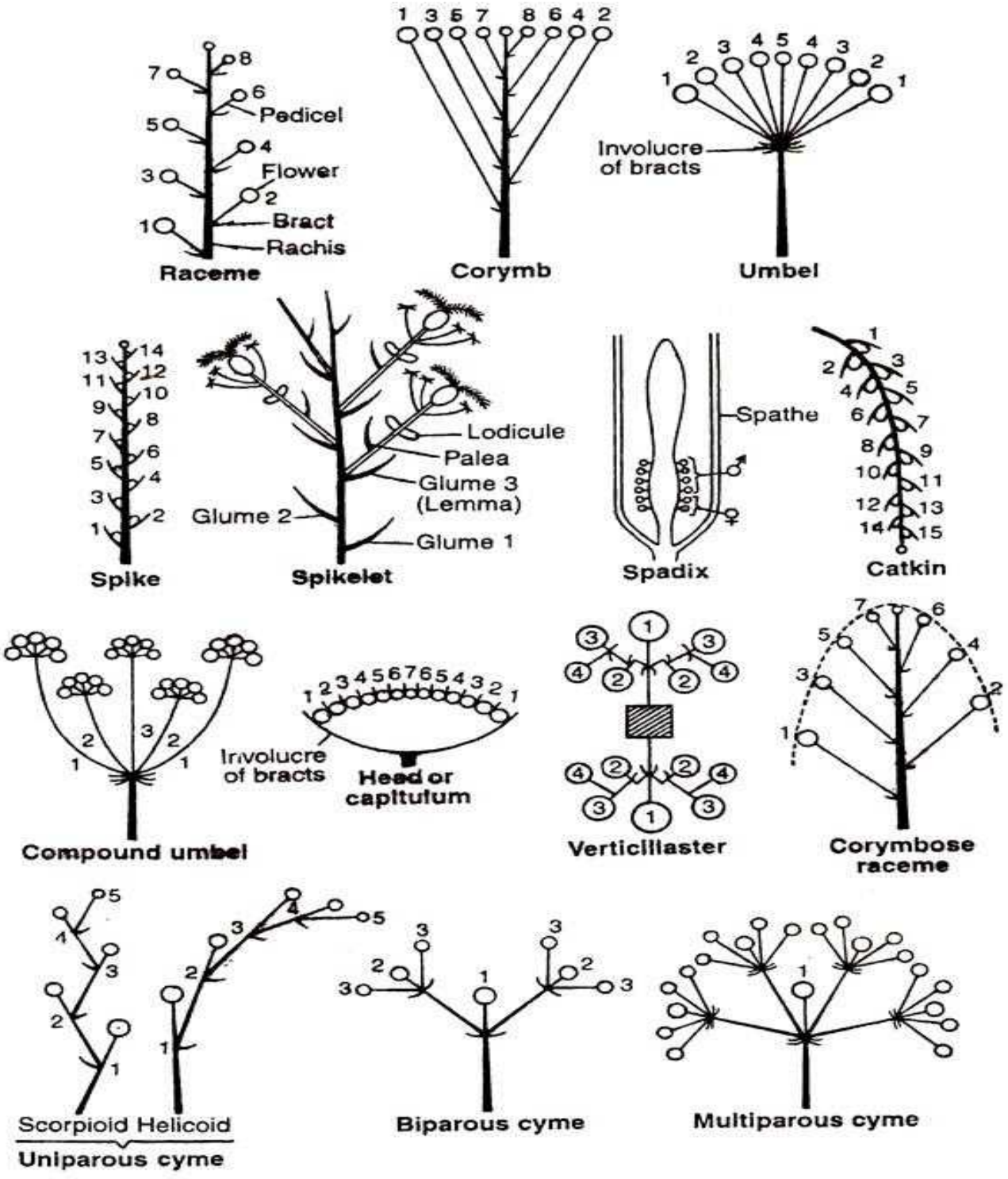


Hypanthodium:
In this type, a hollow sphere-like receptacle (syconium) is formed by the fusion of the rachis of three closely placed cymes. The spherical receptacle is like a closed fleshy vessel with a small opening at the apex. Three types of unisexual flowers (male, fertile female and sterile female) are arranged on the inner surface of the receptacle in cymose groups, e.g., fig., *Ficus cunia* and banyan, **F. benghalensis** of Moraceae.



Coenanthium:
It is like hypanthodium, but the receptacle is somewhat saucer-shaped with margins curved upwardly, e.g., pick-

aback plant, *Dorstenia cordifolia*) of Moraceae.	



Types of Inflorescence (Word diagram)

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FROM DIFFERENT SOURCES

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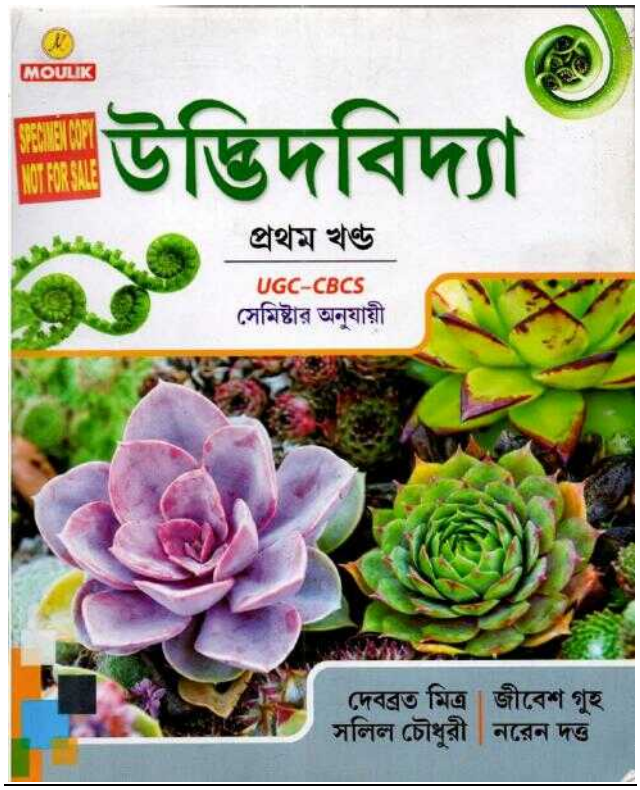

পুষ্পবিন্যাস এর প্রকারভেদ

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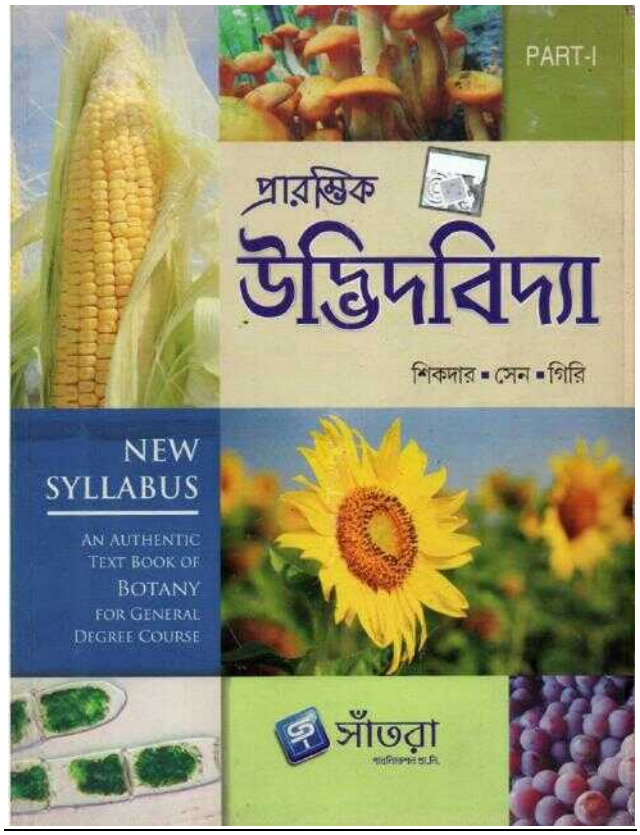

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