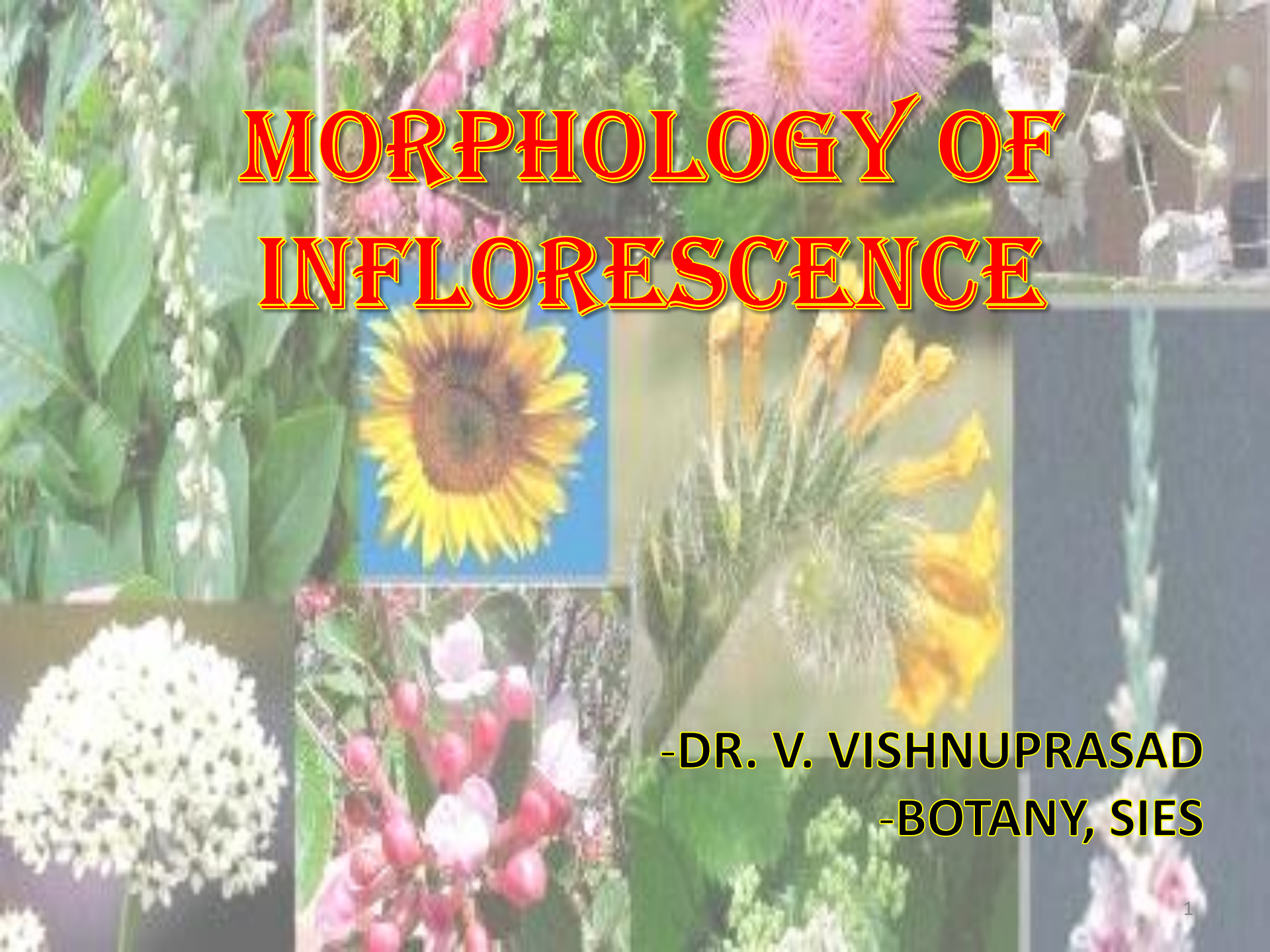
MORPHOLOGY OF INFLORESCENCE



-DR. V. VISHNUPRASAD
-BOTANY, SIES

SCOPE OF UNIT

➢**Morphology of Leaf** – Simple leaf, Types of compound leaf, Phyllotaxy, Types of stipules, Leaf apex, Leaf margin, Leaf shapes, Venation and types. **Modifications of Leaf** - Spine, Tendril, Hooks, Phyllode.

➢**Morphology of Inflorescence** – Racemose: Simple raceme, Spike, Catkin, Spadix, Panicle. Cymose: Monochasial, Dichasial, Polychasial. Compound: Corymb, Umbel, Capitulum. Special Types: Cyathium, Verticillaster, Hypanthodium.

➢**Wonders of Plants –** *Rafflesia*, *Victorea regia;* Carnivorous plants: Pitcher plant, Venus flytrap, *Dionea,* Sundew, Bladderwort; *Adansonia, Sequoia,* Strangler fig; Plant mimicry – Orchids.

INFLORESCENCE – DEFINITION & CONCEPT

Inflorescence is defined as “an arrangement of the flowers on a special branch system”

The inflorescence consists of the main axis called peduncle while the stalks of individual flowers are called pedicel.

INFLORESCENCE – MAIN TYPES

INFLORESCENCE

Racemose

Growth is indefinite and the flowers grow in acropetal succession i.e. youngest flowers at apex and oldest at the base.

Cymose

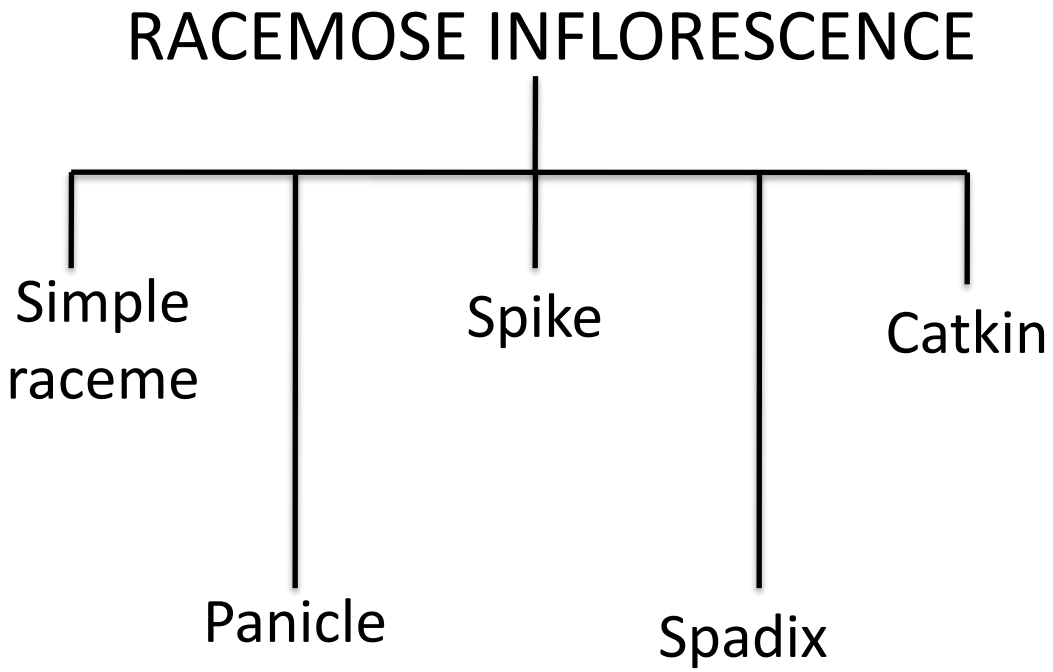
The axis terminates its growth after producing a flower, thus the growth becomes definite. The youngest flowers are situated at the base.

Compound

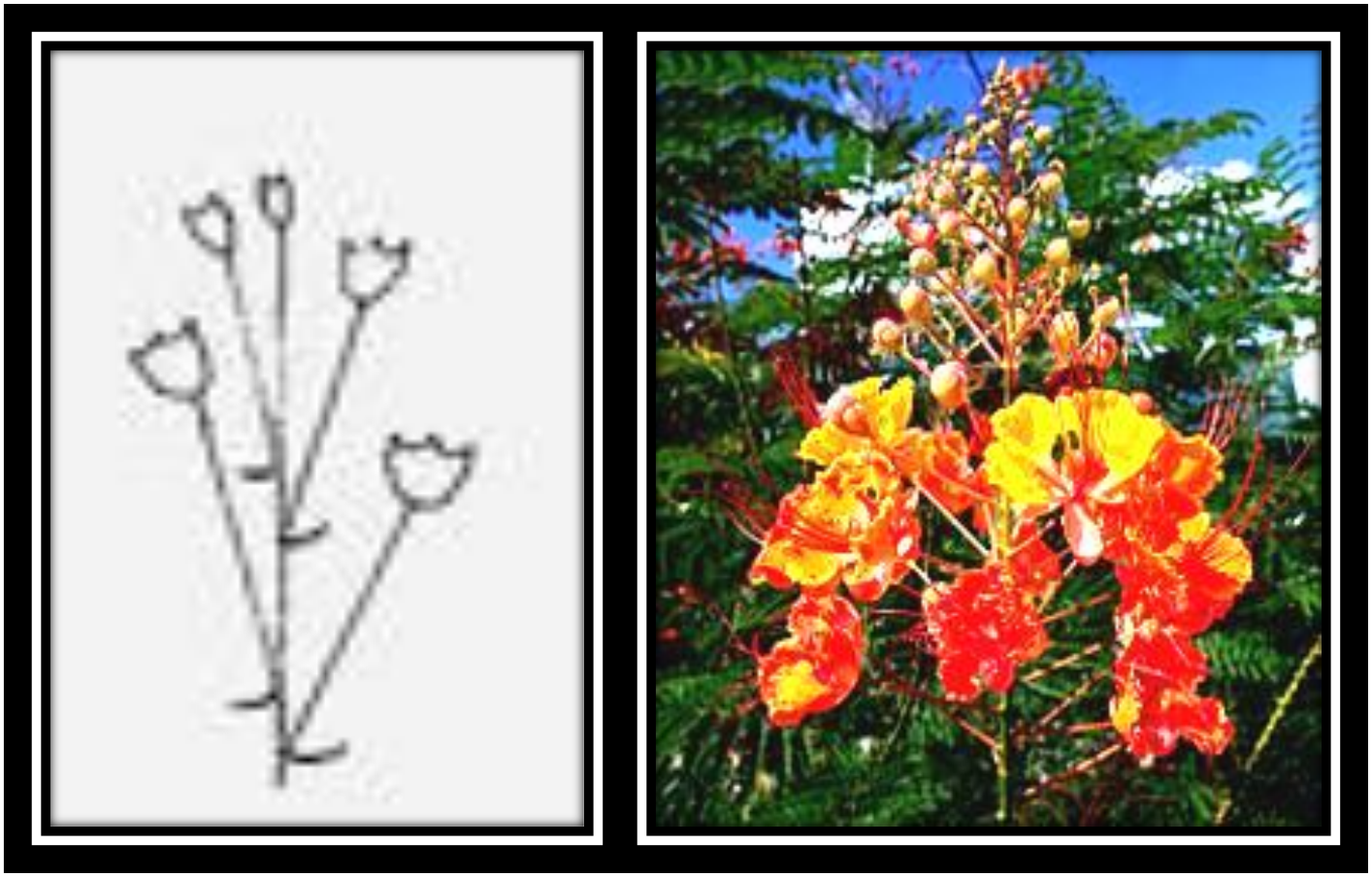
A kind of compound inflorescence is the double inflorescence, in which the basic structure is repeated in the place of single florets.

RACEMOSE INFLORESCENCE

In it, the terminal bud of the peduncle continues to grow indefinitely and does not terminate into flower. The flowers are arranged in acropetal succession (older flowers at the base and younger towards apex).

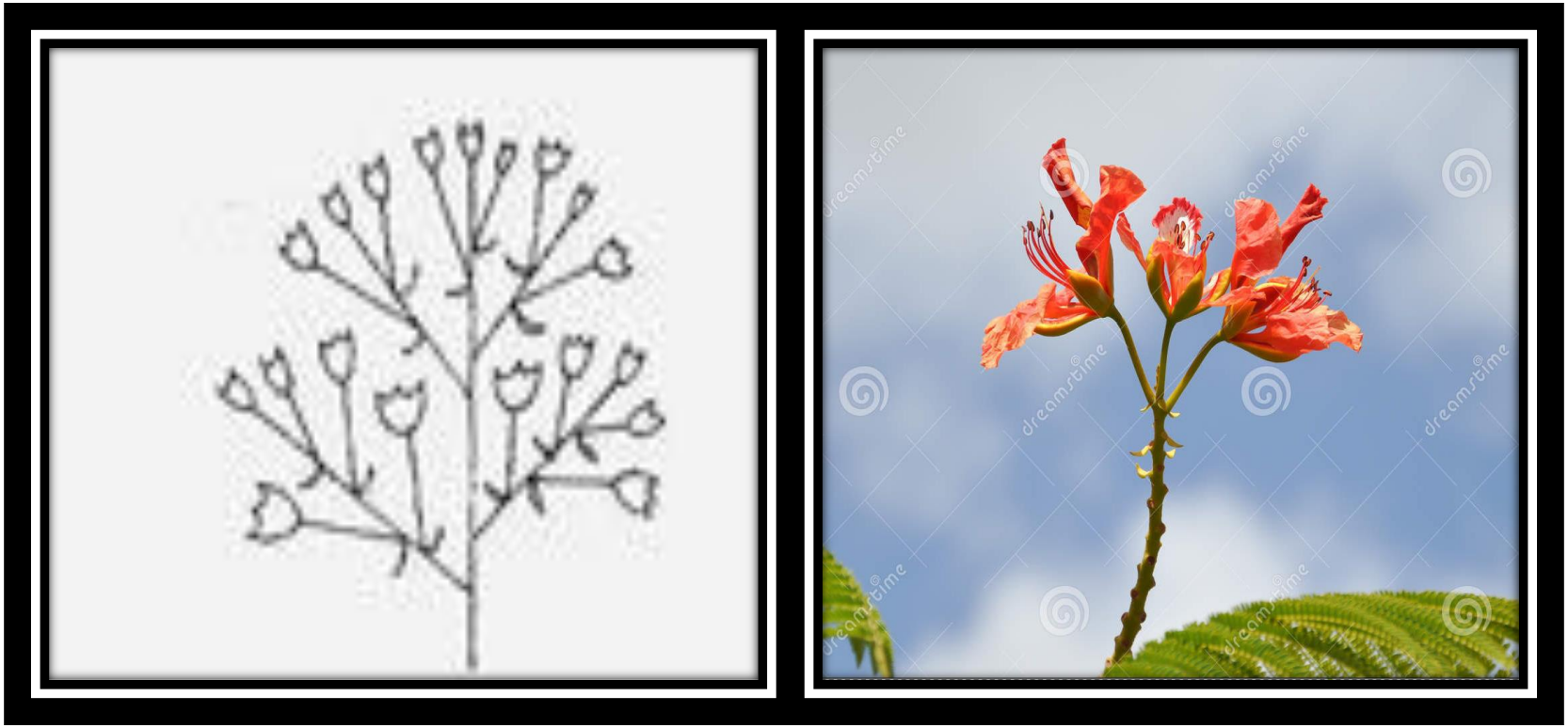


1. SIMPLE RACEME



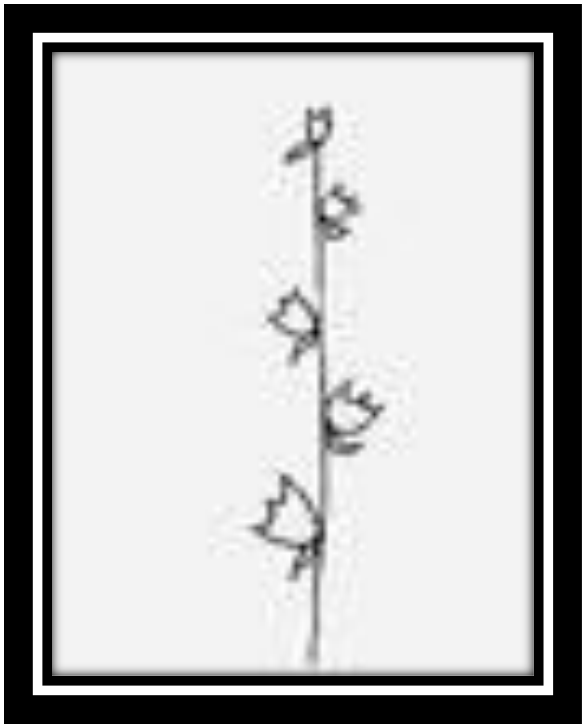
In it, the pedicellate flowers are arranged laterally on elongated peduncle in acropetal manner, e.g., *Caesalpinia pulcherrima*.

2. PANICLE



In it, the pedicellate flowers are arranged on the ultimate lateral branches of elongated branched peduncle in acropetal manner, e.g., *Peltophorum ferrugineum, Delonix regia* (Gulmohar).

3. SPIKE



In it, the sessile flowers are arranged laterally on elongated peduncle in acropetal manner, e.g., *Polianthes tuberosa.*

4. SPADIX

It is a special spike with thick fleshy peduncle covered by coloured large bract called **spathe.** Upper portion of the peduncle forms sterile appendix while the lower portion bears sessile unisexual flowers in which male flowers are towards the upper side and female flowers towards the lower side. Male and female flowers are separated by sterile hair or neuter flowers, e.g., *Anthurium.*

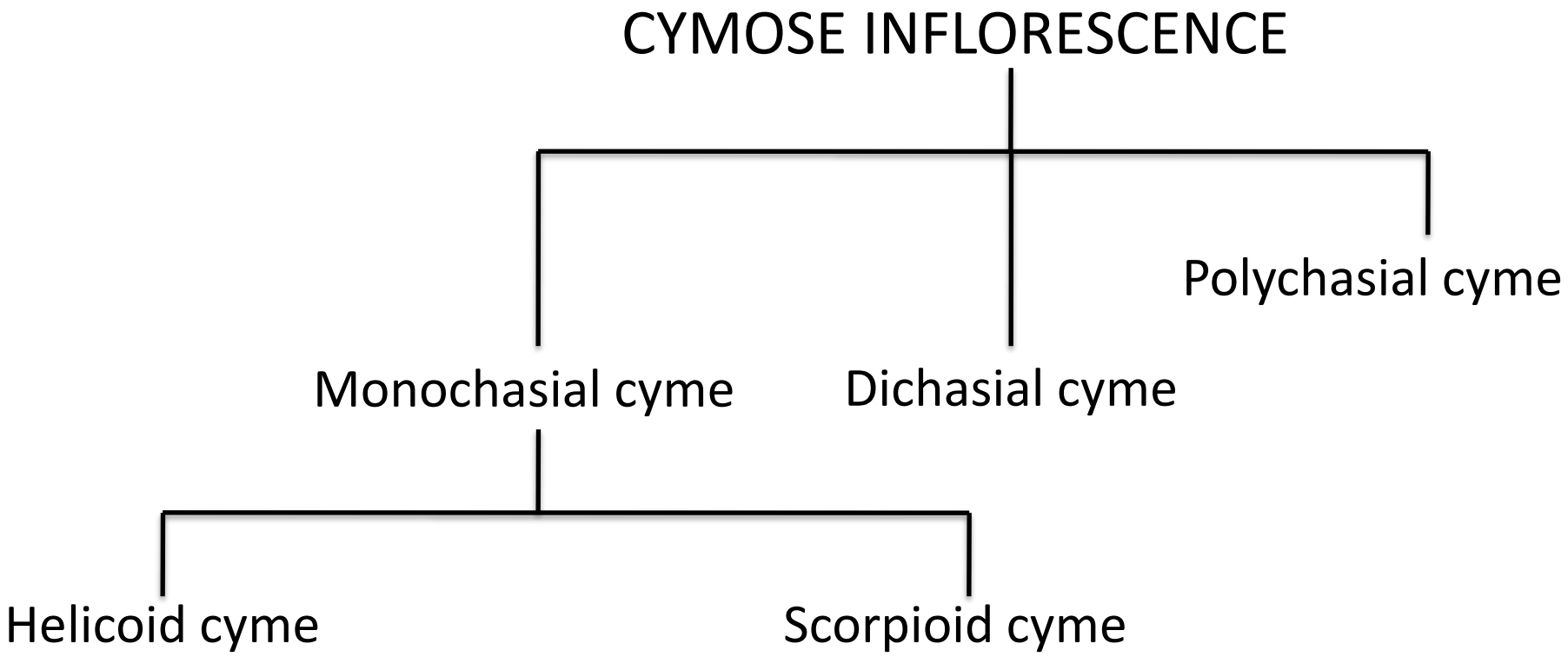
5. CATKIN

In it, the peduncle is thin and weak. The sessile flowers are arranged laterally on elongated peduncle in acropetal manner, e.g., *Acalypha.*

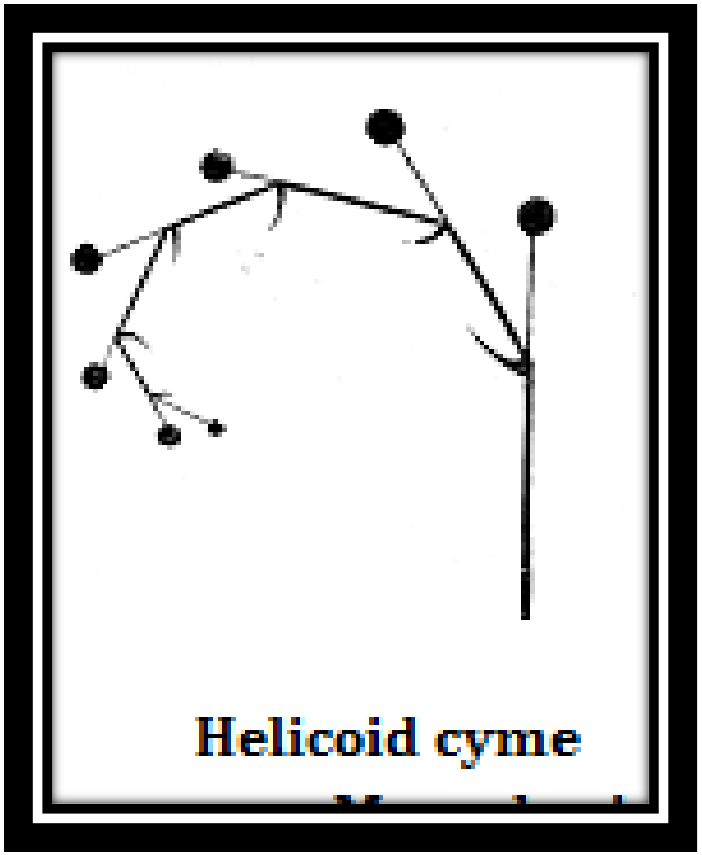
IDENTIFY THE TYPES OF RACEMOSE INFLORESCENCE

CYMOSE INFLORESCENCE

In it, the peduncle does not grow indefinitely and terminate into flower. The flowers are arranged in basipetal manner (older at apex and younger at base).

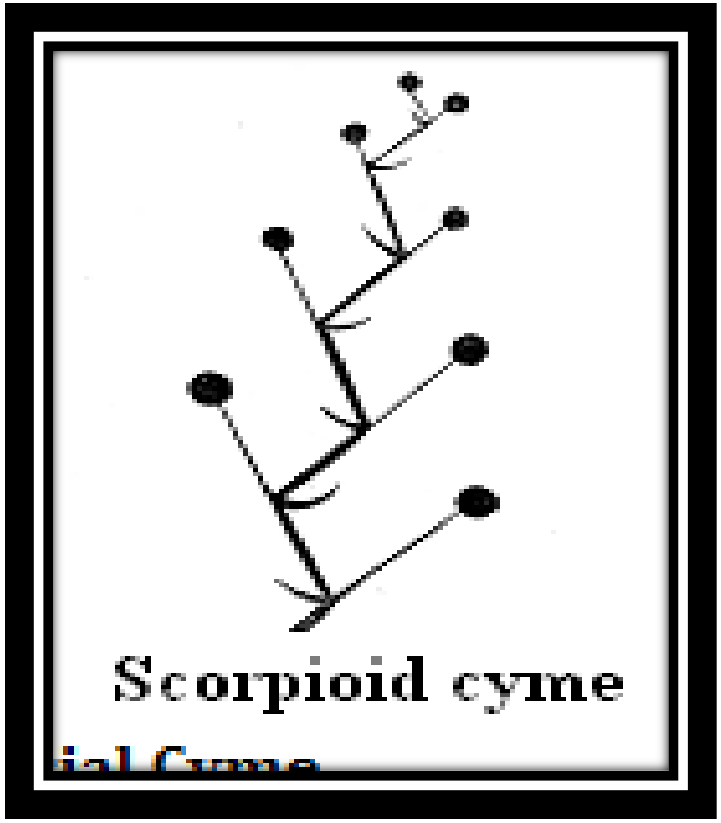


1. i. Helicoid cyme



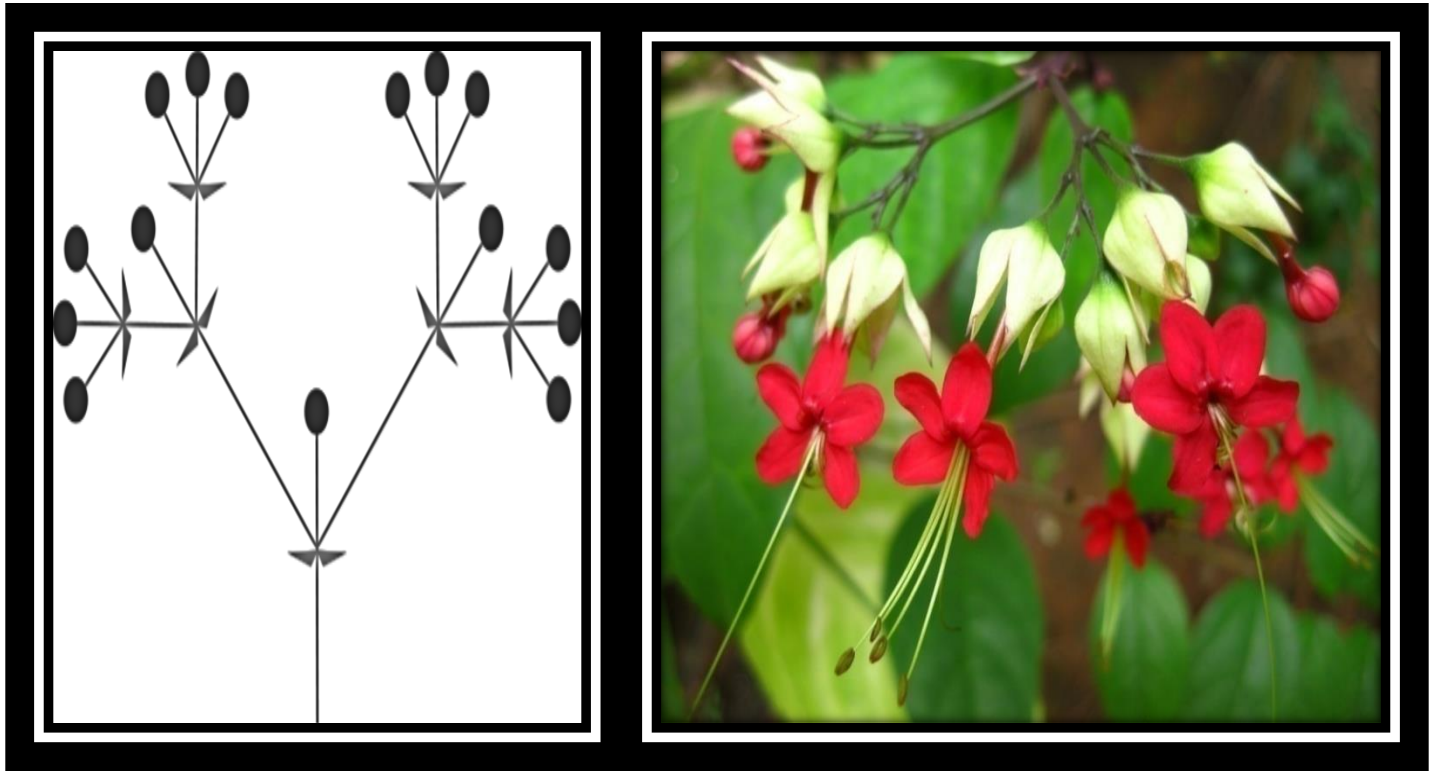
In it, successive lateral branches appear on only one side of the peduncle forming unilateral spiral / helical coil. Therefore, the peduncle bears flowers only on one side of the successive nodes, e.g. *Hamelia patens.*

2. ii. Scorpioid cyme



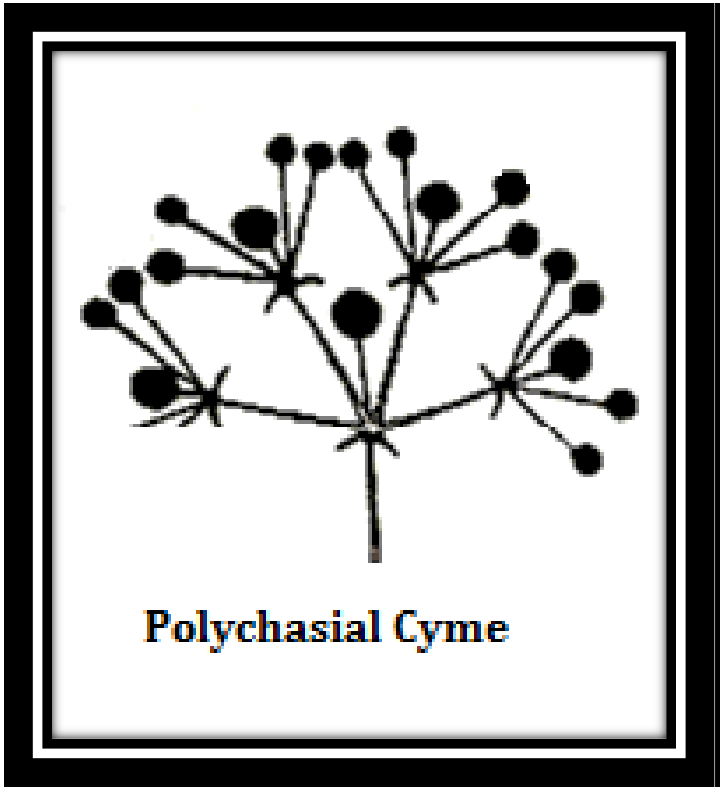
In it, successive lateral branches appear on alternate sides of the peduncle giving rise to zigzag pattern. Therefore, the peduncle bears flowers on the alternate sides of the successive lateral branches, e.g., *Heliotropium.*

2. Dichasial cyme



In it, the peduncle terminates into a flower. The further growth of peduncle is taken over by two lateral branches arising from the base of terminal flower. The lateral branches also terminate into flowers. The process is repeated several times. The axis is said to be multipodal, e.g., *Clerodendron.*

3. Polychasial cyme

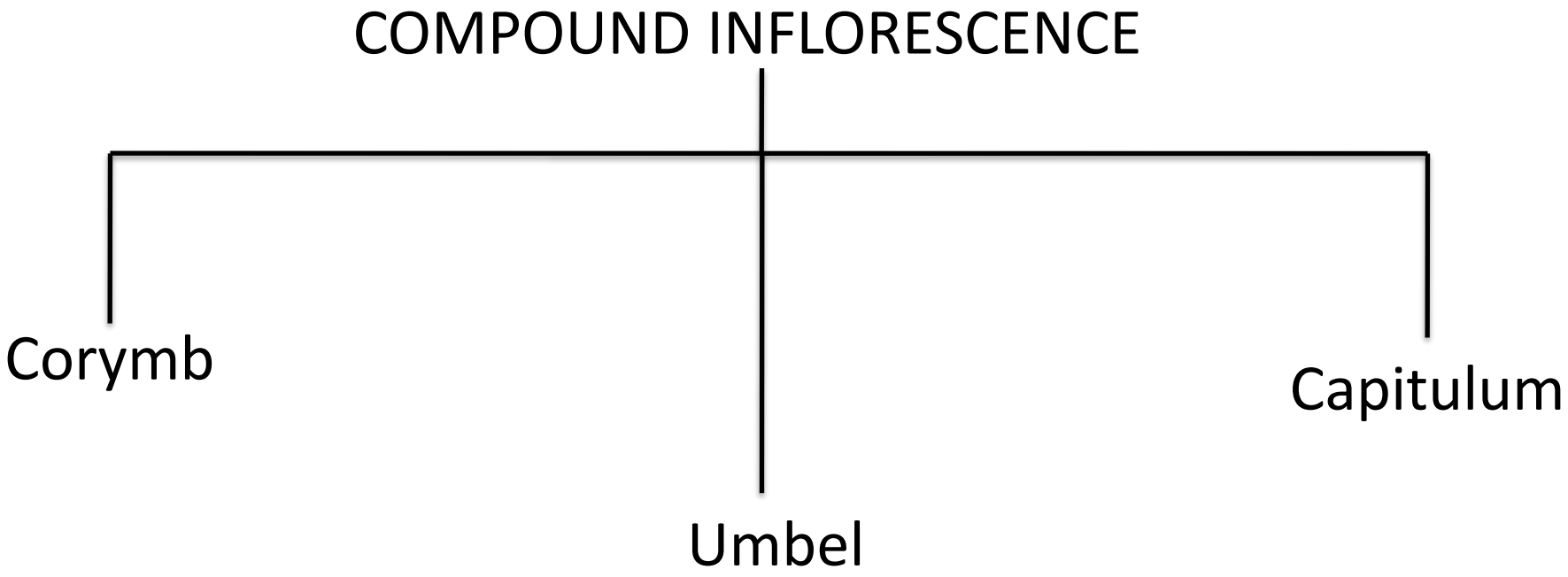


In it, the peduncle terminates into a flower. The further growth of peduncle is taken over by more than two lateral branches arising from the base of terminal flower. The lateral branches also terminate into flowers. The process is repeated several times. The axis is said to be multipodal,

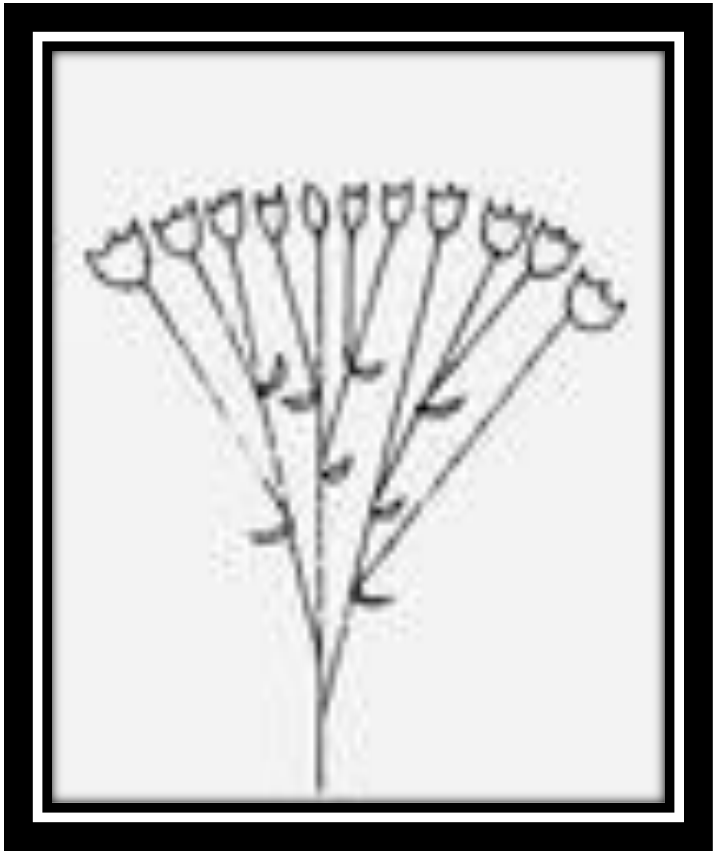
e.g., *Calotropis gigantia.*

IDENTIFY THE TYPES OF CYMOSE INFLORESCENCE

COMPOUND INFLORESCENCE

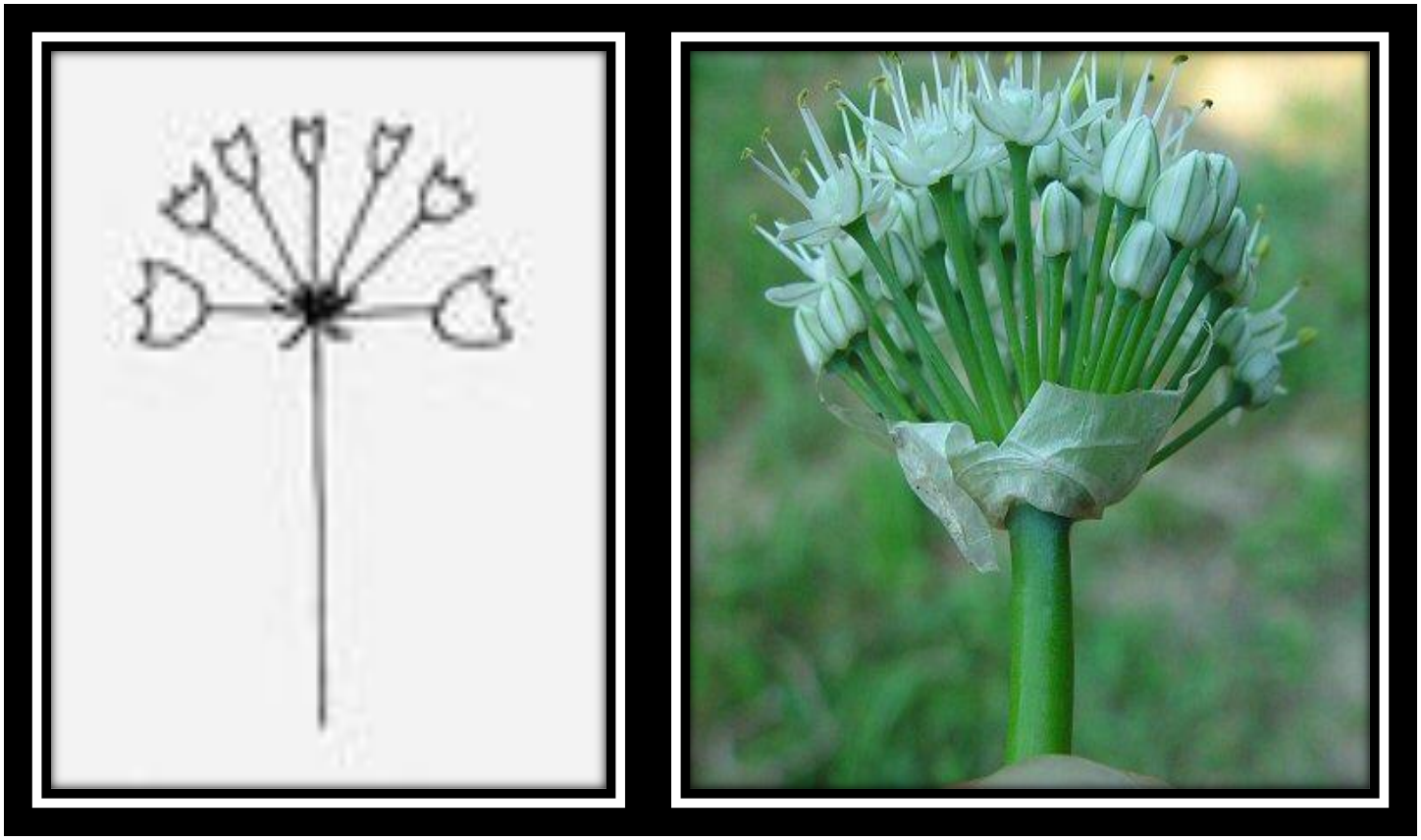


1. CORYMB



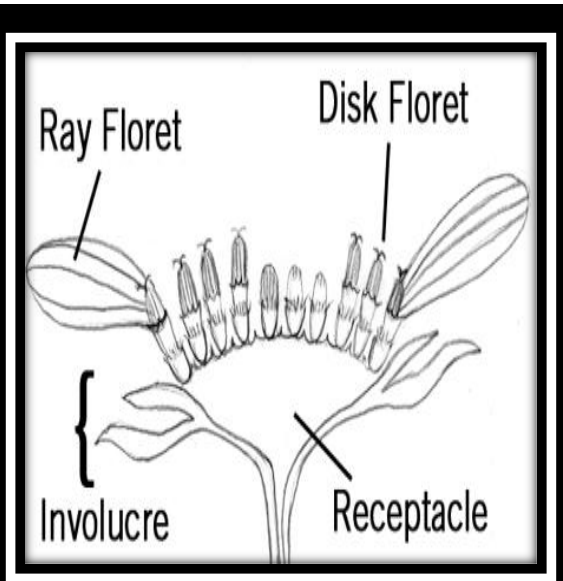
In it, the short, unbranched peduncle bears pedicellate flowers in acropetal succession. However, the lowers older flowers have long pedicel that that of the younger ones, therefore, it appears that all the flowers are arranged at the same level, e.g., *Cassia*, *Iberis* (Candytuft).

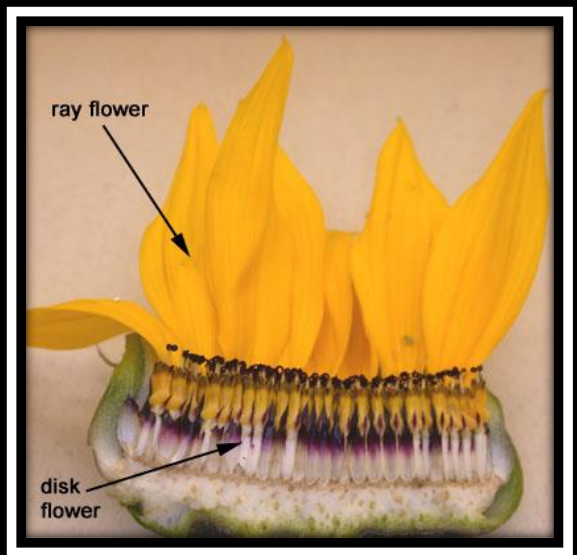
2. UMBEL



In it, the short, unbranched peduncle bears a cluster of pedicellate flowers of same height, arising from a common point in centripetal order, e.g., *Allium cepa.*

3. CAPITULUM / RACEMOSE HEAD





In it, the peduncle gets flattened to form a disc shaped receptacle that bears centripetally arranged sessile flowers known as florets. Florets can be of two types, viz., disc and ray florets. The inflorescence is surrounded by one or more whorls of bracts called involucre of bracts. Capitulum can be of two types viz., homogenous, having only one type of florets, e.g., *Tagetes, Chrysanthemum* or heterogenous having two types of florets viz., disc florets at the centre of the disc and ray florets at the periphery, e.g., *Helianthus annuus* (Sunflower), *Gerbera*.

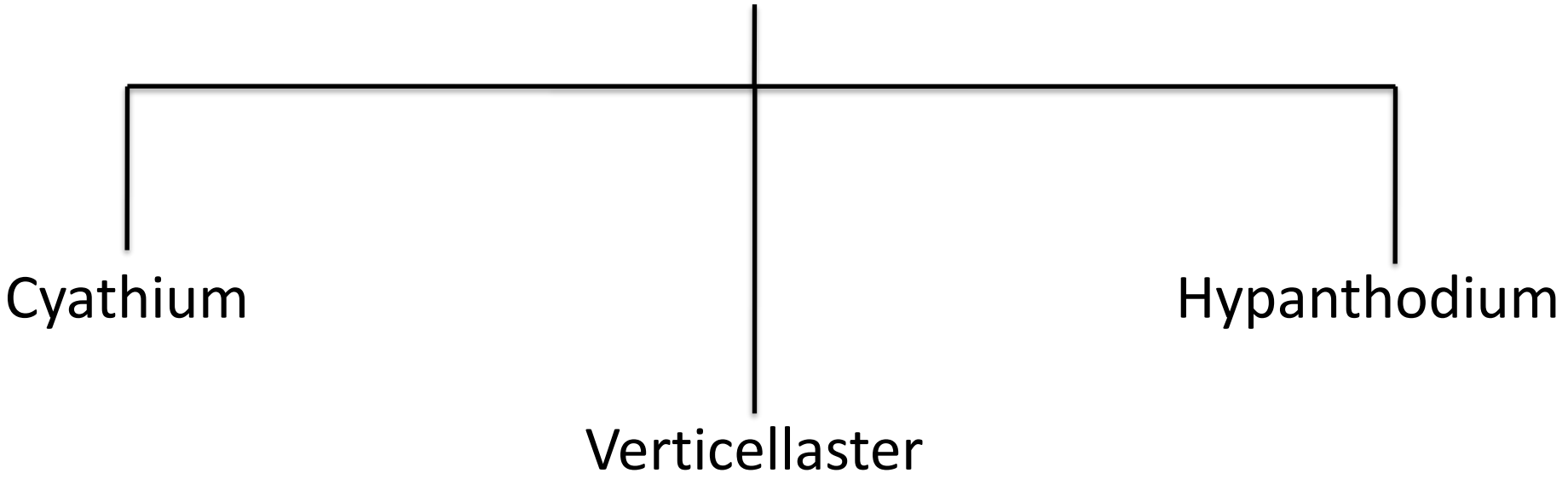
Other examples of capitulum..

Marigold

Gerbera

Chrysanthemum

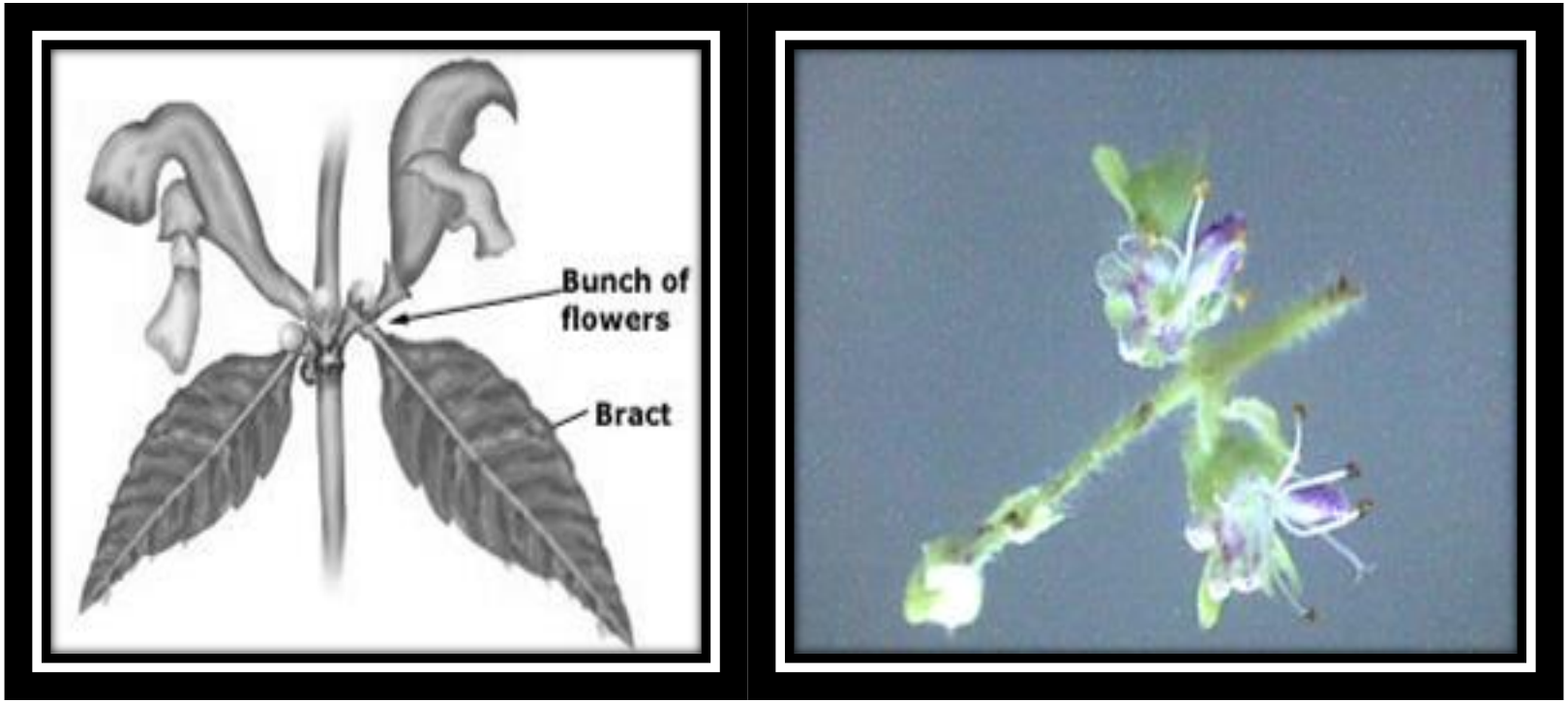
SPECIAL TYPES OF INFLORESCENCE



1. CYATHIUM

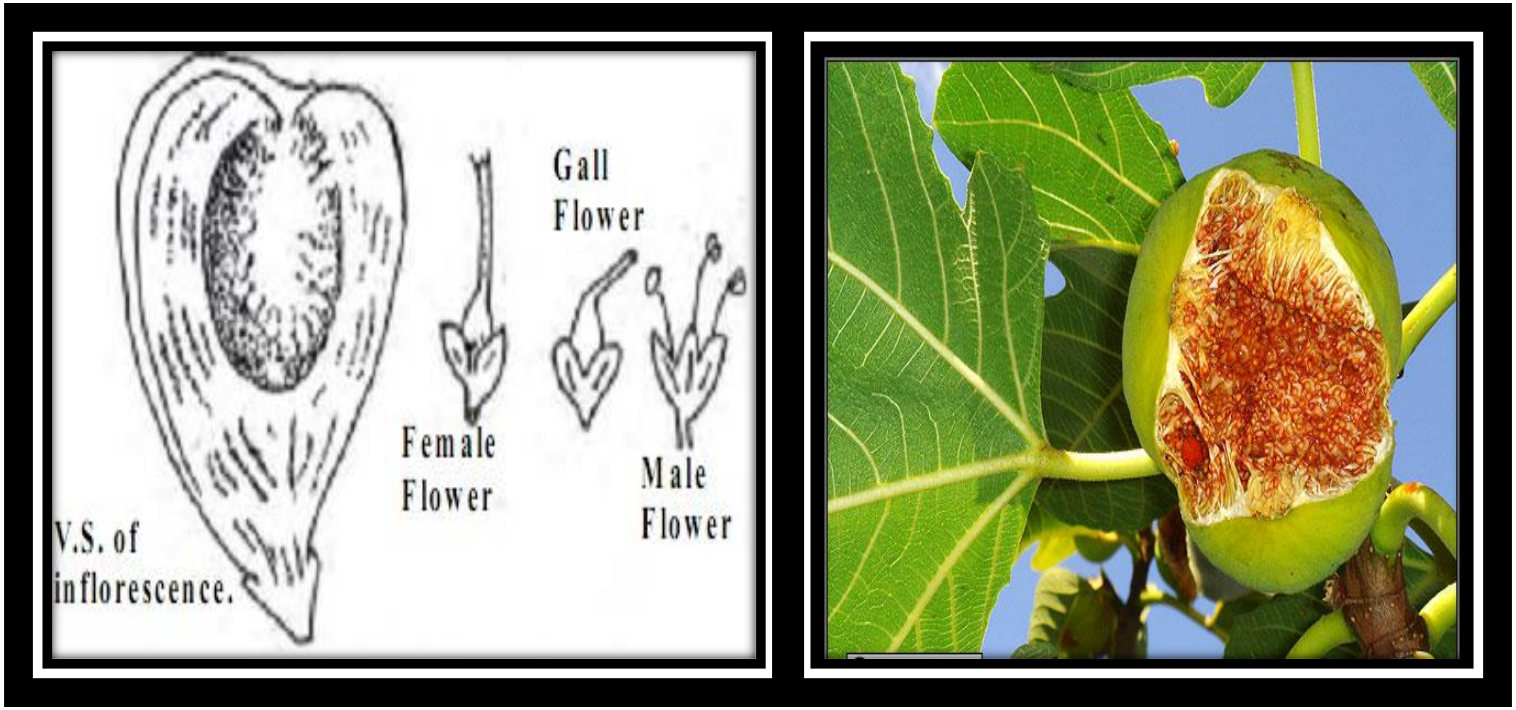
In it, a cup shaped involucre is formed which shows presence of extra-floral nectary on one side. Inside the cup, unisexual florets are present. Female flower is represented by single stalked tricarpellary gynoecium while male flower is represented by a single stalked stamen, e.g., *Euphorbia pulcherrima*.

2. VERTICELLASTER



One inflorescence develops in each of the two opposite axils of the two opposite leaves. Each inflorescence is a dichasial cyme which is reduced to scorpioid cyme. Thus, there are two scorpioid cymes. As the sessile flowers cluster together, flowers of both the inflorescences appear to form a false whorl (verticel) around the stem, e.g., *Ocimum sanctum.*

3. HYPANTHODIUM



In it, the receptacle forms a hollow pear shaped cavity having an apical opening guarded by scales. On the inner wall of this cavity, unisexual flowers are borne. Male flowers are present near the opening of the cavity while female flowers are present at the base of the cavity, e.g., Fig.

IDENTIFY THE TYPES OF INFLORESCENCE

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