INFLORESCENCE

The mode of development and arrangement of flowers on peduncle is called **Inflorescence**

The modified stem that bears flowers is called **Peduncle**

Presence of flowers is a characteristic feature of many angiosperms

Based on origin infloresences are of 3 types

1. **Terminal inflorescence:** Inflorescence developed from apices **found in Crotalaria and Croton**
2. **Axillary** Inflorescence: Inflorescence formed from axils **found in Dolichos.**
3. **Intercalary Inflorescence:** The inflorescence which is formed in between nodes found in Callistemon

Intercalary inflorescence is formed due to growth of the stem even after formation of inflorescence

The inflorescence on older stems is called **–Cauliflory** found in **Polyalthia** and **Theobroma**

Inflorescences are 3 types based on growth and development of peduncle

a) Racemose b) Cymose c) Special type

Racemose Inflorescence:

Racemose inflorescence shows **indefinite growth of axis and on elongated axis flowers are arranged acropetally or centripetally**

If the axis is condensed, the flowers are arranged in centripetal manner.

The axis or peduncle is unbranched forms simple and branched forms compound inflorescences

If the flowers are attached to the peduncle with their stalks they are called Pedicillate flowers

Flowers with out pedicil are called sessile

Based on the presence or absence of pedicil racemose inflorescences are of two types

A) Racemose with pedicillate flowers

B) Racemose with sessile flowers

A) Racemose inflorescence with pedicillate flowers:

Simple peduncle with acropetal arrangement of pedicillate, bracteate flowers as in Crotalaria is called **Simple Raceme**

The branched peduncle with each branch a simple raceme as in Mangifera and Yucca is **Panicle (or) Compound Raceme**

Younger flowers with shorter pedicles and older flowers with longer pedicles all brought to the same horizontal level as in Cassia and Gynandropsis is called**Simple corymb**

The branched pendicle with each branch a simple corymb as in cauliflower& Pyrus malus is called **Compound corymb**

The penducle is fleshy, branched and edible in **Cauliflower (or) Brassica oleracea vaf. botrytis**

The peduncle in umbel is condensed and unbranched(doesn't grow indefinitely) but it can be identified as racemose type by **Centripetal arrangements of flowers.**

whorl of bracts in umbel is called The **Involucre**

Example for simple umbel is**-Allium cepa**

The branched peduncle bears involucre near branches and each branch a simple umbel with involucel of bracts is **Compound umbel** as found in **- Coriandrum & Daucus carota**

The bracts on the peduncle and branches of compound umbel respectively called **Involucre and involucel**

The difference between simple raceme of Crotalaria and simple spike of Achyranthes is **Pedicellate flowers.**

B) Racemose with sessile flowers:

Simple spike is found in - Amaranthus & Achyranthes

Peduncle is unbranched and produces bracteate sessile flowers acropetally

Compound spike inflorescence is a common feature of family **Poaceae (Graminae)**

The branches of compound spike are called **Spikelets**

The axis of spike let is called**-Rachilla**

The sterile bracts are called**-Glumes**

The fertile bracts of compound spike are called**- Lemma**

The reduced bracteoles of spikelets are **Palea**

The reduced perianth lobes of spikelets are**-Lodicules**

Compound spike inflorescence is found in **Triticum, Oryza**

Weak, drooping peduncle with sessile, and unisexual flowers is called **Catkin (or) Amentum**

Examples of catkin bearing plants **Acalypha and Casuarina of Amentiferae**

Fleshy unbranched peduncle that bears unisexual flowers protected by spathe an enlarged bract is **Spadix of Colocasia**

Spadix is common in members of **Aroideae**

The branched peduncle that bears spadix on each branch is called **Compound spadix**

Woody boat like bract protects the branched peduncle is seen in **Compound spadix of Cocos**

Each branch of the compound spadix is protected by a leathery coloured bract in **Musa**

Highly evolved inflorescence of racemose types is **-Head/Capitulum/Anthodium**

Head is the common inflorescence of **Asteraceae**

Head can be identified as racemose type by **Centripetal arrangement / opening of florets**

The actinomorphic and bisexual florets of head are called **- Disc florets**

The zygomorphic and unisexual florets of head are called - **Ray florets**

A head with only disc or ray florets is called **Homogamous head**

Head inflorescence with only ray florets is **Homogamous head of Tagetus**

Head of only disc florets is **Homogamous head of Vernonia.**

In a heterogamous head ray florets are 1) **Older, Zygomorphic & Arranged near the periphery of the condensed receptacle or peduncle**

Inflorescence with branched axis and each branch is a head is called compound head

A head of heads or compound head is found in **- Echinops and Sphaeranthus**

CYMOSE INFLORESCENCE

The peduncle always terminates due to the development of a flower at its apex in **Cymose inflorescence**

Single flowered lateral branches are seen in **Cymose. In cymose flowers are arranged either basipetal or centrifugal arrangement**

In Cymose inflorescences if the older flowers are at the center and younger flowers at the periphery then is called **Centrifugal arrangement**

In Cymose inflorescences if the older flowers are at the top and younger flowers at the bottom then is called **Basipetal arrangement**

Solitary cymes :One flowered inflorescences are called **Solitary cymes Hibiscus (axillary) and Datura (terminal)**

The proof that solitary cyme in Hibisus an inflorescence is - **Articulation on the stalk**

Simple cyme or cymule: In **Cymule** the peduncle ends in a flower and only **2** lateral branches are produced which are also ends in flowers. Thus 3 flowered inflorescence is formed. Flowers are arranged in basipetal manner.

Eg: Jasminum and Bougainvillea

Monochasial cyme: Cymose inflorescence in which the inflorescence axis terminates in to a flower and produces only one branch from its basal bract which in turn also ends in a flower is called monochasial Cyme

This axis is called sympodial axis. Though it looks like racemose flowers are arranged opposite to bracts not in axils.

Monochasial Cyme is of Two types

Helicoid Cyme: successive lateral branches develop only on one side eg: Hamelia

Scorpiod Cyme: lateral branches develop successively on eitherside in zig zag manner eg: Heliotropium and Solanum

Dichasial cyme: the inflorescence in which **t**he peduncle ends in a flower and **2** lateral branches are produced arid each branch in turn ends into a flower. Eg: **Ipomoea and Clerodendron**

The monochasial helicoid cyme of Hamelia can be identified by

1)1 Lateral branch each time

2) **Each lateral branch is on the same side**

3) **Spiral appearance of inflorescence**

The monochasial cymes are racemose like because the number of lateral branches each time is one but the total number of branches in the inflorescence is not definite.

Zigzag arrangement in monochasial scorpioid cymes of Solanum and Heliotropium are due to **- Alternate side arrangement of single lateral branches.**

Polychasial cyme: The peduncle ends in a flower and many lateral branches and each lateral branch produces many lateral branches. Eg: **Nerium**

SPECIAL TYPES OF INFLORESCENCES

Special inflorescences are due to **Modification and variation in opening of flowers**

Verticillaster made up of **2 Semi circles formed at opposite nodes.**

Each semi-circle at each node in Verticillaster of Leucas and Leonotis are made up of **Dichasial cyme with branches bearing scorpioid cymes.**

Flowers are sessile or subsessile. Verticillaster means **-False whorl**

The leaves in verticillaster sometimes appear as bracts due to - **Coming nearer of whorls** Verticillaster inflorescence is found in **Lamiaceae (Labiatae)**

Sessile or semi-sessile flowers are produced i n **Verticillaster inflorescence**

Cyathium: Single flower like inflorescence of Euphorbiaceae is called **Cyathium**

The flower like structure of cyathium of Euphorbia and Poinsettia are made up of **Involucre of bracts**

Extra floral nectaries are found in **Poinsettia and Euphorbia**

A single female flowered inflorescence is **Cyathium**

Each stamen in a cyathium is **male flower,** The single female flower of cyathium has **3 carpels (tricarpillary)** syncarpous pistil

Achlamydous flowers with single floraf leaf are **- Stamens (male flowers of) cyathium**

The arrangement and opening of male flowers in cyathium is **Around single female in scorpioid cyme and open in centrifugal manner**

male and Female flowers are achlamydeous (without Perianth) in **- Cyathium '**

Hypanthodium: Fruit like inflorescence is - **Hypanthodium**

Example for Hypanthodium **-Ficus** The fruit like structure of Ficus is made up of **Fleshy condensed peduncle**

Type of flowers in Ficus **- 3 Kinds**

Arrangement of 3 kinds of flowers in Ficus Male flowers near opening, sterile female gall flowers in the middle and female flowers at the base of the fruit like inflorescence**.**

The opening of flowers in Hypanthodium contains no **definite order**