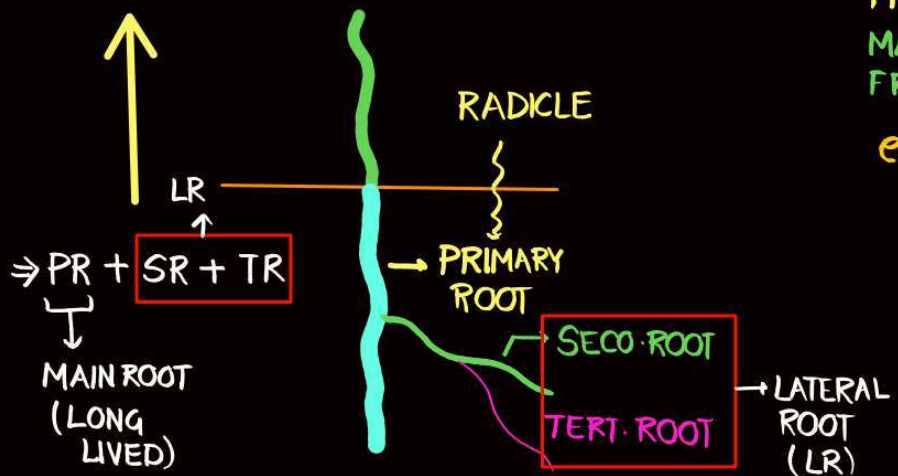
Perianth

6 Tepal

SOLITARY FLOWER (inflorescence)

ROOT

TAP ROOT



most of DICOT (MUSTARD).

FIBROUS ROOT

PRIMAR ROOT : SHORT LIVED.

MANY FINE ROOT ARISE FROM BASE OF STEM.

eg: wheat (monocot)

ADVENTITIOUS ROOT

ARISE FROM ANYWHERE EXCEPT RADICLE

eg: GRASS (M)
MONSTERA (M)
BANYAN (D) TREE
→ ARISE (NODE)

ROOT CHANGE : STRUCTURE, SHAPE. PERFORM OTHER FUNⁿ.

⇒ SUPPORT

eg: PROP ROOT (advent.)
vertical Harging ROOT. structure arise from node of Branch, provide support to main stem/TRUNK.

eg: Banyan

eg: STILT ROOT
Arise from lower Node of stem & enter into soil.

eg: sugarcane maize.

⇒ STORAGE ROOT

⇒ RESPIRATORY ROOT — RHIZOPHORA.
NEGATIVELY GEOTROPHIC, COMES UPWARD, TO GET O_2 FROM ATMOSPHERE (Pneumatophore)

Function of Root

- Absorption of water and mineral from soil (main)
- Anchorage to plant parts. (STORAGE ROOT) TAP ROOT
- Stored food material
  - CARROT, TURNIP : FOOD STORED
  - SWEET POTATO : ADVEN. ROOT.
- Synthesis of plant growth regulators. (AUXIN ETC).

ADVENTITIOUS ROOT

Monocot

Monocot

Dicot

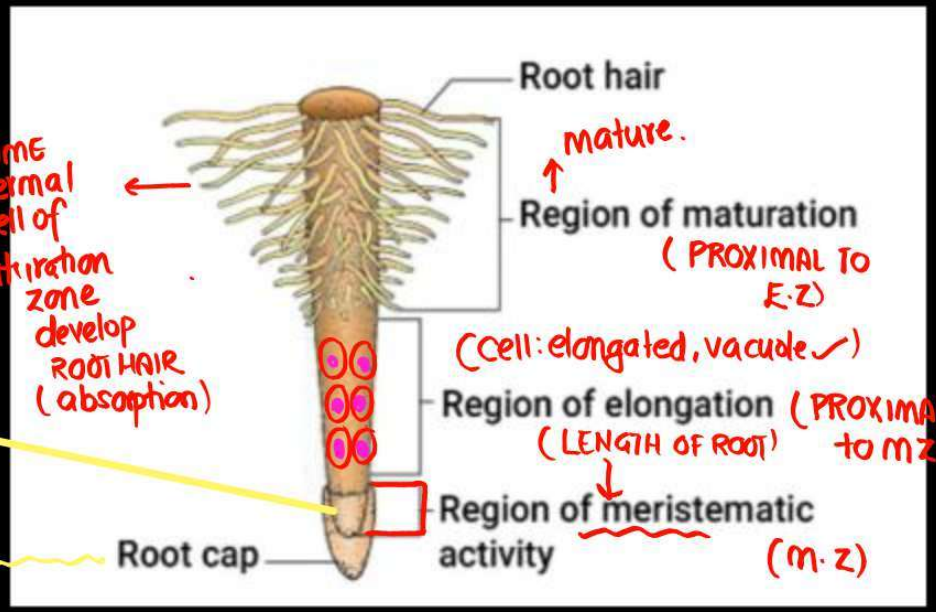
Origin _____

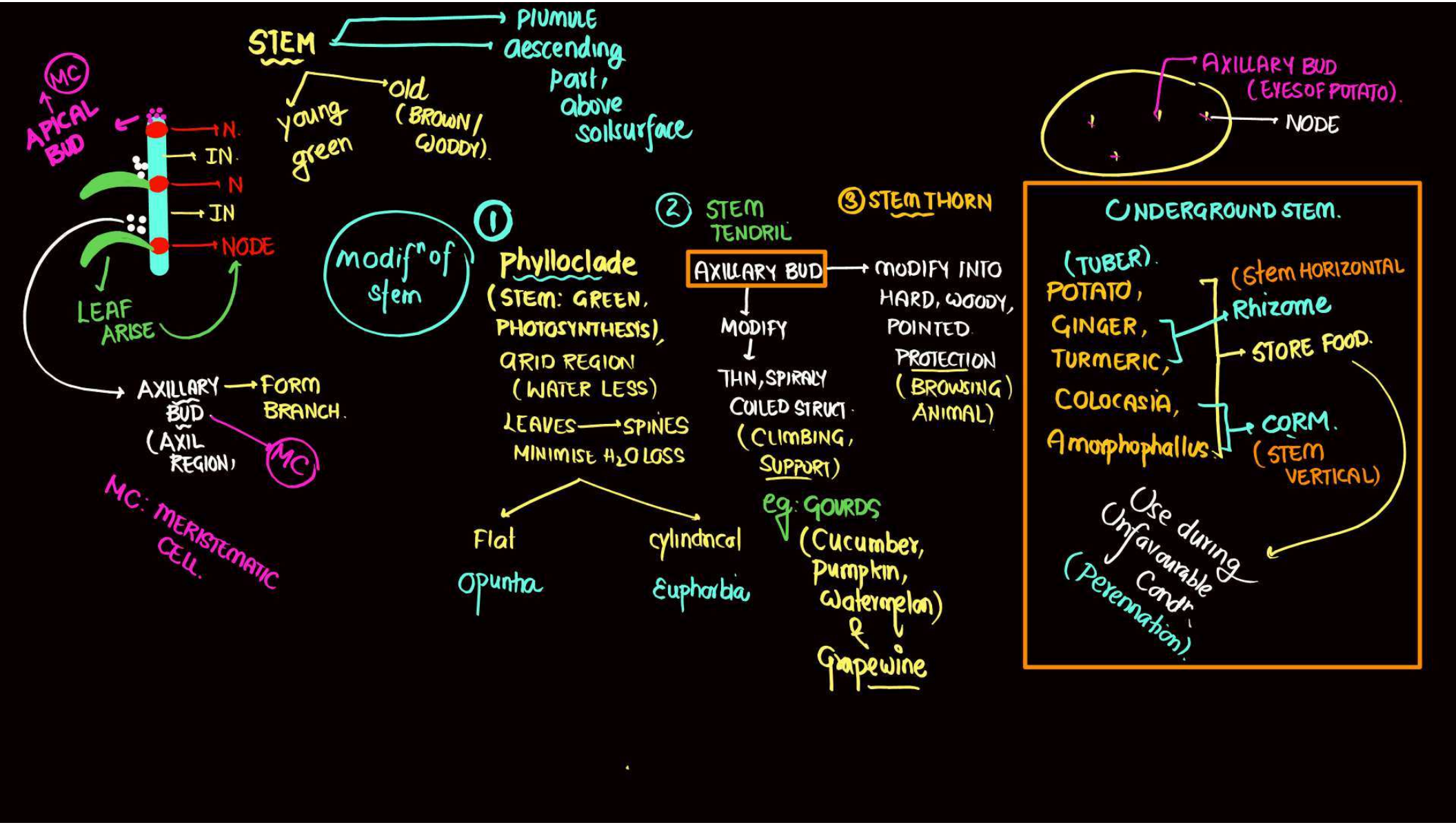
Region of Root

⇒ Cells

- actively divide
- small (vacuole x)
- THIN WALL
- dense protoplasm

⇒ Thimble like protect soft ROOT TIP / APEX.
CREATE EASY PASSAGE FOR ROOT INTO SOIL

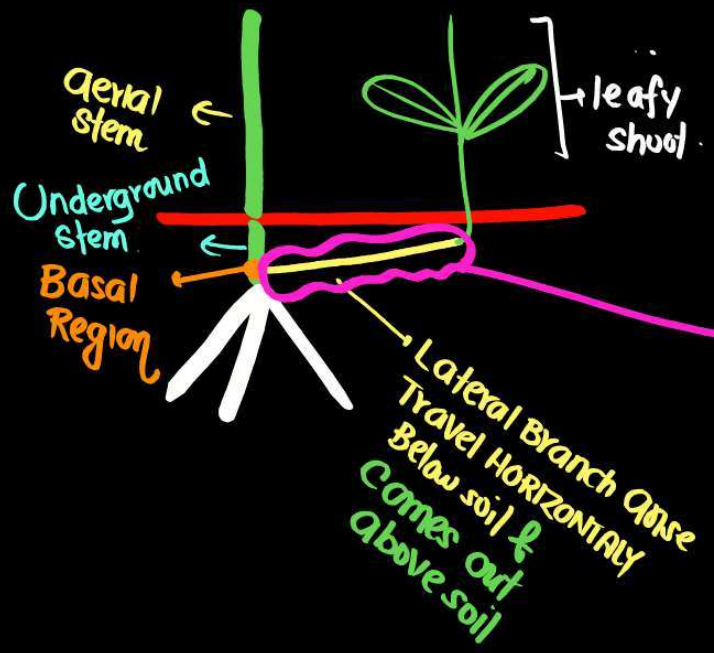



STEM
PLUMULE
ascending part, above soil surface
young green
old (BROWN / WOODY).
MC
APICAL BUD
N.
IN.
N
IN
NODE
LEAF ARISE
AXILLARY BUD
FORM BRANCH.
(AXIL REGION)
MC
MC: MERISTEMATIC CELL.
modif^n of stem
1
Phylloclade
(STEM: GREEN, PHOTOSYNTHESIS),
ARID REGION (WATER LESS)
LEAVES → SPINES
MINIMISE H2O LOSS
Flat
Opuntia
cylindrical
Euphorbia
2 STEM TENDRIL
AXILLARY BUD
MODIFY
THN, SPIRALY COILED STRUCT.
(CLIMBING, SUPPORT)
eg: GOURDS (Cucumber, Pumpkin, Watermelon) & Grapewine
3 STEM THORN
MODIFY INTO HARD, WOODY, POINTED
PROTECTION (BROWSING ANIMAL)
AXILLARY BUD (EYES OF POTATO).
NODE
UNDERGROUND STEM.
(TUBER).
POTATO,
GINGER,
TURMERIC,
COLOCASIA,
Amorphophallus
(Stem HORIZONTAL
Rhizome
STORE FOOD.
CORM.
(STEM VERTICAL)
Use during Unfavourable Condn (Perennation)

Vegetative Propagation/ Repn

Sucker

eg: Chrysanthemum
: Pineapple
Banana.



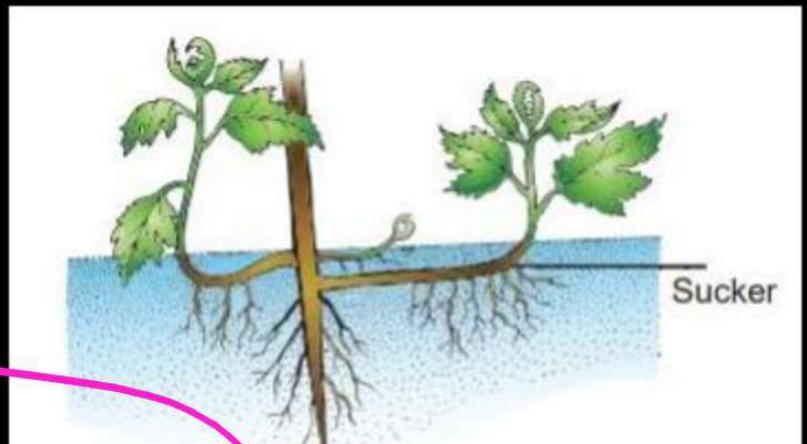
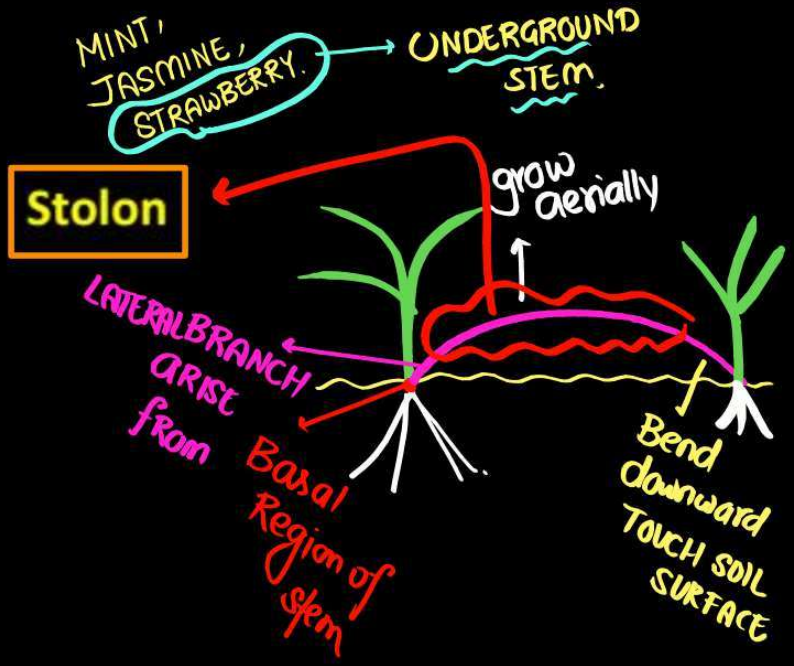
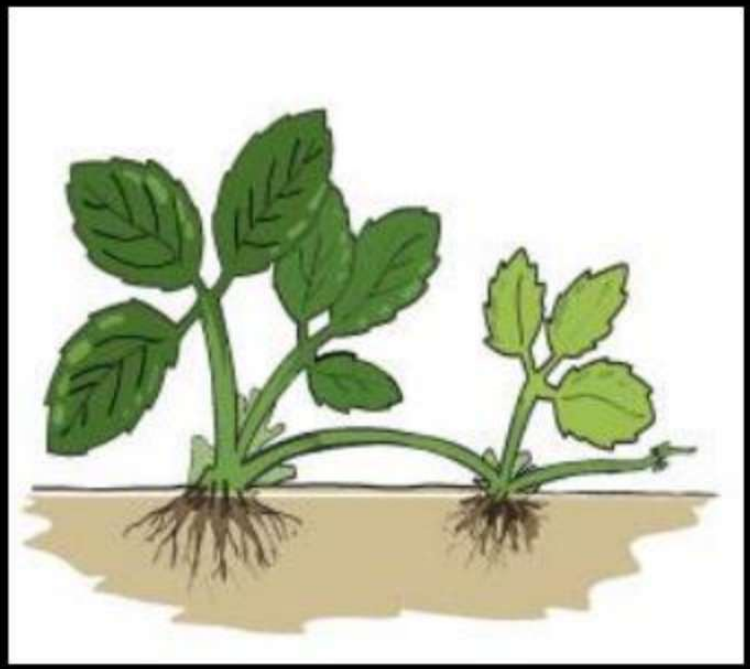
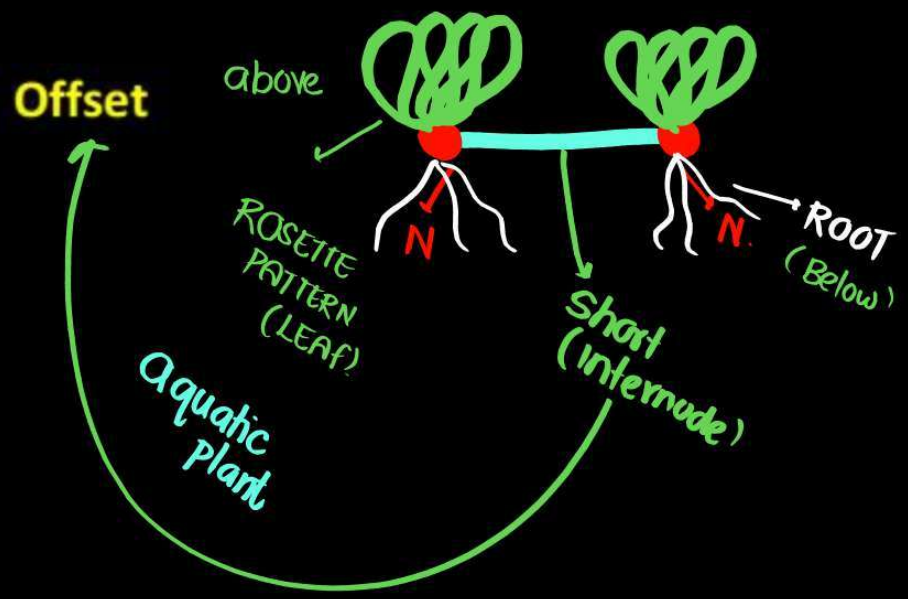


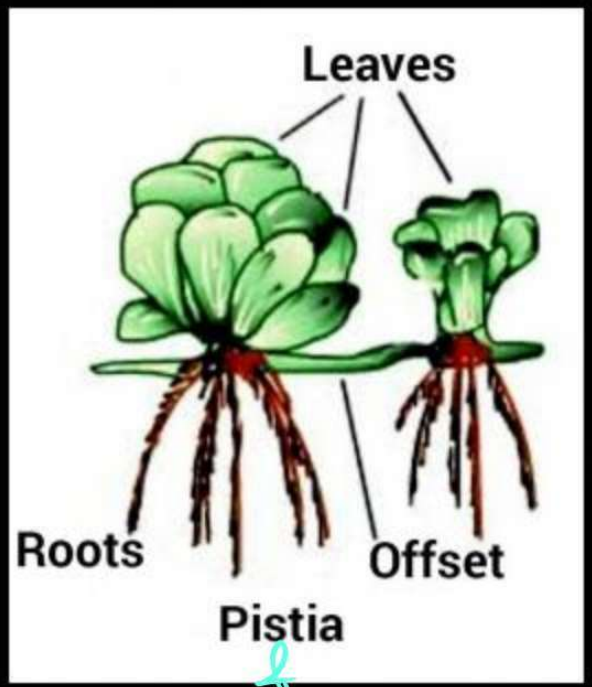
Figure 4b: Sucker - *Chrysanthemum*


MINT, JASMINE, STRAWBERRY.
UNDERGROUND STEM.
Stolon
grow aerially
LATERAL BRANCH arise from Basal Region of stem
Bend downward TOUCH SOIL SURFACE



niche

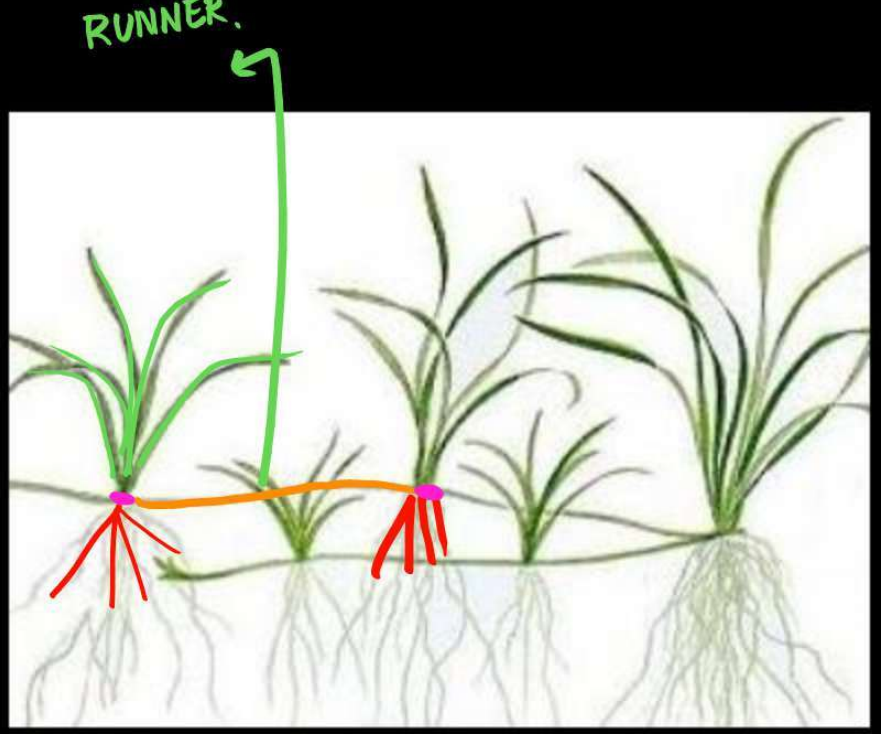


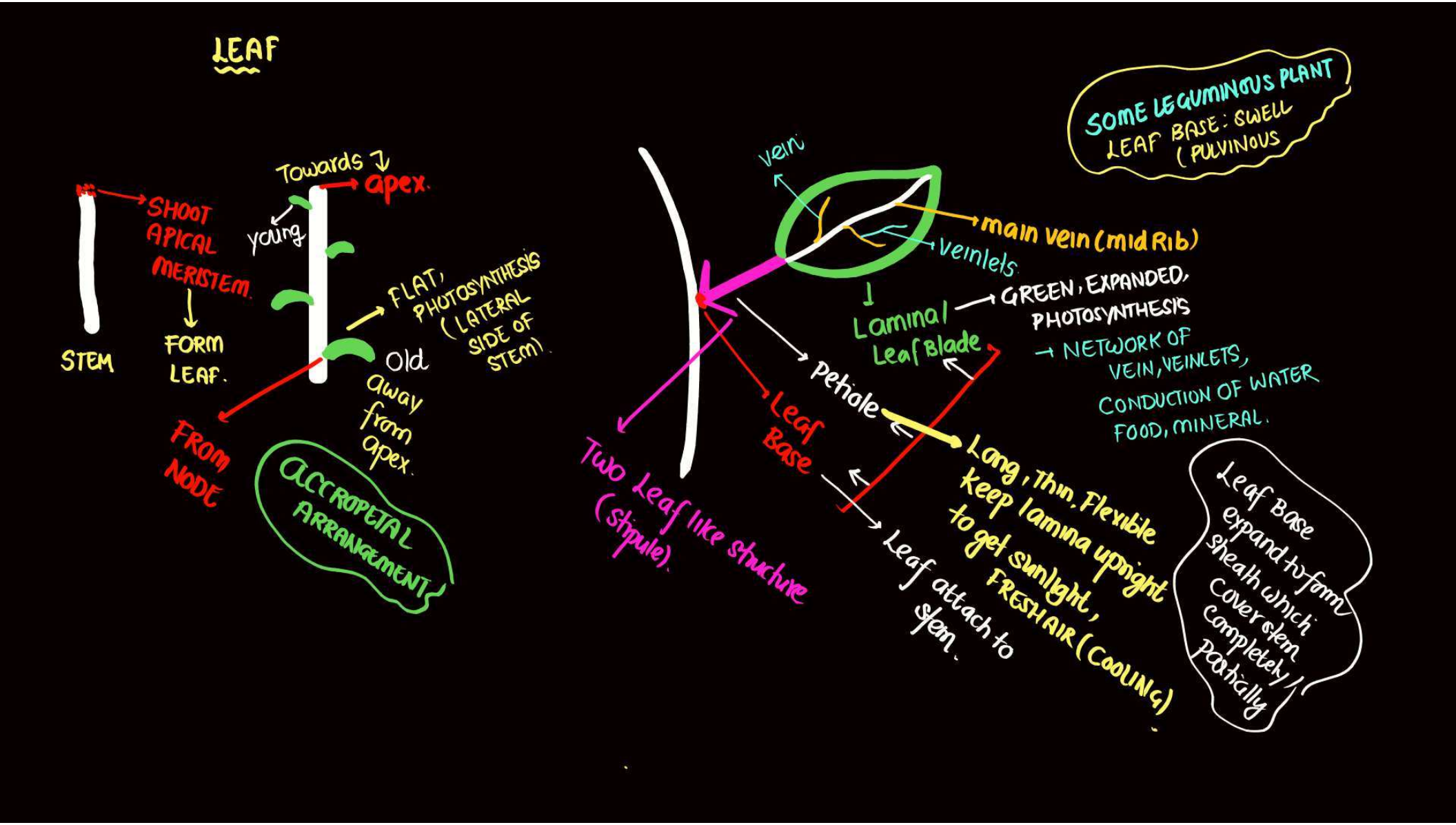


Eichhornia

Runner : LONG INTERNODES

GRASS, OXALIS




LEAF
SHOOT APICAL MERISTEM
STEM
FORM LEAF.
Towards ↓ apex.
young
FLAT, PHOTOSYNTHESIS (LATERAL SIDE OF STEM)
Old away from apex.
FROM NODE
ACROPETAL ARRANGEMENT
SOME LEGUMINOUS PLANT LEAF BASE: SWELL (PULVINOUS
vein
main vein (mid Rib)
veinlets
Lamina / Leaf Blade
GREEN, EXPANDED, PHOTOSYNTHESIS
→ NETWORK OF VEIN, VEINLETS, CONDUCTION OF WATER FOOD, MINERAL.
petiole
Leaf Base
Two Leaf like structure (stipule).
Long, Thin, Flexible keep lamina upright to get sunlight, FRESH AIR (COOLING)
Leaf attach to stem.
Leaf Base expand to form sheath which cover stem completely / partially

Venation

⇒ Arrangement of vein, veinlets in lamina/leaf.

Reticulate

⇒ Vein, veinlets form NETWORK

most of dicot.

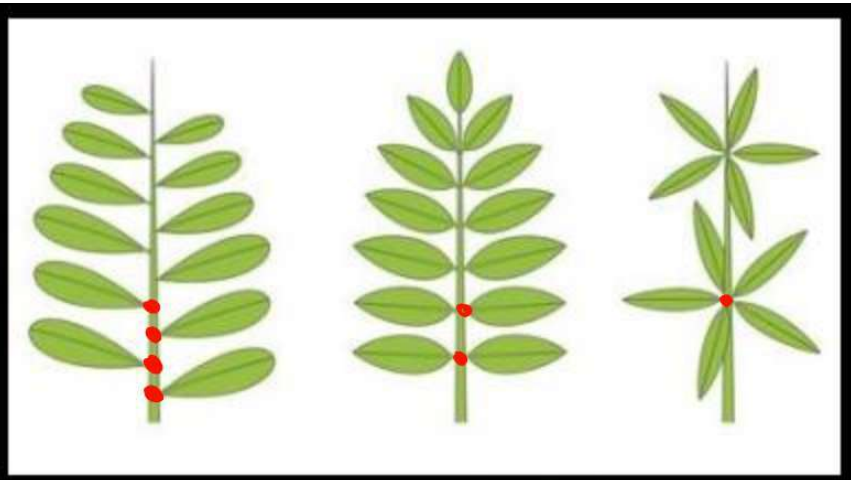
Parallel

Veins parallel to each other

most of monocot.

Phyllotaxy

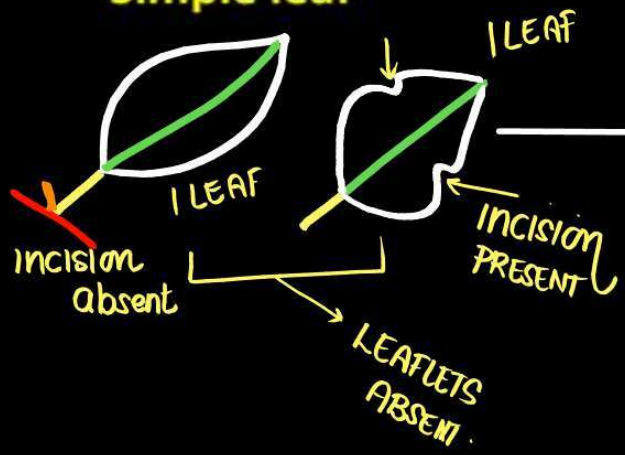
Definition arrangement of leaf on plant.



Alternate	Opposite	Whorled
At one node one leaf. alternate order.	Two leaf at one node	group — Whorled; more than Two leaf
Example : Sunflower	Example : Guava	Example : Alstonia.
Mustard	Calotropis	
China Rose		

Types of Leaf

Simple leaf

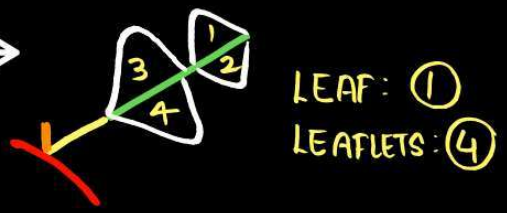


Leaf is entire

Generally incision absent

If incision present, it doesn't touch the mid RIB

Compound leaf



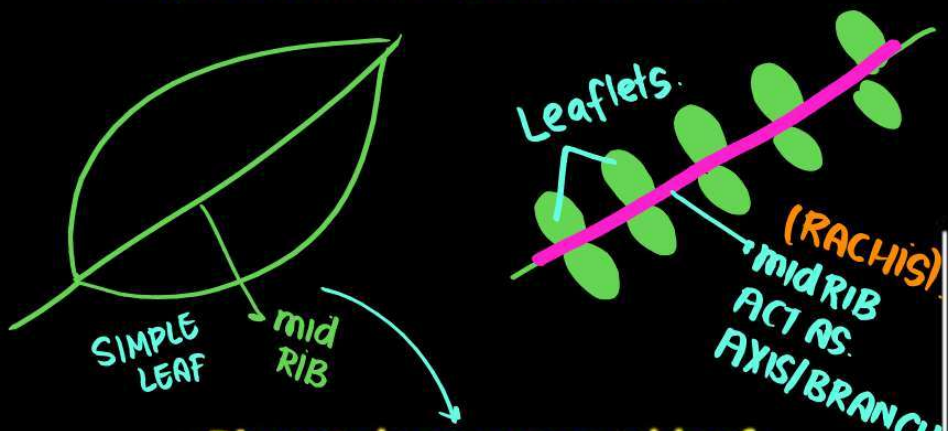
LEAF : (1)
LEAFLETS : (4)

AXILLARY BUD : PETIOLE OF LEAF

Incision ✓ & it touches mid RIB.

So leaf divided into 4 leaflets

Types of compound leaf

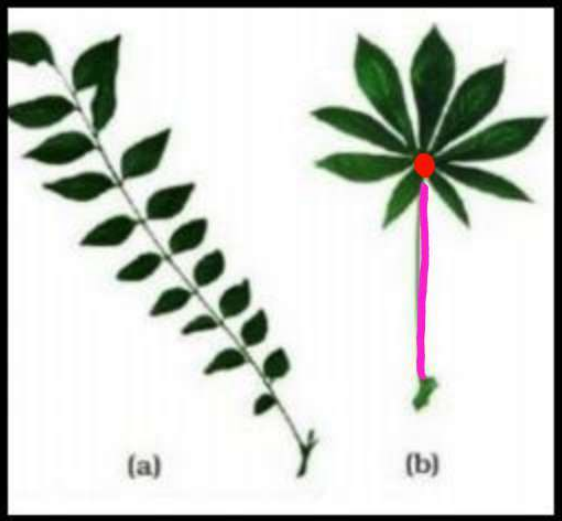


Pinnately compound leaf

No. of leaf lets present on Rachis

which represent the mid RIB

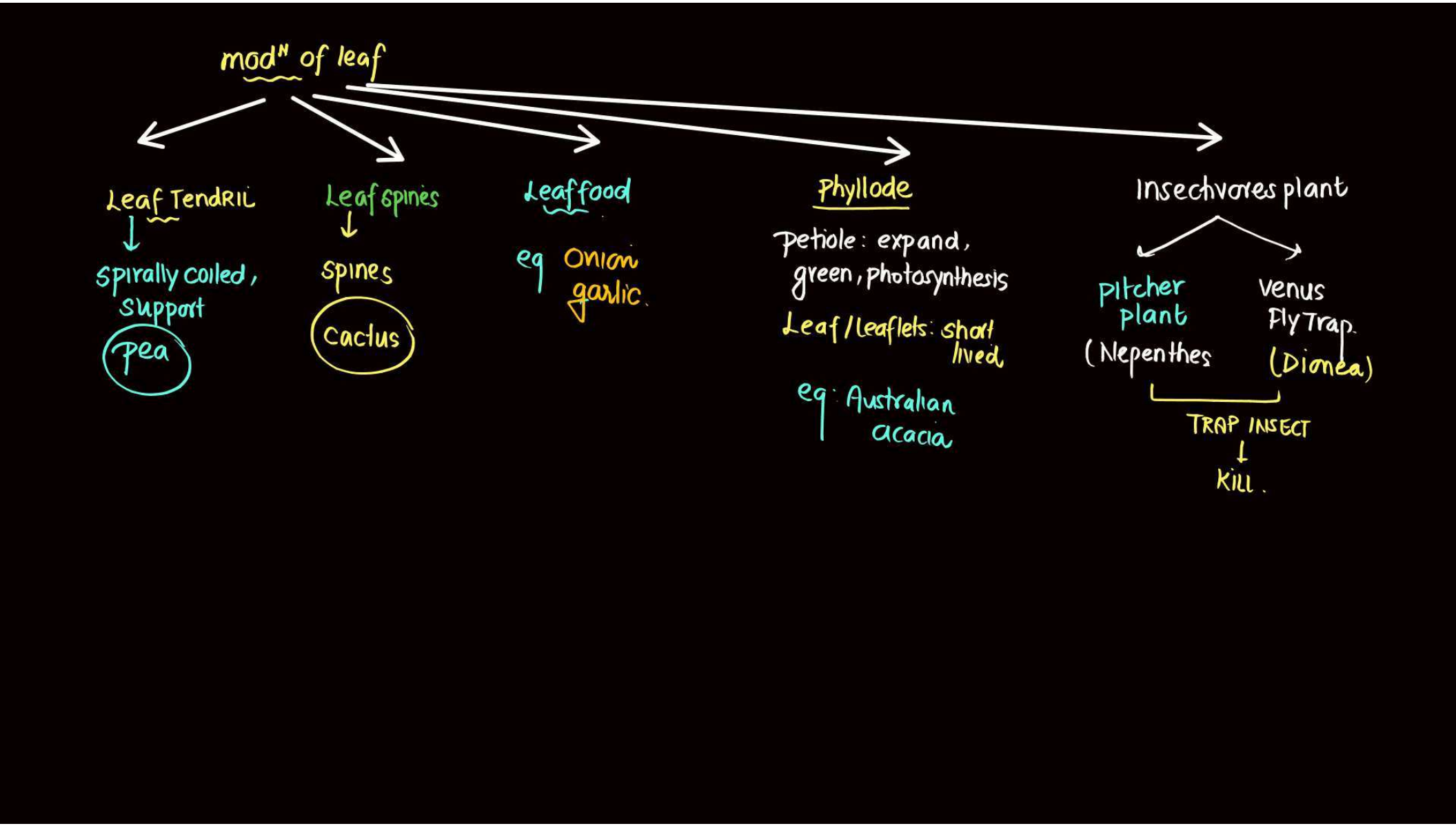
Example : Neem.



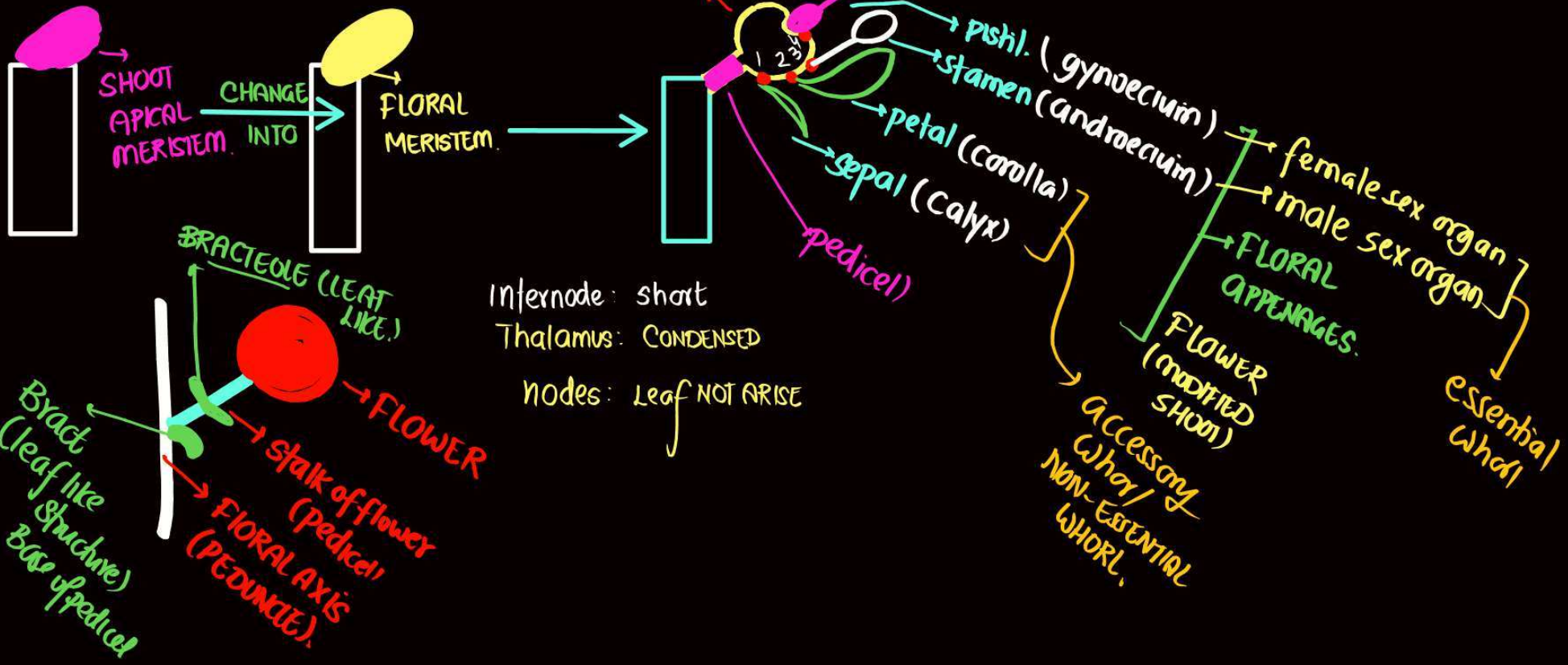
Palmately compound leaf

Leaflet present at Tip of petiole.

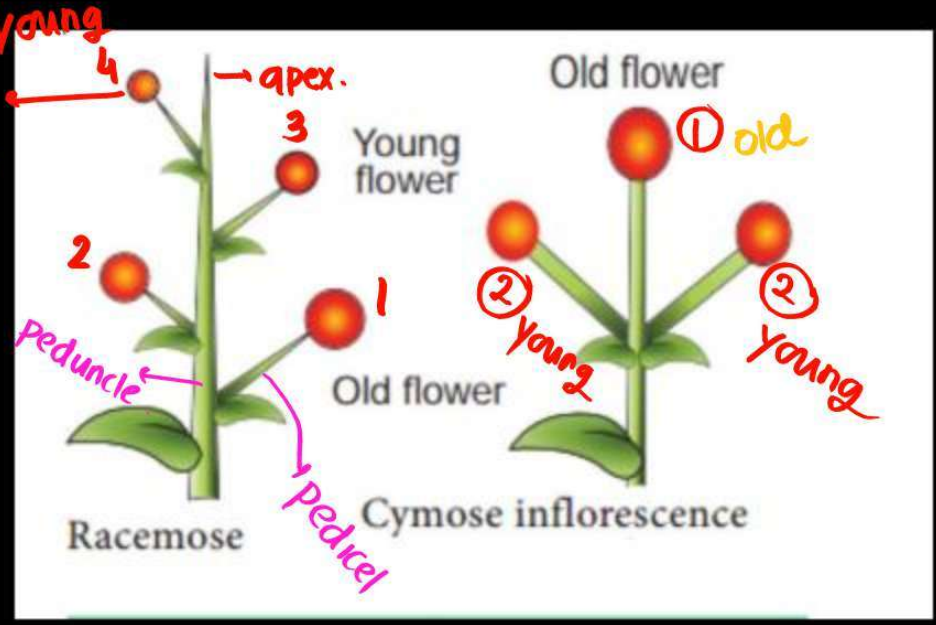
Example Silk Cotton


mod" of leaf
Leaf Tendril
Spirally coiled, support
Pea
Leaf spines
spines
Cactus
Leaf food
eg Onion garlic.
Phyllode
Petiole: expand, green, photosynthesis
Leaf/Leaflets: short lived
eg: Australian acacia
Insechvores plant
pitcher plant (Nepenthes
Venus Fly Trap. (Dionea)
TRAP INSECT
KILL.

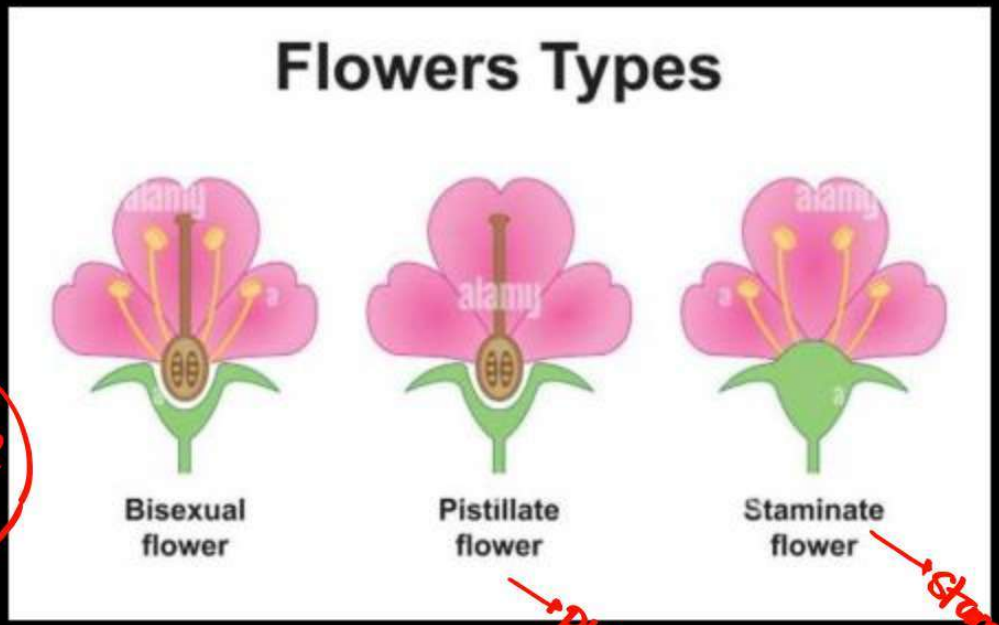
INFLORESCENCE : arrangement of flower on floral axis / peduncle.



Racemose	Cymose
Growth of peduncle continuous/ unlimited. /indefinite	Peduncle Terminate into flower, Limited/discont^{n} / definite.
Arrangement of flower ACCROPETAL.	
Old flower away from apex.	Towards apex
Young flower Towards apex	away from apex.
Eg mustard.	Eg Solanum



Flower Types



Stamen
Pistil

Pistil → Unisexual. ← Stamen

Tetramerous : 4S, 4P

Pentamerous : 5S, 5P

Trimerous : 3S, 3P
(6 TEPALS)

Perianth :

Calyx & corolla
NOT DIFFERENTIATED.

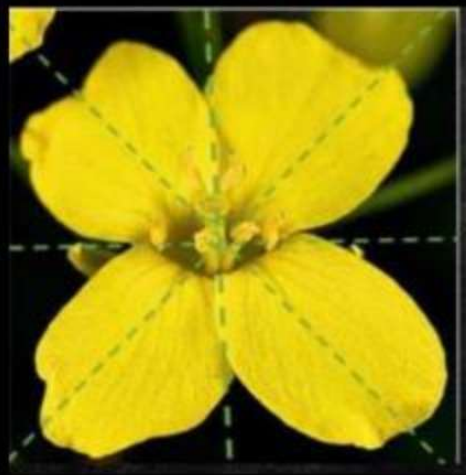
Each UNIT : TEPAL.

6 Tepals → outer : (3)
6 Tepals → inner : (3)

arrange in two whorl.

Symmetry of flower

Actinomorphic Flower (Radial symmetry) : Flowers divided into Two equal parts through many planes passing Through Centre



M ustard

D atura

C hili

Symmetry of flower

Zygomorphic flower (bilateral symmetry)

= equal pair, through one plane

Pea

Gulmohur

Bean

Cassia

Symmetry of flower

Asymmetric (irregular) : Not in equal part.

Canna

Trimerous, tetramerous, pentamerous flower

Figure 4.17: (a)
Trimerous

Figure 4.17: (b)
Tetramerous

Figure 4.17: (c)
Pentamerous

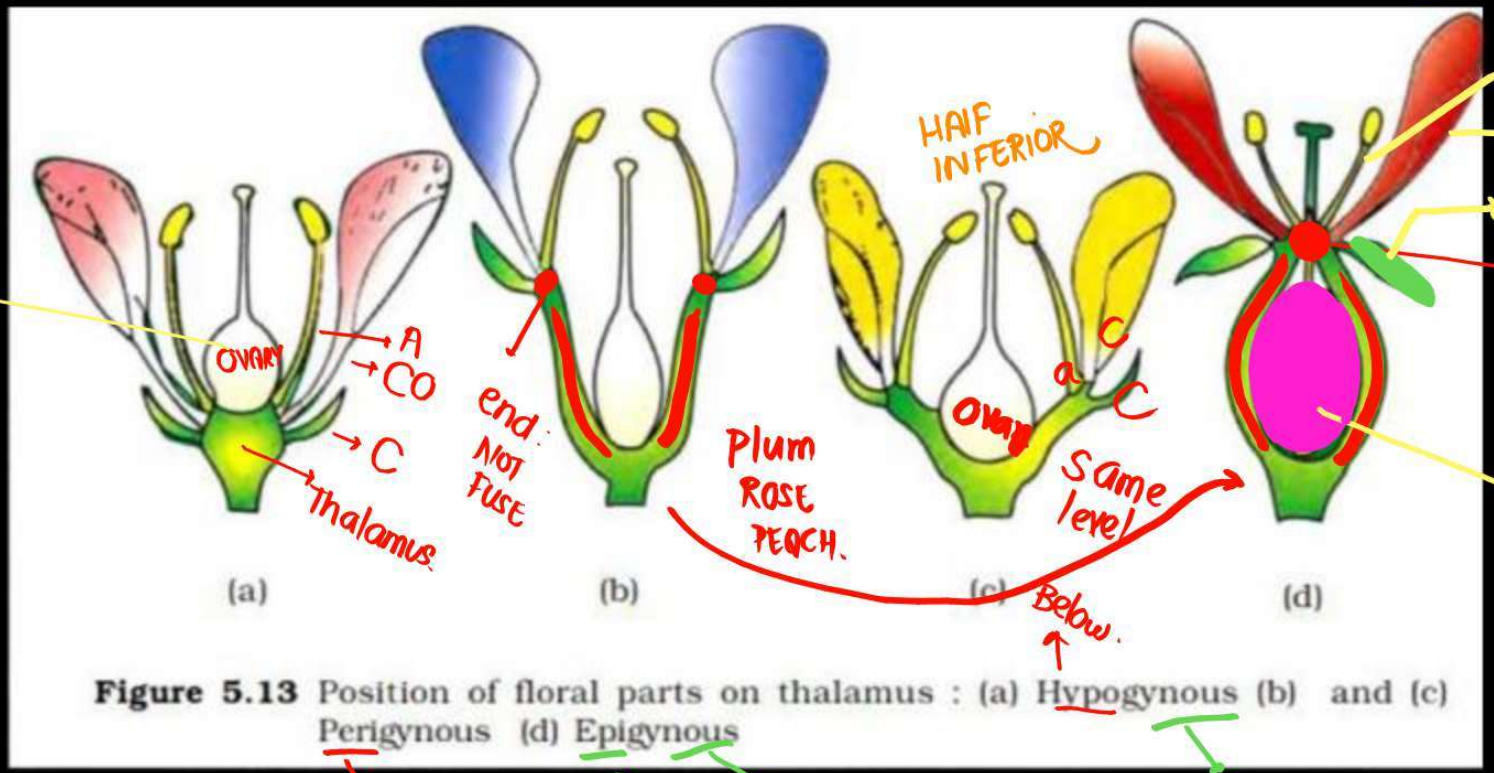


Figure 5.13 Position of floral parts on thalamus : (a) Hypogynous (b) and (c) Perigynous (d) Epigynous

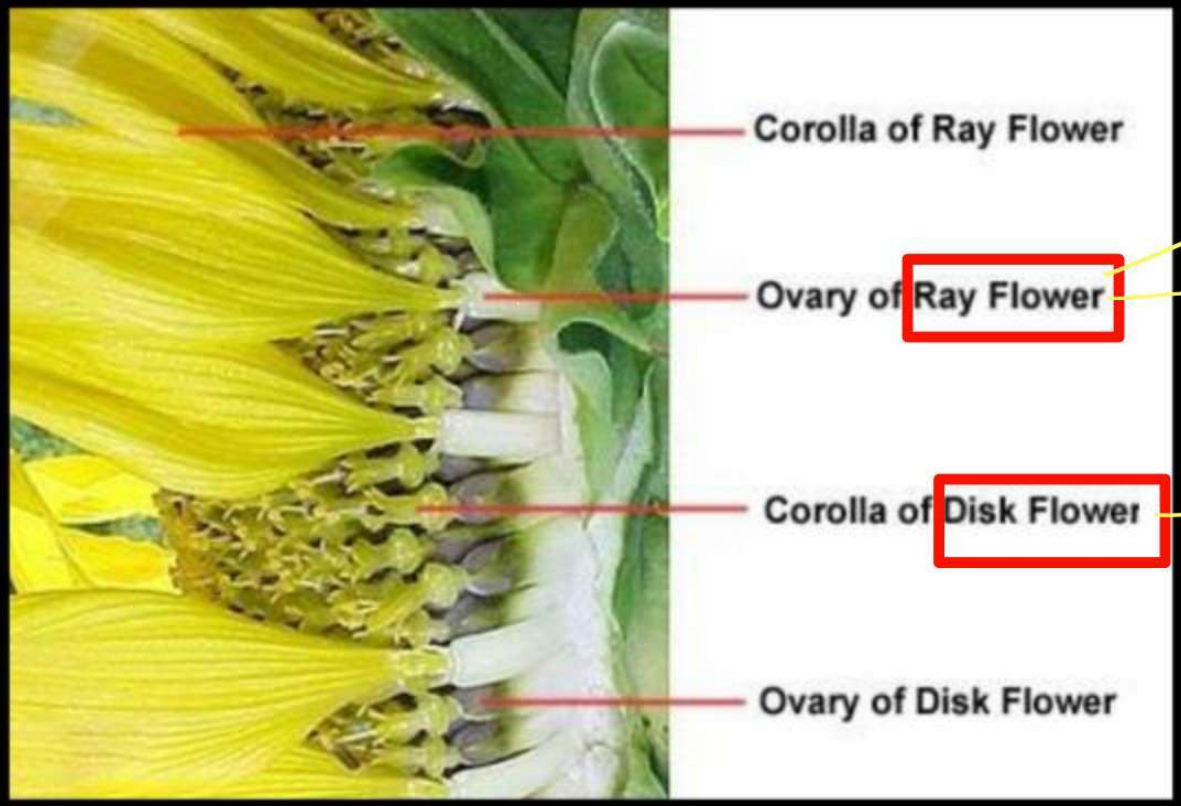
CHINAROSE
MUSTARD
BRINJAL.
TOP/ SUPERIOR

C : CALYX
CO : COROLLA
A : ANDROECIUM
↓
anse
Below
ovary

Rayfloret ofsunflower
Guava, Cucumber

And
CO
C
above ovary.
end of thalamus fuse.
ovary (infenar ovary)

around
above
ovary
ovary


Corolla of Ray Flower
Ovary of Ray Flower
Corolla of Disk Flower
Ovary of Disk Flower
Ray floret → zygomorphic
Periphery
Disc floret → Actino-morphic
Centre

: UNIT: SEPAL.

Calyx : Outermost whorl. → PROTECT FLOWER IN BUDSTAGE.
USUALLY GREEN.

Gamosepalous

(K) K(5)

Sepals fused

Polysepalous

K K_5

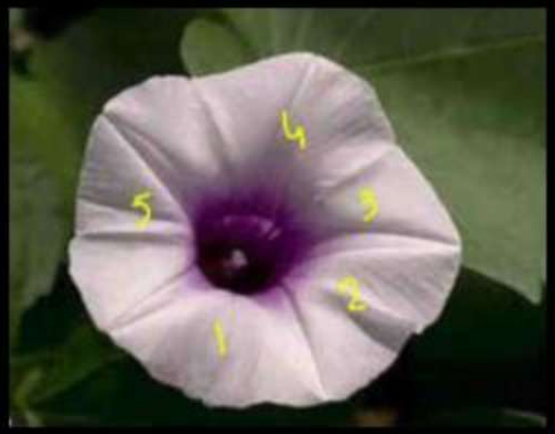
Sepals free.

2nd whorl. ← **Corolla** : Large, BRIGHTLY COLOURED, ATTRACT INSECT (POLLINATION)

Gamopetalous

(C) $\overline{C}_{(5)}$

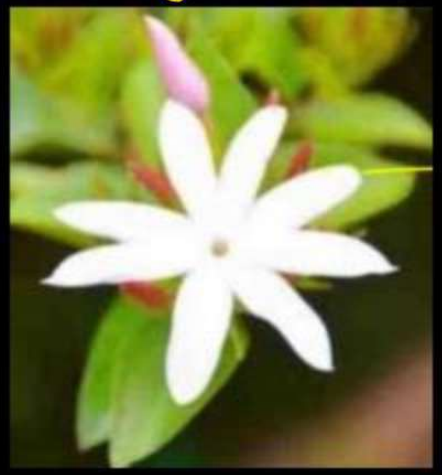
Petals fused



Polypetalous

C C_5.

Petals free.



Shape of corolla

Tubular

Bell

Funnel

Wheel

Aestivation ⇒ arrang of sepals (in same whorl)
of petals (" " ")

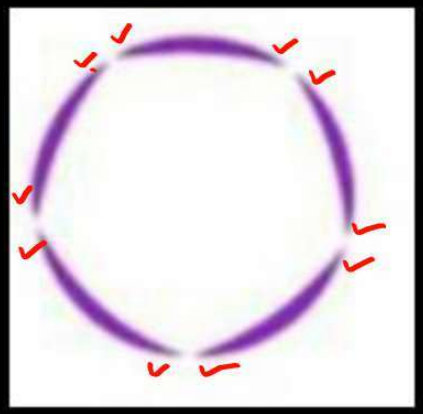
Definition _____

1. Valvate

Sepals in a whorl/petals in a whorl almost Touch eachother.

but no overlapping

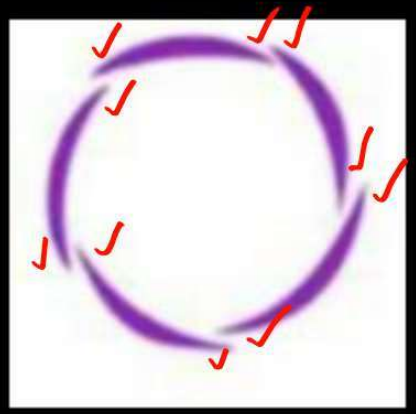
Example Calotropis.



2. Twisted

If one margin of member overlap with margin of other memb.

But in particular direction



Example

China Rose

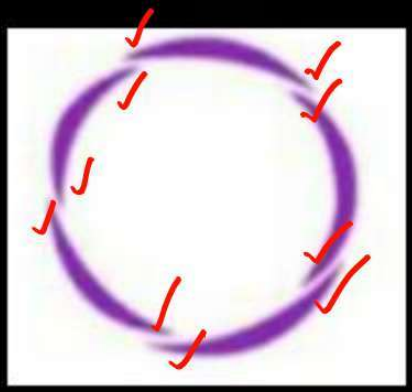
Lady finger

Cotton.

3. Imbricate

If one margin of member Overlap with other

But not in Particular direction



Example

C Cassia

G Gulmohur

Gulmohur & Cassia

4. Vaxillary/papilionaceous

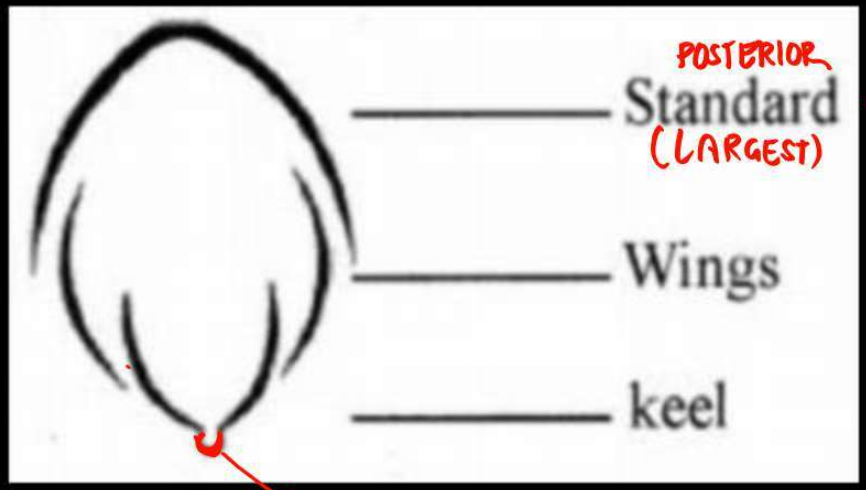
Example

Posterior petal — Standard : (1)

Lateral petal — Wings : (2)

Anterior petal — Keel (2)
(Smallest)

eg: Pea, Bean



C 1+2+(2)

Androecium : 3rd whorl

Whorl 3rd.

Member Stamen.

Stamen parts Anther & filament

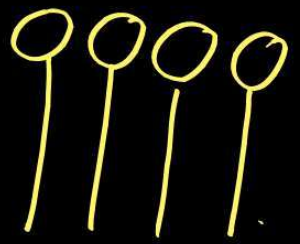
Each anther Two lobe

Each lobe has Two pollen sac

In pollen sac Pollen mother cell present which produced Poller grain

Sterile stamen Staminode

If stamen are free polyandrous.



Androecium

If stamen are united with the help of filament Called adelphous.

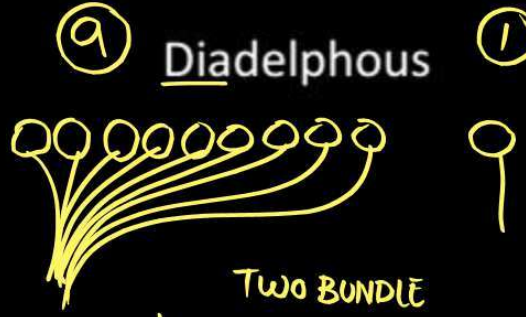
Types of Adelphous (Cohesion)

S+S ⇒ same लोग.

Monoadelphous

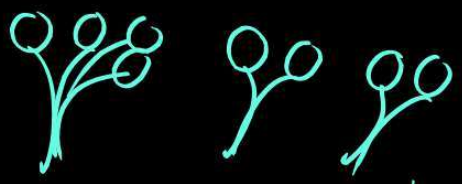
Eg. China Rose

Diadelphous



Eg. Pea

Polyadelphous



Eg. Citrus

(DIFFERENT लोग).

Adhesion of stamen

1. Epipetalous : STAMEN + PETAL

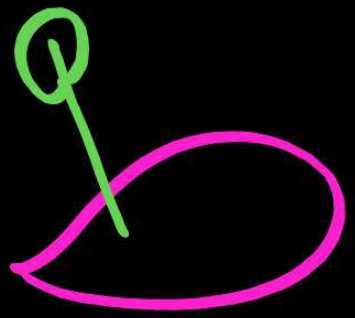
Example : Solanaceae
Tomato, BRINJAL

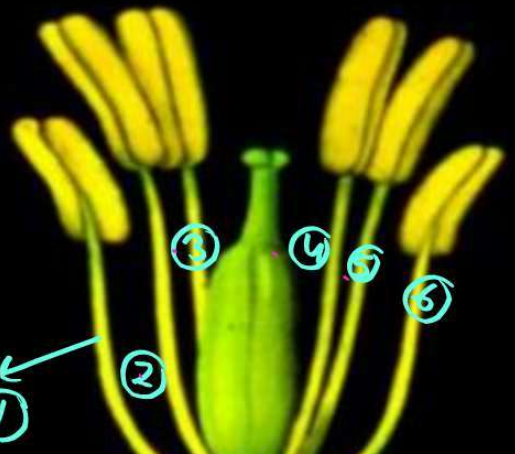
2. Epiphyllous/epitepalous

Example : Stamen + Perianth/Tepal
eg: Liliaceae

Variation in length of filament

Example : Salvia and mustard



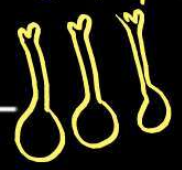


outer
① & ⑥ : short filament/ STAMEN.
② ③ ④ ⑤ : Long Filament/ Stamen.
Inner
Tetradynamous

MUSTARD (BRASSICACEAE)

Gynoecium 4th whorl → Unit: pistil.

Apocarpous — FREE



Example :

ROSE

LOTUS

Syncarpous — FUSED.

Example :

MUSTARD

TOMATO.

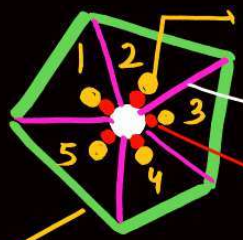
⇒ Ovary → Ovarian Cavity/ LOCULE → Placenta → on seed/ovule.

PISTIL

→ Stigma : Landing platform for pollen grain

→ Style (Connect stigma/ovary)

→ Ovary. (Swollen portion)



→ Ovule/seed. = axial

→ Septa.

→ PLACENTA

→ Position: axial

Placentation

Arrang. of Ovule/seed in ovary/FRUIT

→ UNILOCULAR

→ BILOCULAR

TRILOCULAR

MULTILOCULAR.

Ovary/FRUIT

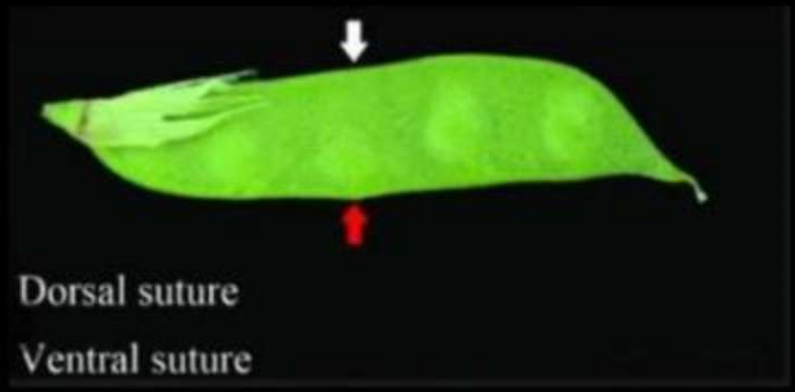
Placentation

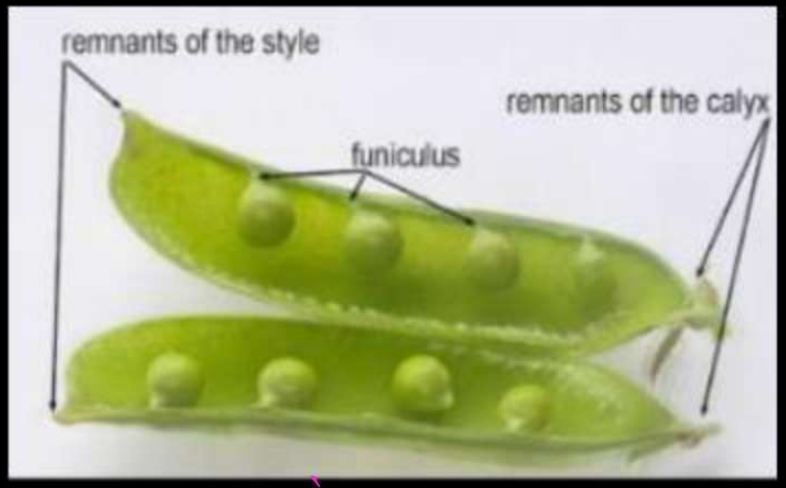
Definition _____

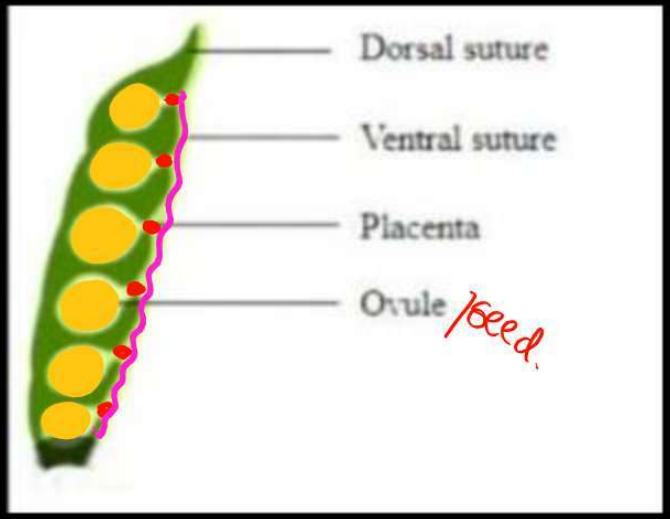
1. Marginal : Placenta on margin (Ovule), Ventral suture. Two rows.

Example :

pea.







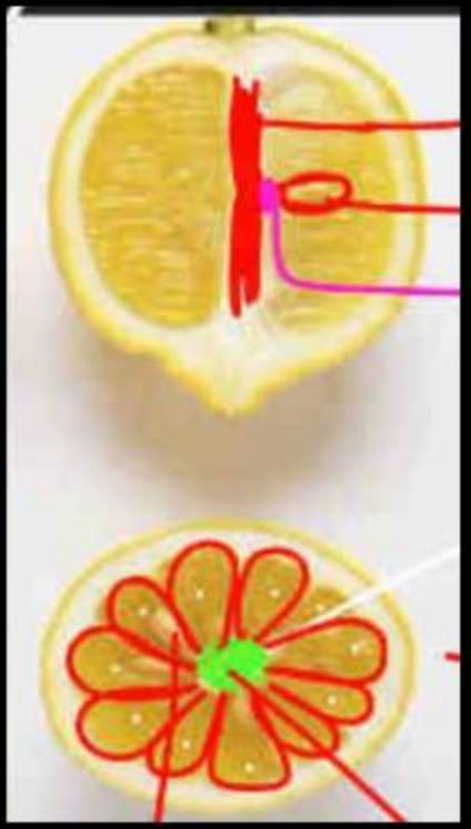
2. Axile

Example :

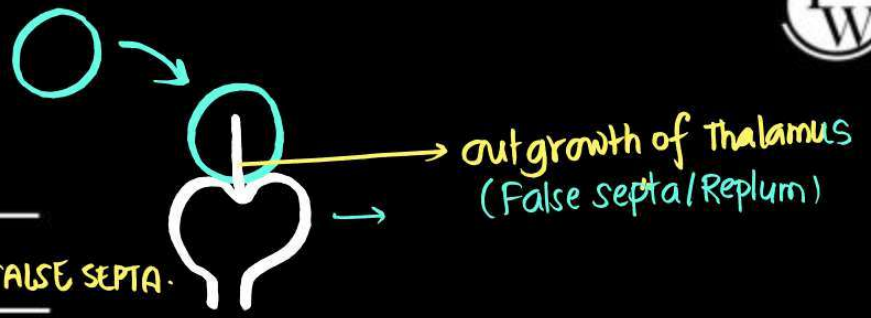
China Rose

Tomato

Lemon.



3. Parietal (outer/peripheral).

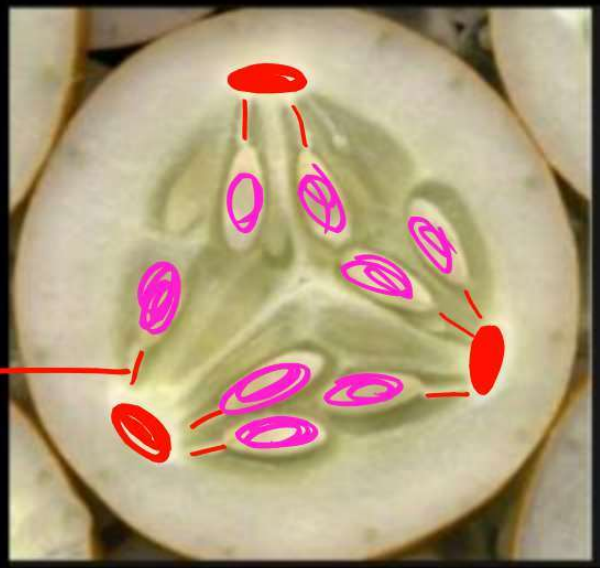


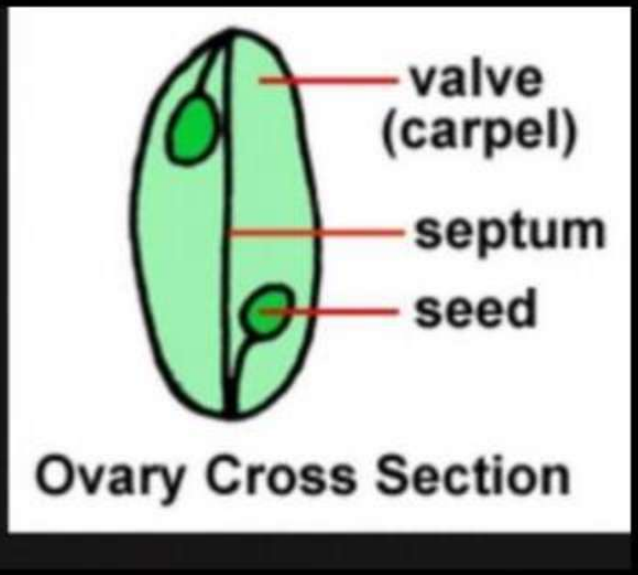
Ovary is one chambered but BECOMES BILOCULAR DUE TO FALSE SEPTA.
(UNILOCULAR)

Example :

M OSTARD

ARGEMONE.





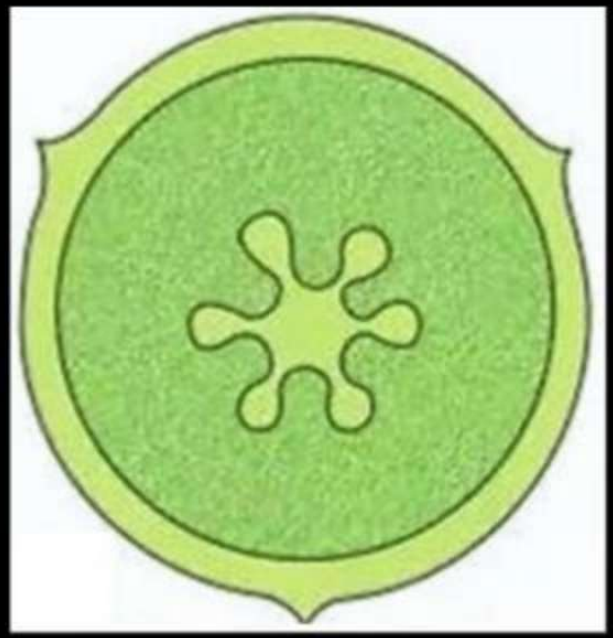
4. Free Central

Septa absent
Placenta/ovule: centre.

Example :

Primerose

Dianthus



5. Basal

Basal.

Ovule/placenta in ovary

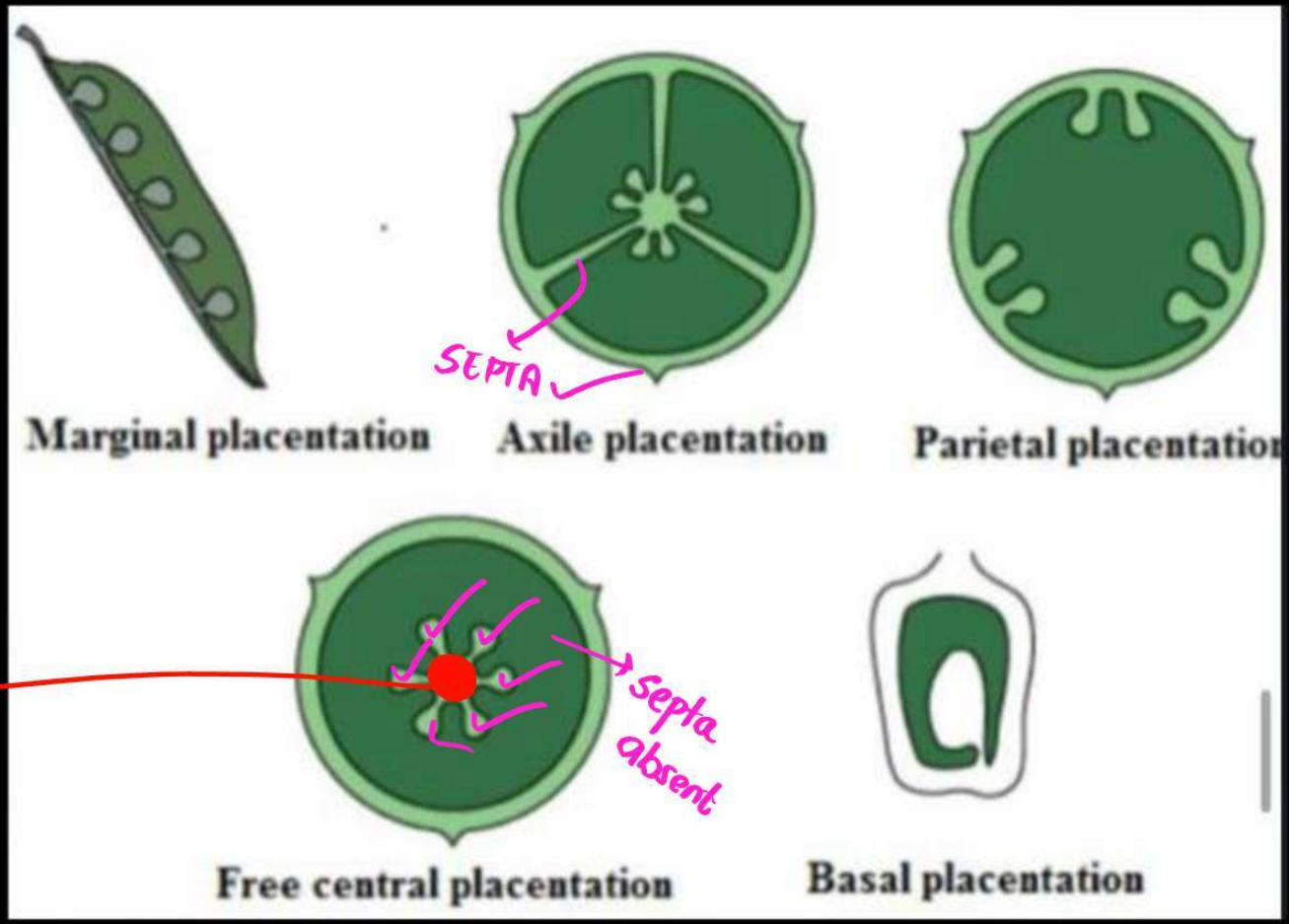
Single ~~ovary~~ Ovule.

Advanced Type.

Example :

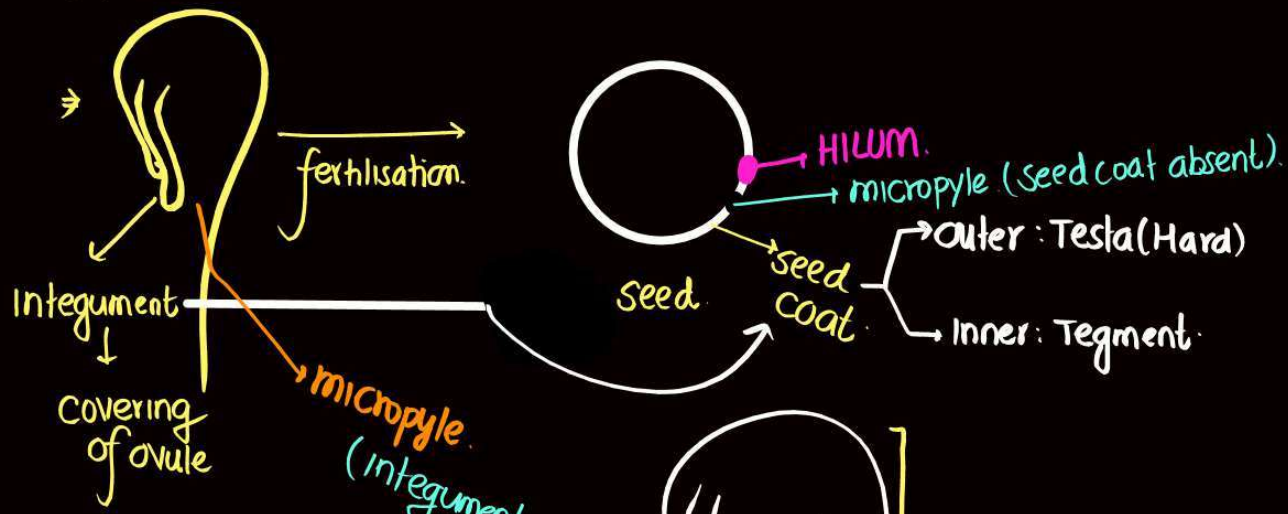
SUNFLOWER

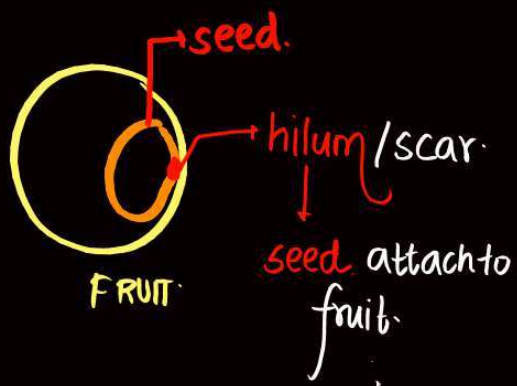
MARIGOLD


SEPTA
Marginal placentation
Axile placentation
Parietal placentation
Placenta
Centre
septa
absent
Free central placentation
Basal placentation

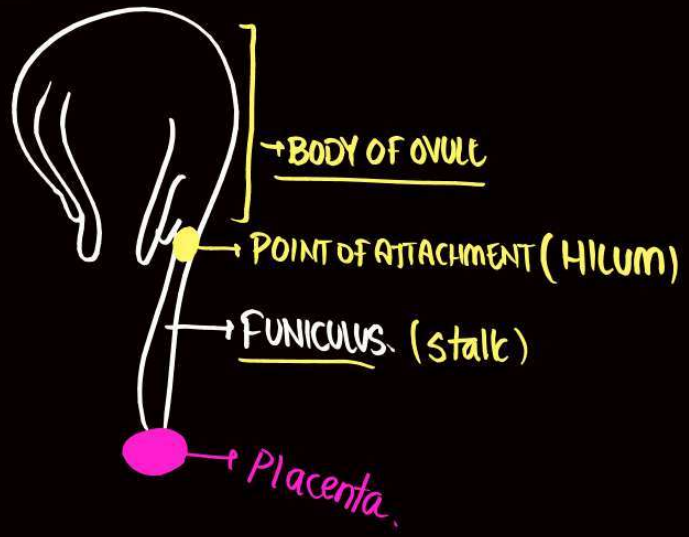
SEED

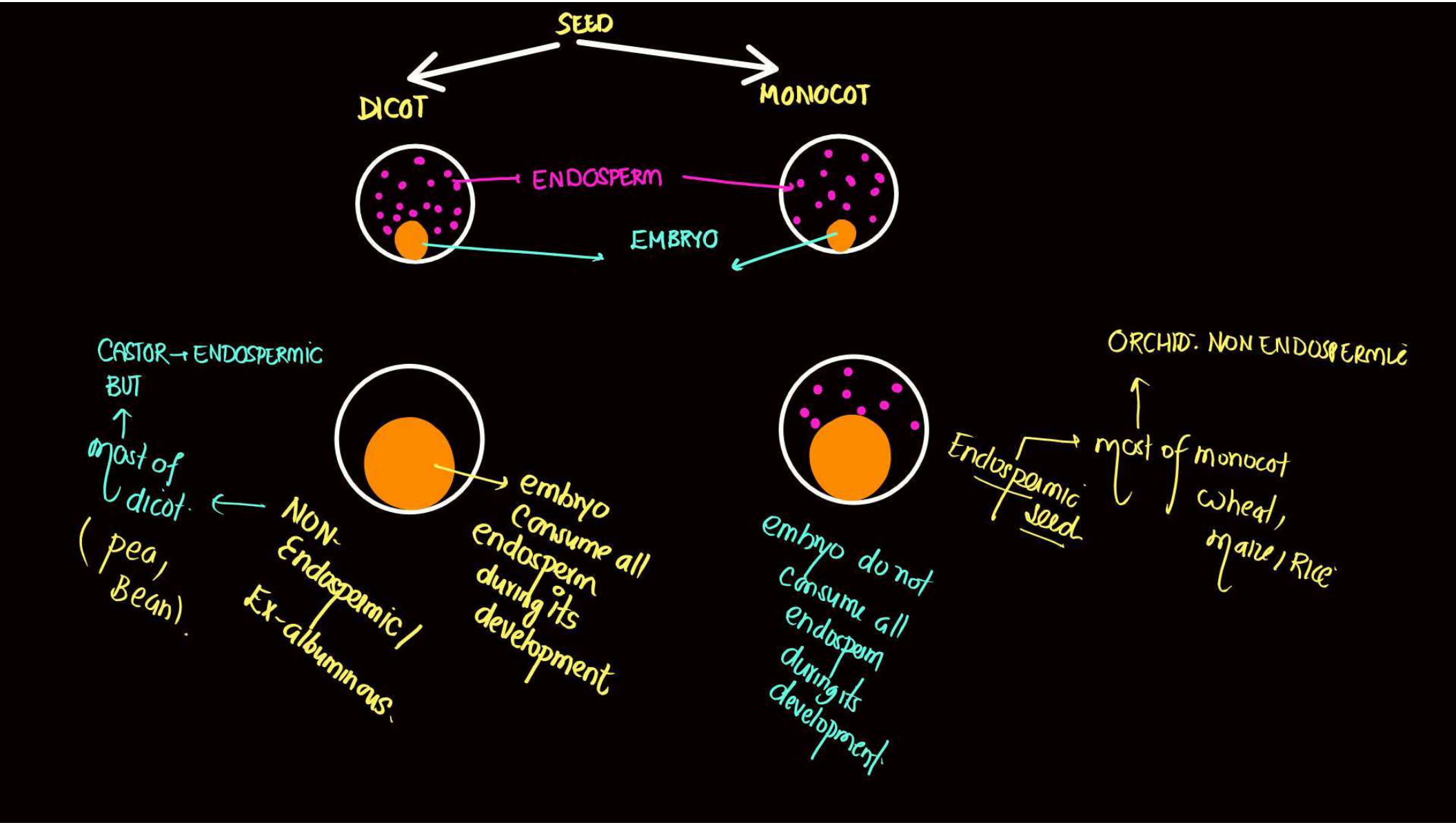
⇒ Fertilised ovule : seed.

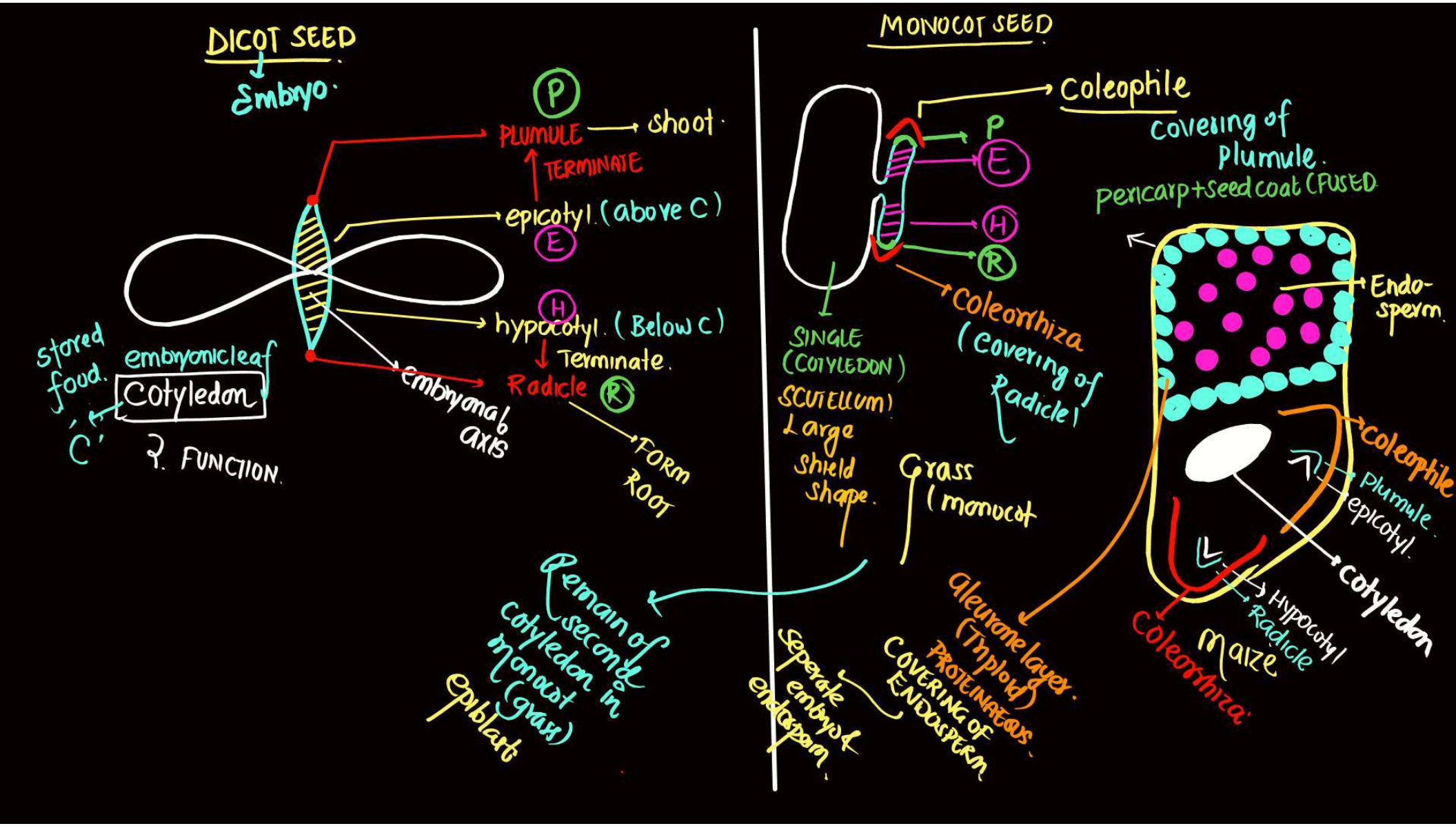




Body of ovule attach to placenta through a stalk (funicule)




SEED
DICOT
MONOCOT
ENDOSPERM
EMBRYO
CASTOR → ENDOSPERMIC BUT
most of dicot
(pea, Bean)
NON-Endospermic / Ex-albuminous
embryo Consume all endosperm during its development
embryo do not consume all endosperm during its development
Endospermic seed
most of monocot wheat, maize / Rice
ORCHID: NON ENDOSPERMIC


DICOT SEED
Embryo.
P
PLUMULE → shoot.
↑ TERMINATE
epicotyl. (above C)
E
H
hypocotyl. (Below C)
↓ Terminate.
Radicle R
FORM ROOT
Embryonal axis
stored food.
embryonicleaf
Cotyledon
C
? FUNCTION.
MONOCOT SEED
Coleophile
Covering of Plumule.
Pericarp+seed coat (FUSED
P
E
H
R
Coleorrhiza (Covering of Radicle)
SINGLE (COTYLEDON)
SCUTELLUM)
Large
Shield Shape.
Grass (monocot
Endo-sperm.
Coleophile
plumule.
epicotyl.
cotyledon
Hypocotyl
Radicle
Coleorrhiza
maize
Aleurone layer.
(Triploid)
PROTEINACEOUS.
COVERING OF ENDOSPERM
Remain of second cotyledon in monocot (grass)
epiblast
Seperate embryo & endosperm.

FRUIT

TRUE
⇒ mostly
⇒ develop from ovary.

FALSE
⇒ other part (Thalamus) contribute in fruit formt^.
eg: apple, pear, Cashew, Strawberry.

PARTHENOCARPIC
without fertilisation
seedless.

SIMPLE FRUIT
one seeded FRUIT

dry
⇒ pericarp is not divided.
eg: LITCHI
ARIL

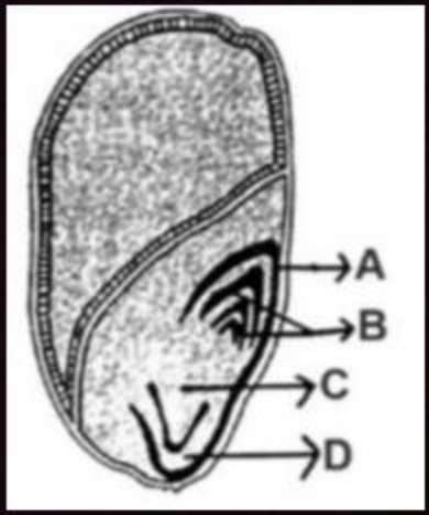
Fleshy (DRUPE)
⇒ pencarp is divided (SUPERIOR OVARY, MONOCARP ELLARY)
① Epicarp: outer covering
② mesocarp: middle fleshy edible part (mango)
③ endocarp: inner (stony/hard)
eg: mango, coconut.
FIBROUS
edible part (endosperm)

QUESTION

Identify the part of the seed from the given figure which is destined to form root when the seed germinates.

(NEET – 2024)

1. A
2. B
3. C
4. D



QUESTION

Which of the following is an example of actinomorphic flower? (NEET – 2024)

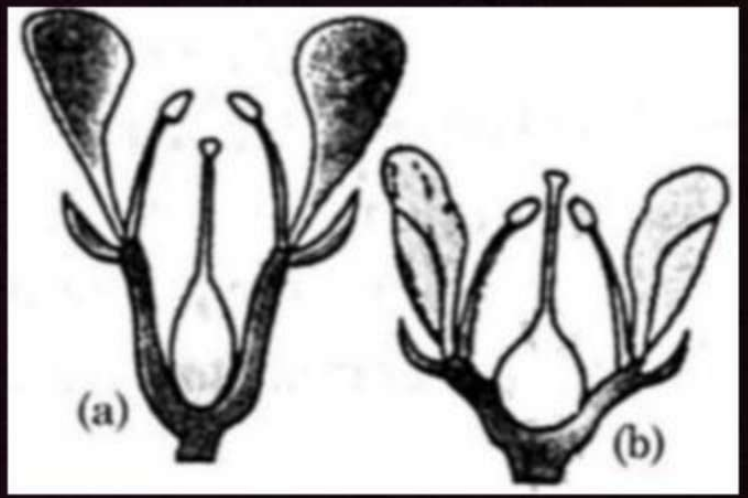
1. *Datura* (Actino)
2. *Cassia* (zygo)
3. *Pisum*
4. *Sesbania*

→ Fab (zygomorp)

QUESTION

Identify the type of flowers based on the position of calyx, corolla and androecium with respect to the ovary from the given figures (a) and (b) (NEET – 2024)

1. (a) Epigynous; (b) Hypogynous
2. (a) Hypogynous; (b) Epigynous
3. (a) Perigynous; (b) Epigynous
4. (a) Perigynous; (b) Perigynous



QUESTION

Match List I with List II

Choose the correct answer from the options given below: (NEET – 2024)

	List I		List II
A.	Rose	I.	Twisted aestivation
B.	Pea	II.	Perigynous flower
C.	Cotton	III.	Drupe
D.	Mango	IV.	Marginal placentation

1. A-II, B-IV, C-I, D-III
2. A-I, B-II, C-III, D-IV
3. A-IV, B-III, C-II, D-I
4. A-II, B-III, C-IV, D-I

QUESTION

Match List I with List II

Choose the correct answer from the options given below: (NEET – 2024)

	List I (Types of Stamens)		List II (Example)
A.	Monoadelphous	I.	Citrus
B.	Diadelphous	II.	Pea
C.	Polyadelphous	III.	Lily
D.	Epiphyllous	IV.	China-rose

1. A-IV, B-II, C-I, D-III
2. A-IV, B-I, C-II, D-III
3. A-I, B-II, C-IV, D-III
4. A-III, B-I, C-IV, D-II

QUESTION

In *Calotropis*, aestivation is: (2023-Manipur)

1. Imbricate
2. Twisted
3. Valvate
4. Vexillary

QUESTION

Match the following: (2023-Manipur)

Select the correct option:

	List-I		List-II
A.	Zygomorphic	P.	Mustard
B.	Hypogynous	Q.	Plum
C.	Perigynous	R.	*Cassia*
D.	Epigynous	S.	Cucumber

1. A-P, B-Q, C-S, D-R
2. A-P, B-Q, C-R, D-S
3. A-S, B-P, C-R, D-Q
4. A-R, B-P, C-Q, D-S

QUESTION

In a pea flower, five petals are arranged in a specialized manner with one posterior, two lateral and two anterior. These are named as and respectively. (2023-Manipur)

1. Keel, Wings and Standard
2. Vexillum, Keel and Standard
3. Keel, Standard and Carina
4. Standard, Wings and Keel

QUESTION

Axile placentation is observed in; (2023)

1. China rose, Beans and Lupin
2. Tomato, *Dianthus* and Pea
3. China rose, *Petunia* and Lemon
4. Mustard, Cucumber and Primrose

QUESTION

Identify the correct set of statements: (2022)

A. The leaflets are modified into pointed hard thorns in *Citrus* and *Bougainvillea*.

B. Axillary buds form slender and spirally coiled tendrils in cucumber and pumpkin.

C. Stem is flattened and fleshy in *Opuntia* and modified to perform the function of leaves.

D. *Rhizophora* shows vertically upward growing roots that help to get oxygen for respiration.

E. Subaerially growing stems in grasses and strawberry help in vegetative propagation.

Choose the correct answer from the options given below:

1. A, B, D, and E only
2. B, C only
3. A, D only
4. B, C, D and E only

QUESTION

The flowers are zygomorphic in: (2022)

A. Mustard
B. Gulmohar
C. *Cassia*
D. *Datura*
E. Chilly

Choose the correct answer from the options given below:

1. C, D and E only
2. A, B and C only
3. B and C only
4. D and E only

QUESTION

Which one of the following plants shows vexillary aestivation and diadelphous stamens? (2022)

1. *Solanum nigrum*
2. *Colchicum autumnale*
3. *Pisum sativum*
4. *Allium cepa*

QUESTION

Match List-I with List-II. (2022 Phase-II)

Choose the correct answer from the options given below:

	List-I		List-II
A.	Imbricate	P.	*Calotropis*
B.	Valvate	Q.	*Cassia*
C.	Vexillary	R.	Cotton
D.	Twisted	S.	Bean

1. A-Q, B-P, C-R, D-S
2. A-Q, B-P, C-S, D-R
3. A-Q, B-S, C-R, D-P
4. A-P, B-R, C-S, D-Q

QUESTION

Which of the following statement is NOT correct? (2022 Phase-II)

1. Rhizome is a condensed form of stem
2. The apical bud in rhizome always remains above the ground
3. The rhizome (stem) is aerial with ~~no~~ distinct nodes and internodes
4. The rhizome is thick, prostrate and branched

QUESTION

Diadelphous stamens are found in: (2021)

1. Pea
2. China rose and *Citrus*
3. China rose
4. *Citrus*

QUESTION

The roots that originate from the base of the stem are: (2020)

1. Primary roots
2. Prop roots
3. Lateral roots
4. Fibrous roots

QUESTION

Ray florets have: (2020)

1. Superior ovary
2. Hypogynous ovary
3. Half inferior ovary
4. Inferior ovary

QUESTION

The ovary is half inferior in: (2020)

1. Mustard
2. Sunflower
3. Plum
4. Brinjal

QUESTION

Correct position of floral parts over thalamus in mustard plant is- (2020 Covid)

1. Margin of the thalamus grows upward, enclosing the ovary completely, and other parts arise below the ovary

2. Gynoecium is present in the centre and other parts cover it partially

3. Gynoecium is situated in the centre, and other parts of the flower are located at the rim of the thalamus, at the same level

4. Gynoecium occupies the highest position, while the other parts are situated below it

QUESTION

Identify the correct features of Mango and Coconut fruits. (2020 Covid)

(i) In both fruit is a drupe

(ii) Endocarp is edible in both

(iii) Mesocarp in Coconut is fibrous, and in Mango it is fleshy

(iv) In both, fruit develops from monocarpellary ovary

Select the correct option from below:

1. (i), (ii) and (iii) only
2. (i) and (iv) only
3. (i) and (ii) only
4. (i), (iii) and (iv) only

QUESTION

Placentation, in which ovules develop on the inner wall of the ovary or in peripheral part, is: (2019)

1. Free central
2. basal
3. Axile
4. Parietal

QUESTION

Which of the following shows whorled phyllotaxy? (2019 Odisha)

1. Mustard
2. China rose
3. *Alstonia*
4. *Calotropis*

QUESTION

Match the placental types List-I with their examples List-II. (2019 Odisha)

Choose the correct answer from the following options:

1. A-Q, B-R, C-S, D-P
2. A-P, B-Q, C-R, D-S
3. A-S, B-Q, C-P, D-R
4. A-R, B-S, C-P, D-Q

	List-I		List-II
A.	Basal	P.	Mustard
B.	Axile	Q.	China rose
C.	Parietal	R.	*Dianthus*
D.	Free central	S.	Sunflower

QUESTION

Sweet potato is a modified; (2018)

1. Stem
2. Adventitious root
3. Tap root
4. Rhizome

QUESTION

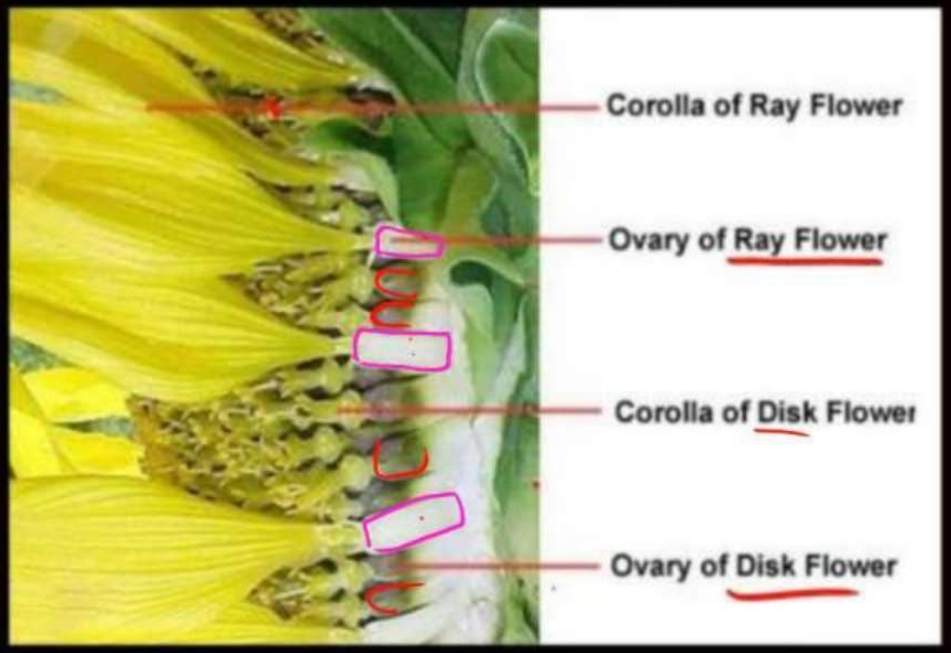
Root hairs develop from the region of: (2017)

1. Elongation
2. Root cap
3. Meristematic activity
4. Maturation

QUESTION

Coconut fruit is a: (2017-Delhi)

1. Drupe
2. Berry
3. Nut
4. Capsule



a) Stamen : ♂ (Unisex)

b) Pistil : ♀ (Unisex)

c) Stamen & pistil : Bisexual : ♂♀

Sunflower (dimorphic).

Two Types of Flower

Disc Floret (Centre)

Actinomorphic

* Stamen
* Pistil

(Bisexual Flower) ♂♀

Ray Floret (Peripheral) / outer

zygomorphic

(Unisexual) androecium absent

Pistillate Flower ♀

androecium & gynoecium absent

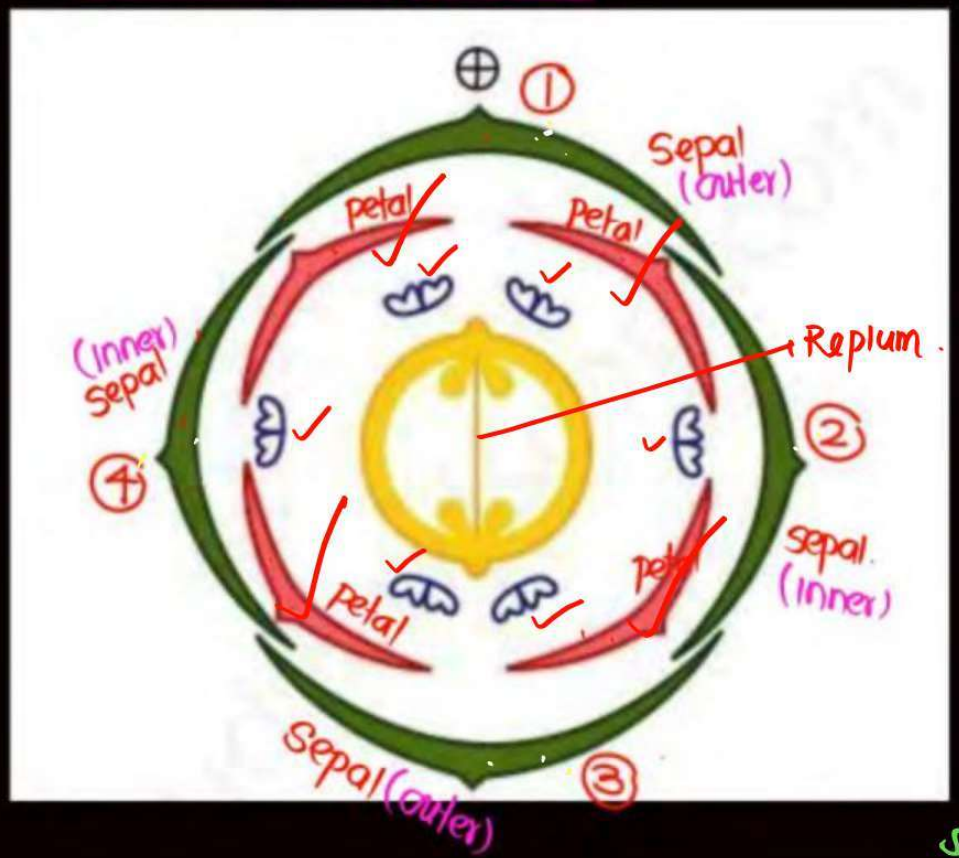
Neuter Flower

A_0G_0

Character	CRUCIFERAE OR Brassicaceae	Fabaceae	Solanaceae	~~Liliaceae~~ X.	GRAMINAE OR Poaceae	Malvaceae	COMPOSITAE OR Asteraceae
DICOT OR MONOCOT	D	D	D	M solitary / cymose	M (advanced) GRASS FAMILY	D COTTON, LADYFINGER, CHINARUSE	D (advanced). SUNFLOWER.
Inflorescence	Racemose	Racemose	solitary axillary, cymose in Solanum.	Racemose (Umbellate cluster). → ONION	Racemose	Racemose	Racemose. → centre. disc floret: actinom Bisexual Ray Floret: zygamorphic (Pistillate & Neuter Flower)
Symmetry	Act	Zygo	Act	Act	Zy	Act.	
Bisexual/ Onisexual.	B	B	B	B	B	B.	BISEXUAL & UNISEXUAL.
OVARY	Superior	S	S	S	S	S	Inferior ovary.

Character	Brassicaceae	Fabaceae	Solanaceae	Liliaceae	Poaceae (grass Family)	Malvaceae	Asteraceae
Flower	Hypog.	Hypo.	Hypo.	Hypo.	Hypo.	Hypogy.	epigynous
Floral appendages	4 (Tetramerous)	5 (Penta)	5 (penta).	3 (Trimerous)	3 (Tri)	5 (penta)	5 (penta)
seed.	Non-endo	Non-endo	endospermic	Endosp.	Endosp.	Non-endo	Non-endo
ebract/ Bracteate	Ebr	Br	Br	Br	Br	Br	Br.
Placentation	Parietal	Marginal	Axile	Axile	Basal.	Axile	Basal.
FRUIT	Siliqua/ Silicula	Legume	Berry (Mostly) Capsule	Capsule (Mostly) Berry	Caryopsis	Capsule	cypsela

Brassicaceae / cruciferae



K.

Calyx: 4 Sepal { 2: OUTER, 2: INNER } K_{2+2}, imbricate

COROLLA: 4 Petals: valvate C_4.

Androecium: 6 stamen A_{2+4}.

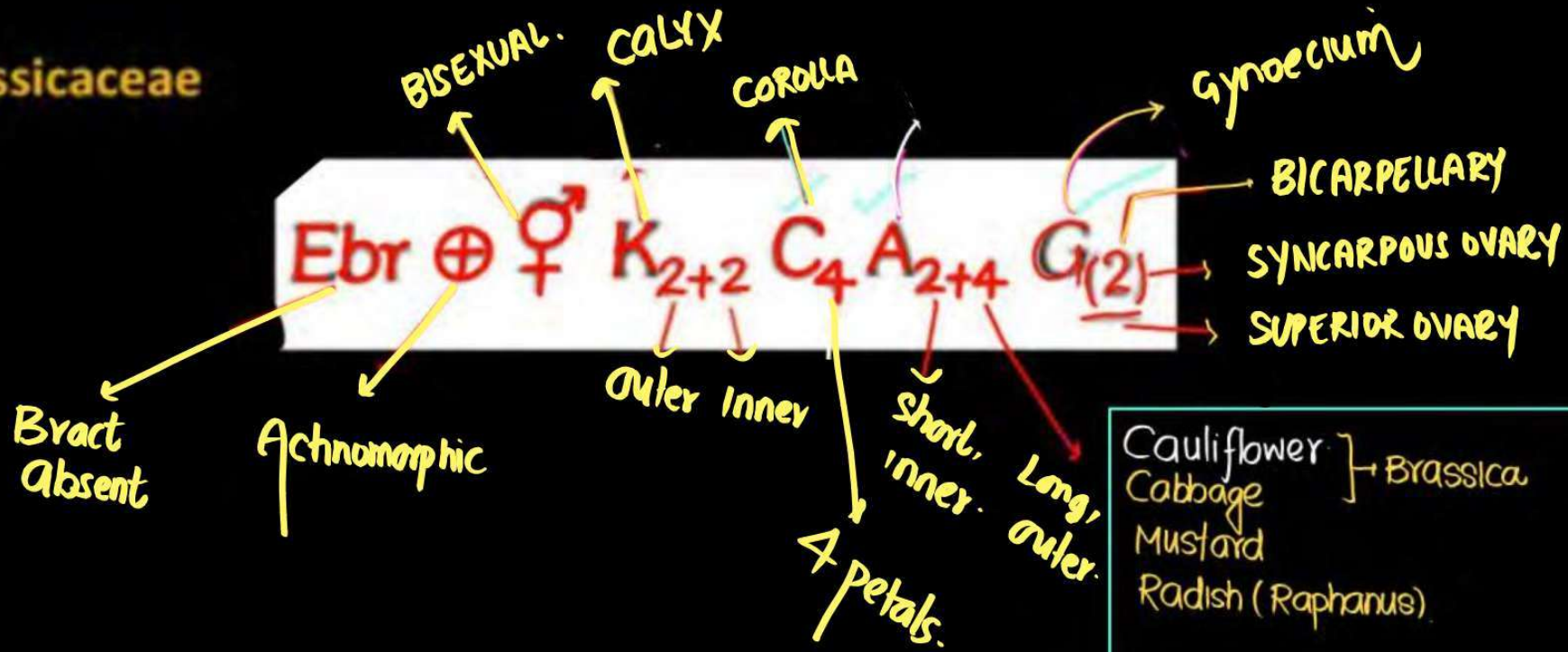
- 2 outer, short
- 4 (inner, long)

Gynoecium: Unilocular But Becomes BILOCULAR due to false Septa (Replum)

$\underline{G}_{(2)}$ → Bicarpellary, syncarpous ovary (fused)

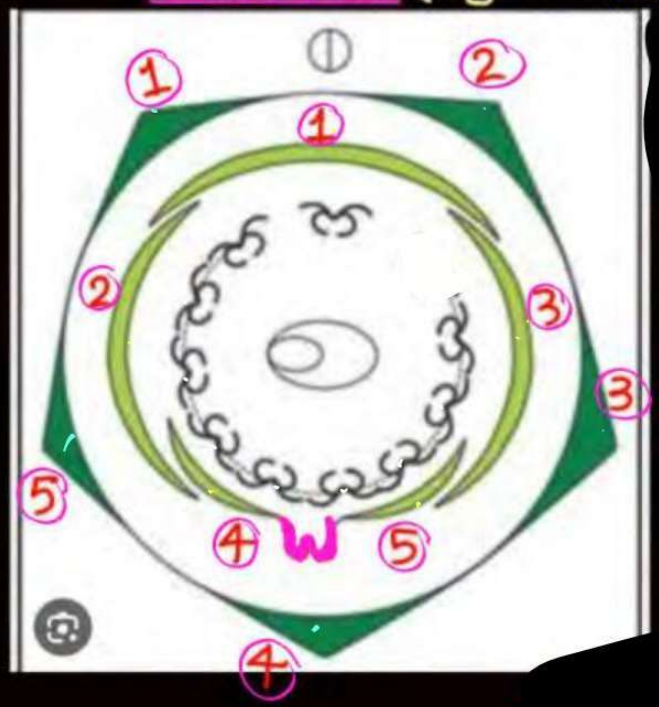
↓ Superior ovary

Brassicaceae



Cauliflower
Cabbage
Mustard
Radish (Raphanus)
} Brassica

Fabaceae (leguminoaceae).



Calyx: Sepal 5, FUSED, Gamosepalous, valvate. K(5)

Corolla: $C_{1+2+(2)}$ vexillary aestivation.

↓ Standard ↓ wings → keel.

Androecium: $A_{(9)+1} \Rightarrow$ DIADELPHOUS.

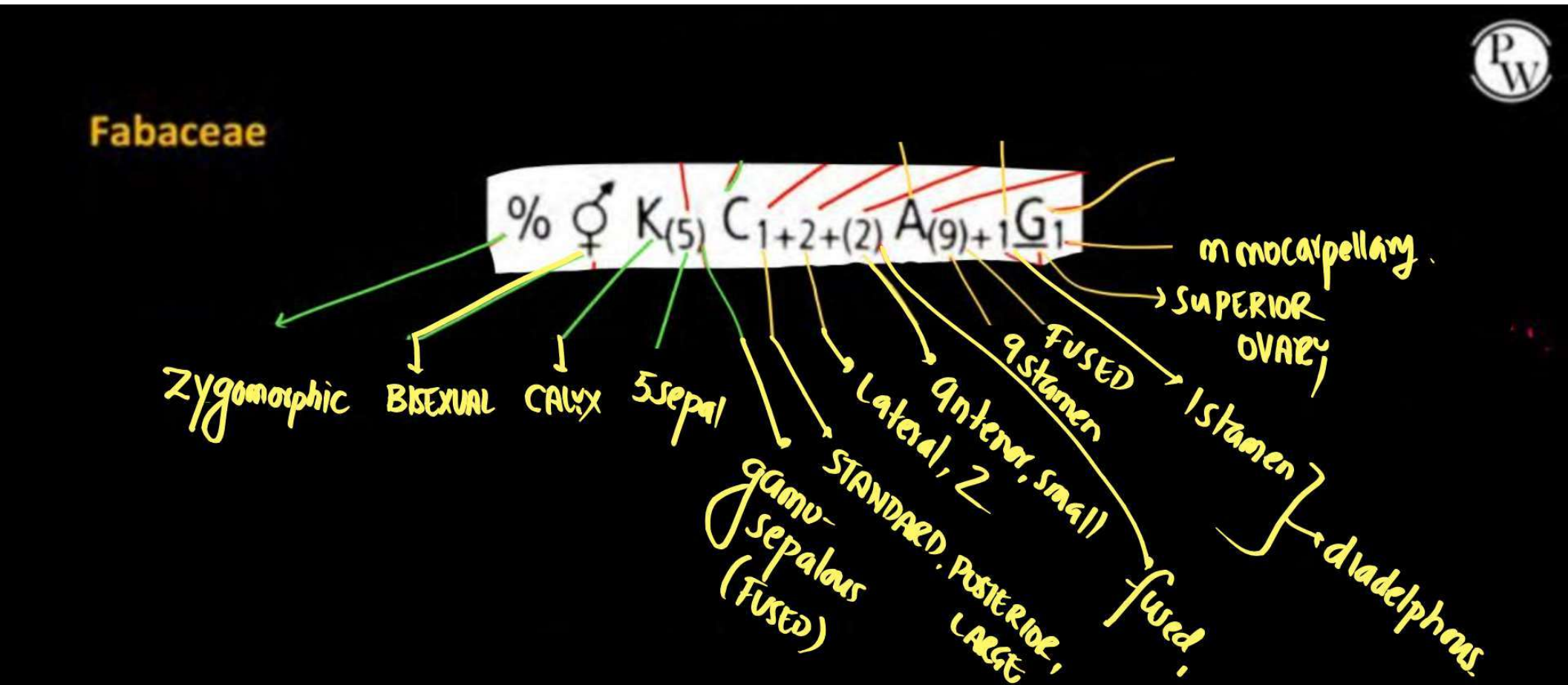
↓ One BUNDLE FUSED — ONE BUNDLE

Gynoecium: monocarpellary, Unilocular.

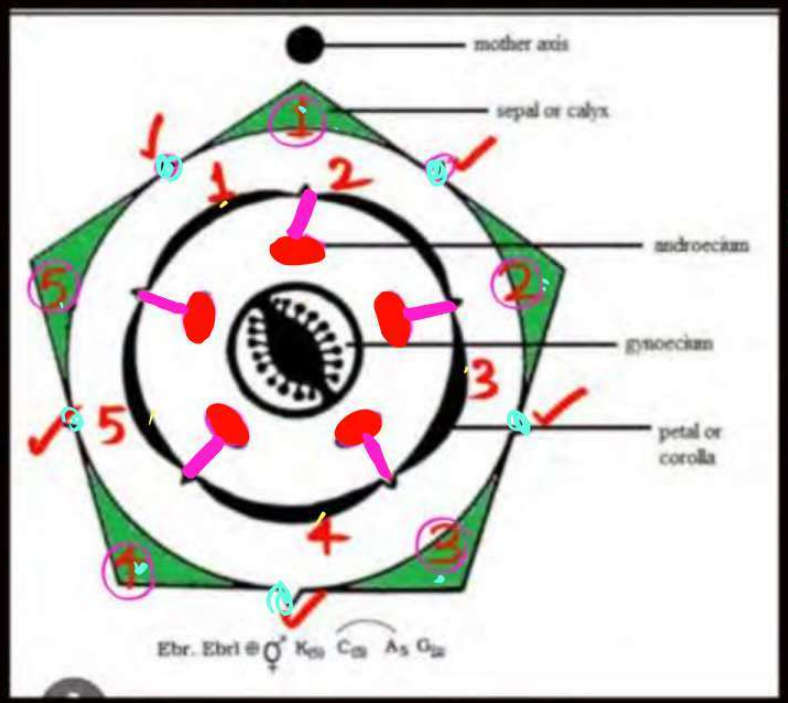
$\underline{G}_{1}$

— → sup. ovary

Fabaceae


% ♀ K(5) C1+2+(2) A(9)+1 G1
Zygomorphic
BISEXUAL
CALYX
5 sepal
gamo-sepalous (FUSED)
STANDARD, POSTERIOR, LARGE
Lateral, 2
4 anterior, small
9 stamen
FUSED
1 stamen
diadelphous
fused
monocarpellary
SUPERIOR OVARY

Solanaceae



Persistent calyx

Calyx : 5sepal , Fused, gamosepalous. , valvate K(5)

Corolla : 5petal., Fused gamopetalous, valvate , C(5).

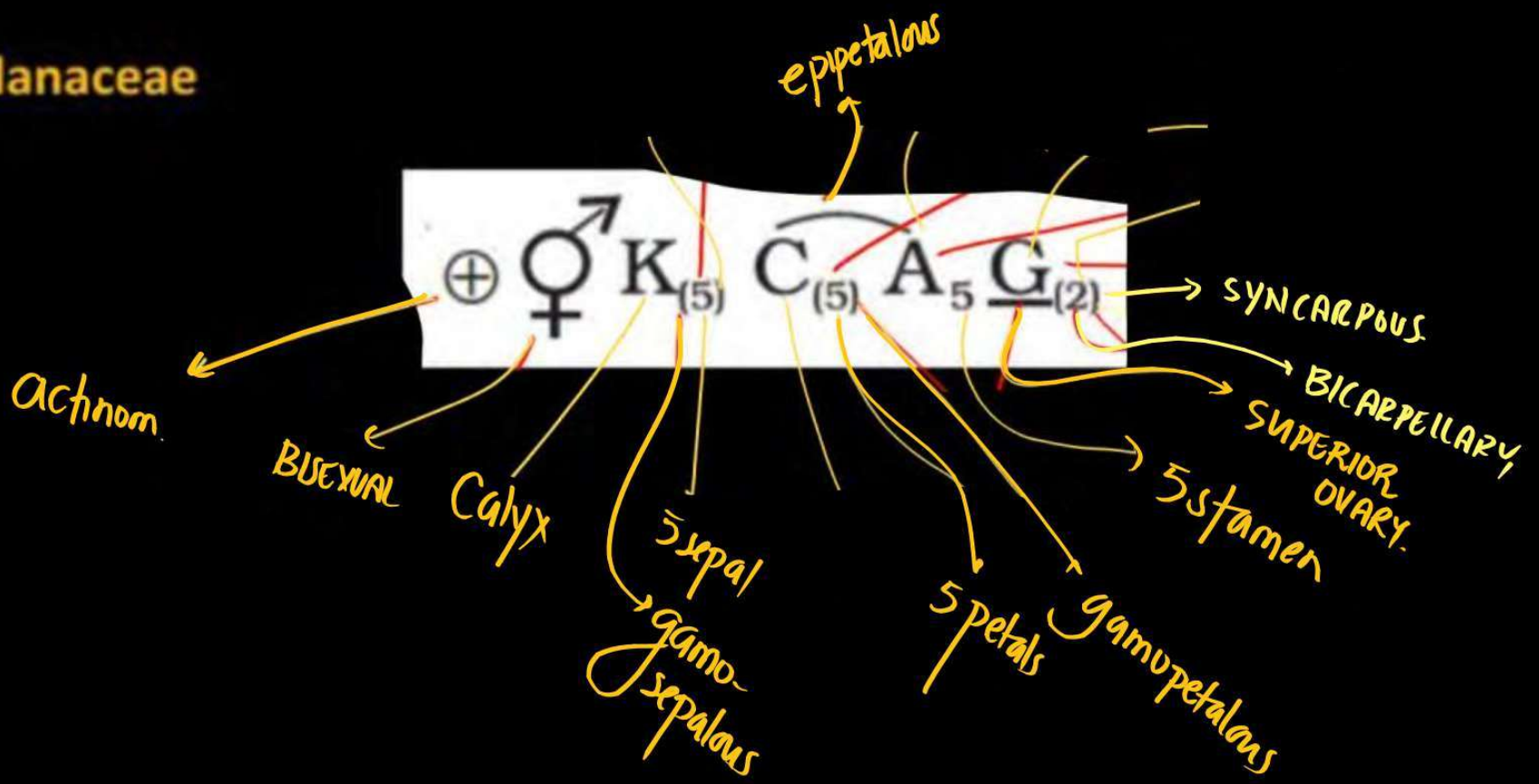
Androecium : 5stamen. , stamen attach to petal. → epipetalous.

C(5) A5

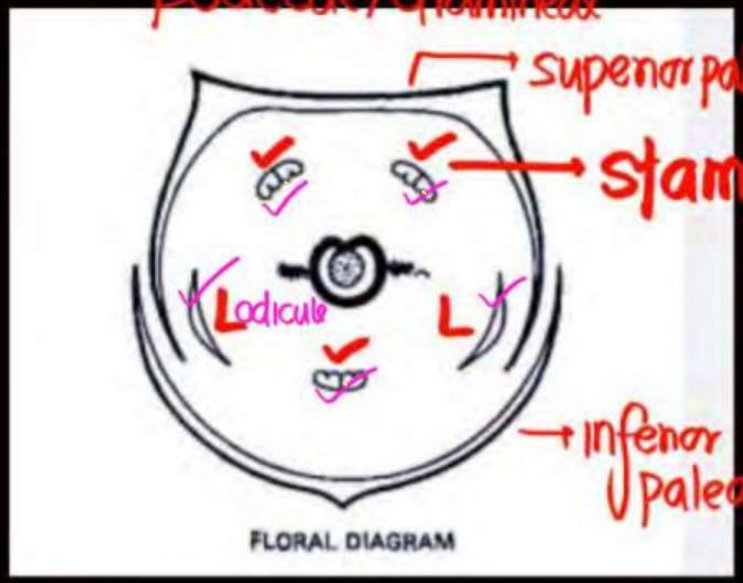
Gynoecium : Bicarpellary, Biloculer, syncarpous ovary

♀(2) → SUP OVARY.

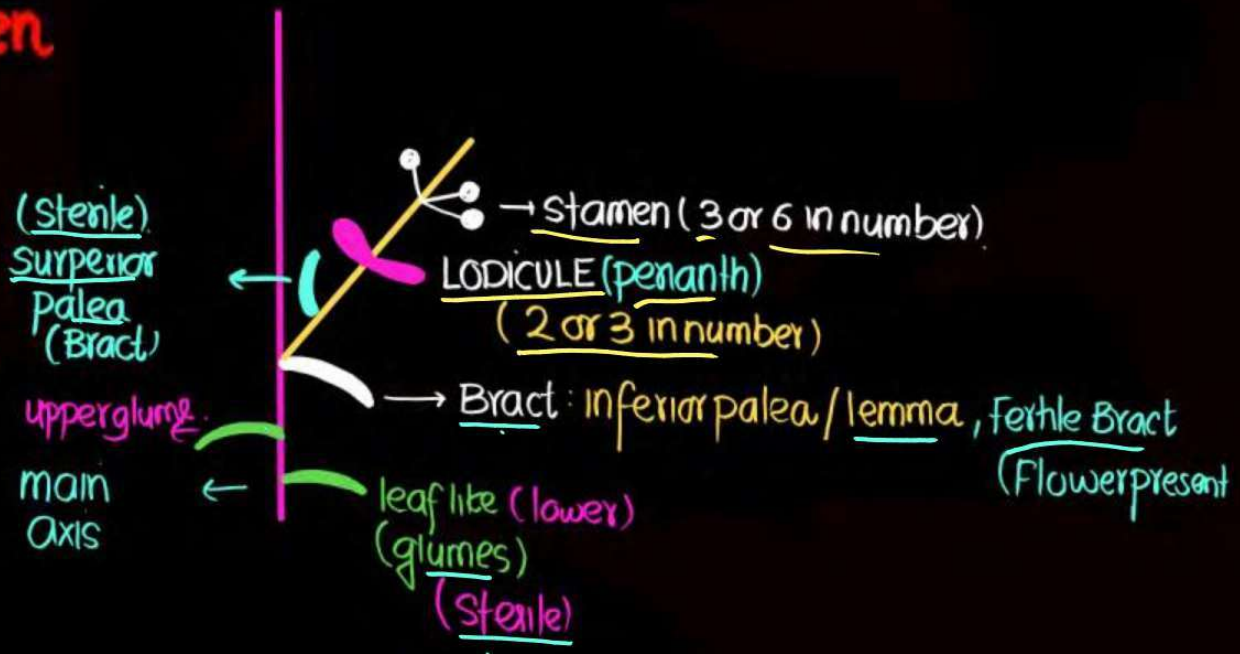
Solanaceae

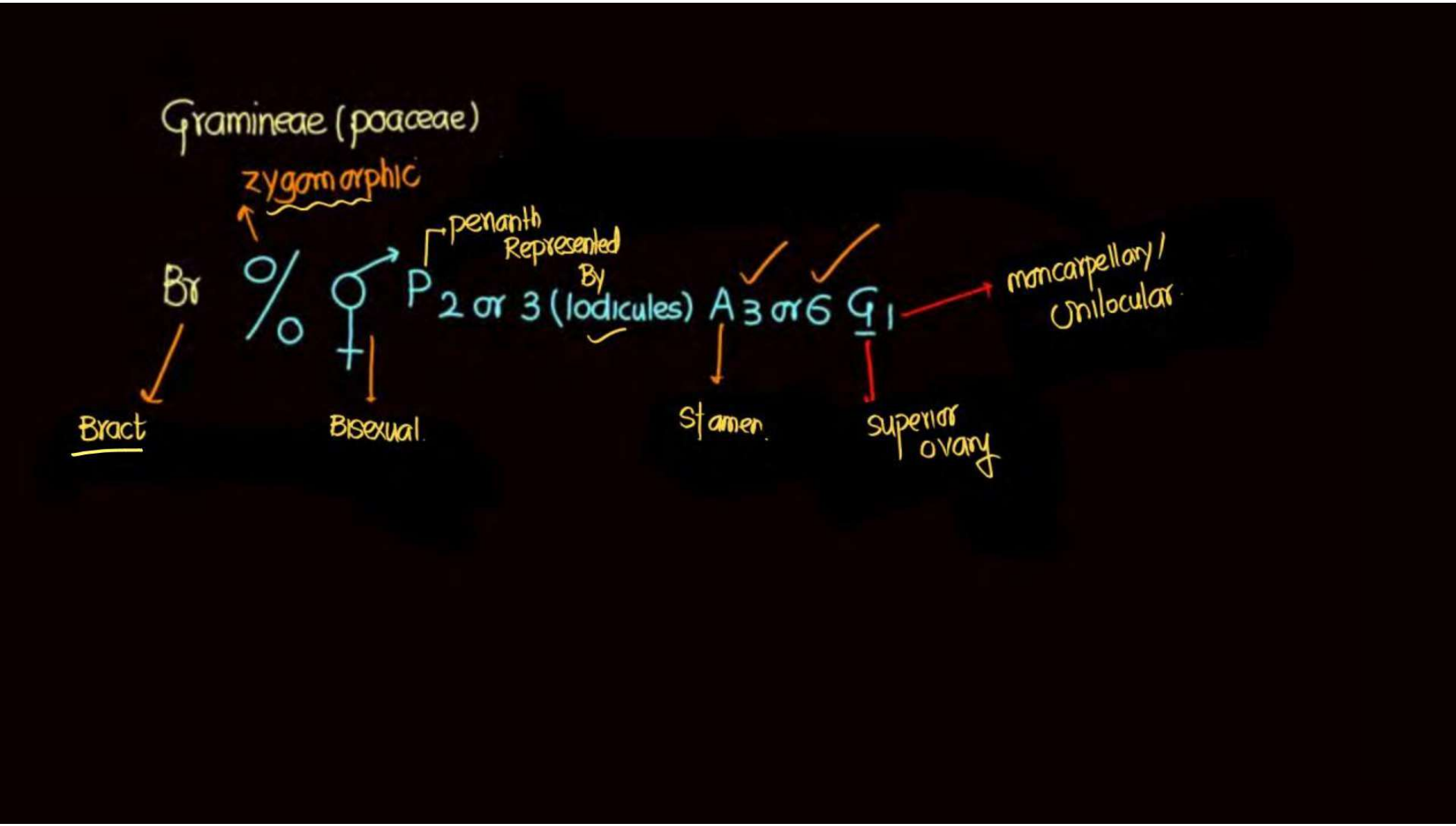

epipetalous
⊕ ♂ ♀ K(5) C(5) A5 G(2)
SYNCARPOUS
BICARPELLARY
SUPERIOR OVARY
5 stamen
gamopetalous
5 petals
5 sepal
gamosepalous
Calyx
BISEXUAL
actinom.

Poaceae / Graminae

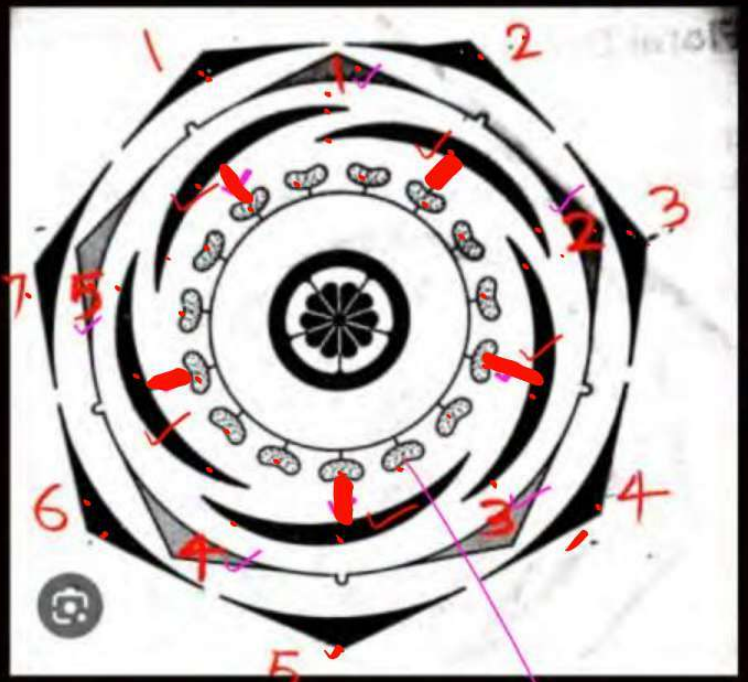


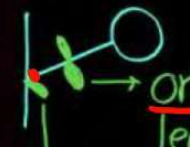
Poaceae (inflorescence)




Gramineae (poaceae)
zygomorphic
Br
%
♀
P
perianth Represented By
2 or 3 (lodicules)
A 3 or 6
G 1
monocarpellary / Unilocular
Bract
Bisexual
Stamen
superior ovary

Malvaceae (china Rose (Hibiscus), Cotton, lady finger.





on pedicel leaflike structure (BRCTEOLE)

↓

Collection of Bracteole (Epicalyx) ✓

Epi_{3-9}

Calyx: Sepals 5, fused, gamosepalous, valvate. $K_{(5)}$

COROLLA: petals 5, Free, polypetalous, Twisted: C_5

ANDROECIUM: stamen many., infinite., stamen Fused with help of filament, present in one Bundle. (monoadelphous), MONOTHECOUS ANTHER (TWO POLLEN SAC PRESENT)

Stamen attach to PETALS: EPIPETALOUS.

Staminal Tube.

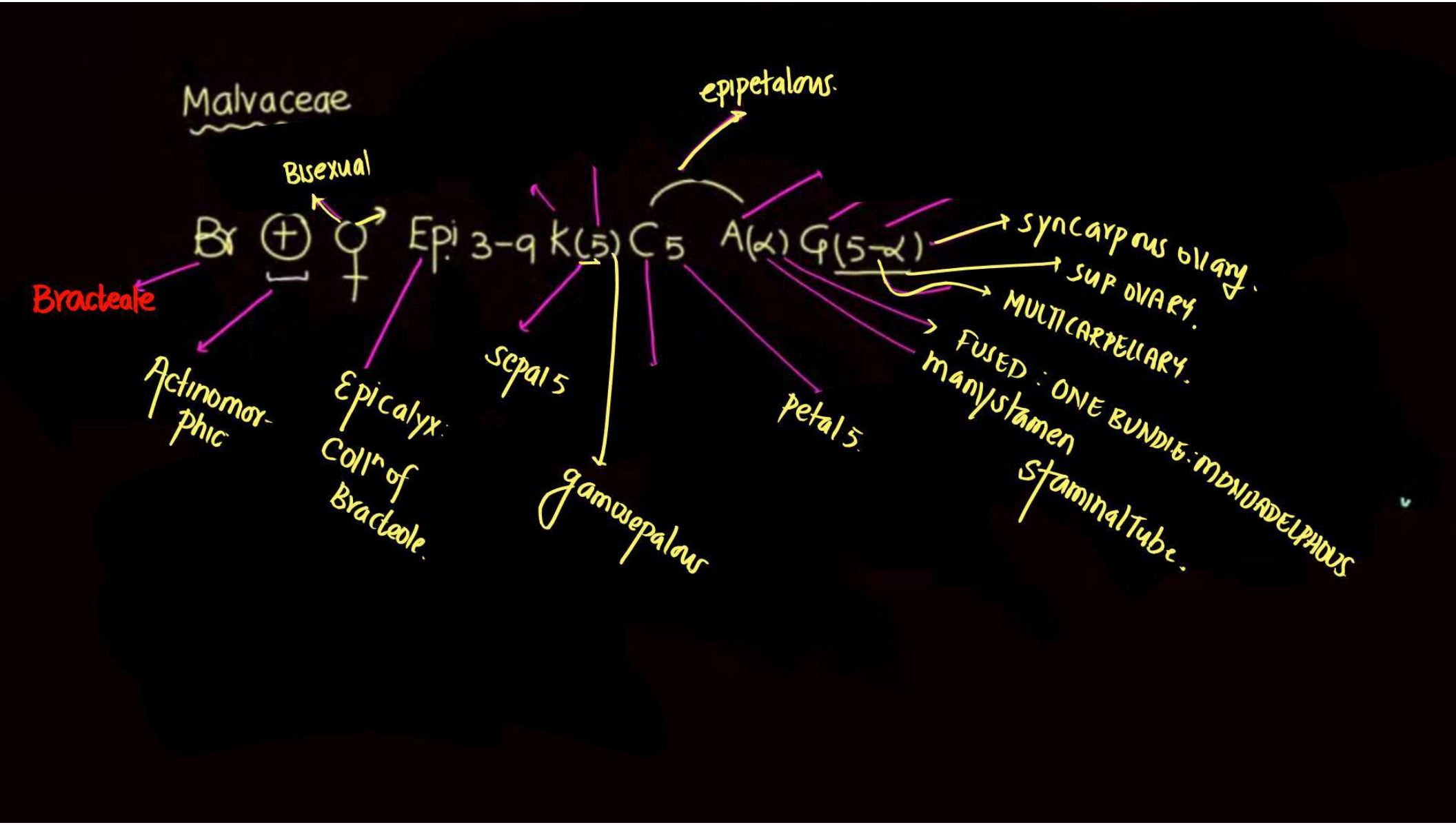
Fusion of filament: a Tube is formed (staminal Tube)

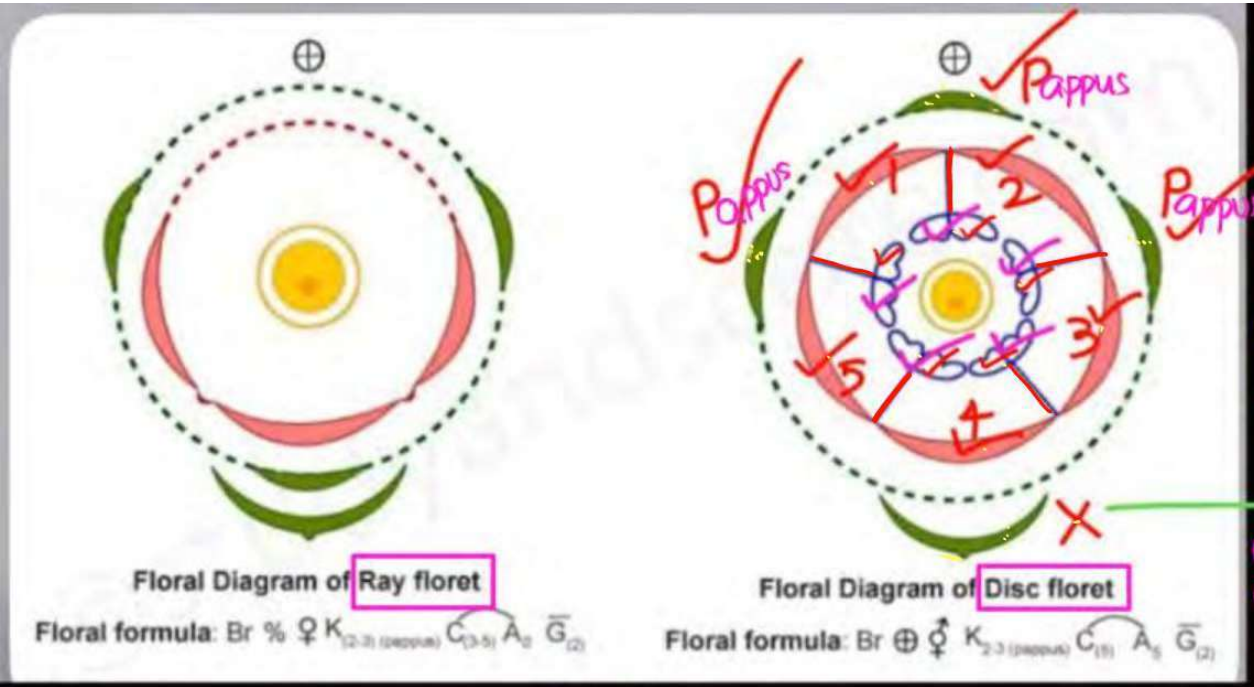
Epipetalous.

$K_{(5)}\ C_5\ A_{(\infty)}$

monoadelphous (filament fused)

Gynoecium: Multilocular, Multicarpellary, syncarpous ovary. (Fused). many ovules.


Malvaceae
epipetalous.
Bisexual
Br ⊕ ♀ Epi 3-9 K(5) C 5 A(∝) G(5-∝)
syncarpous ovary.
SUP OVARY.
MULTICARPELLARY.
FUSED : ONE BUNDLE : MONADELPHOUS
Bracteate
Actinomor-phic
Epicalyx: Coll^n of Bracteole.
Sepal 5
gamosepalous
Petal 5.
many stamen
Staminal Tube.



Asteraceae / Compositae (sunflower), marigold.
↓
Helianthus annus.

DISC FLORET

♀

Actinomorphic ⊕, Bisexual

Calyx: modify into Pappus: K pappus.

Corolla: 5 petals, Fused, gamopetalous, valvate

C(5)

anther fused

Filament free

Collection of Bract

Androecium: stamen 5, Fused with help of anther (SYNGENIOUS)

Stamen attach to petals: Epipetalous.

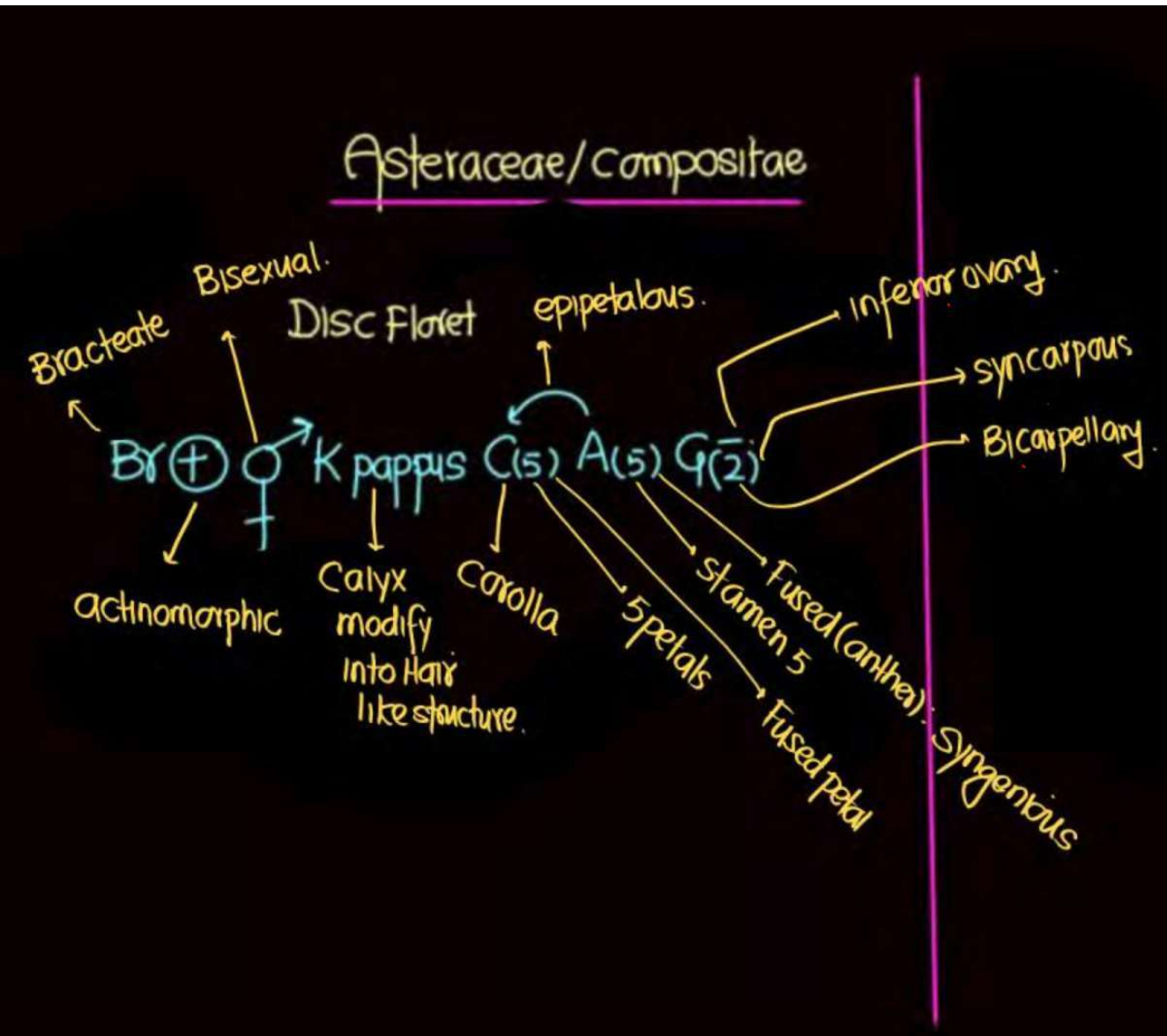
K pappus C(5) A(5)

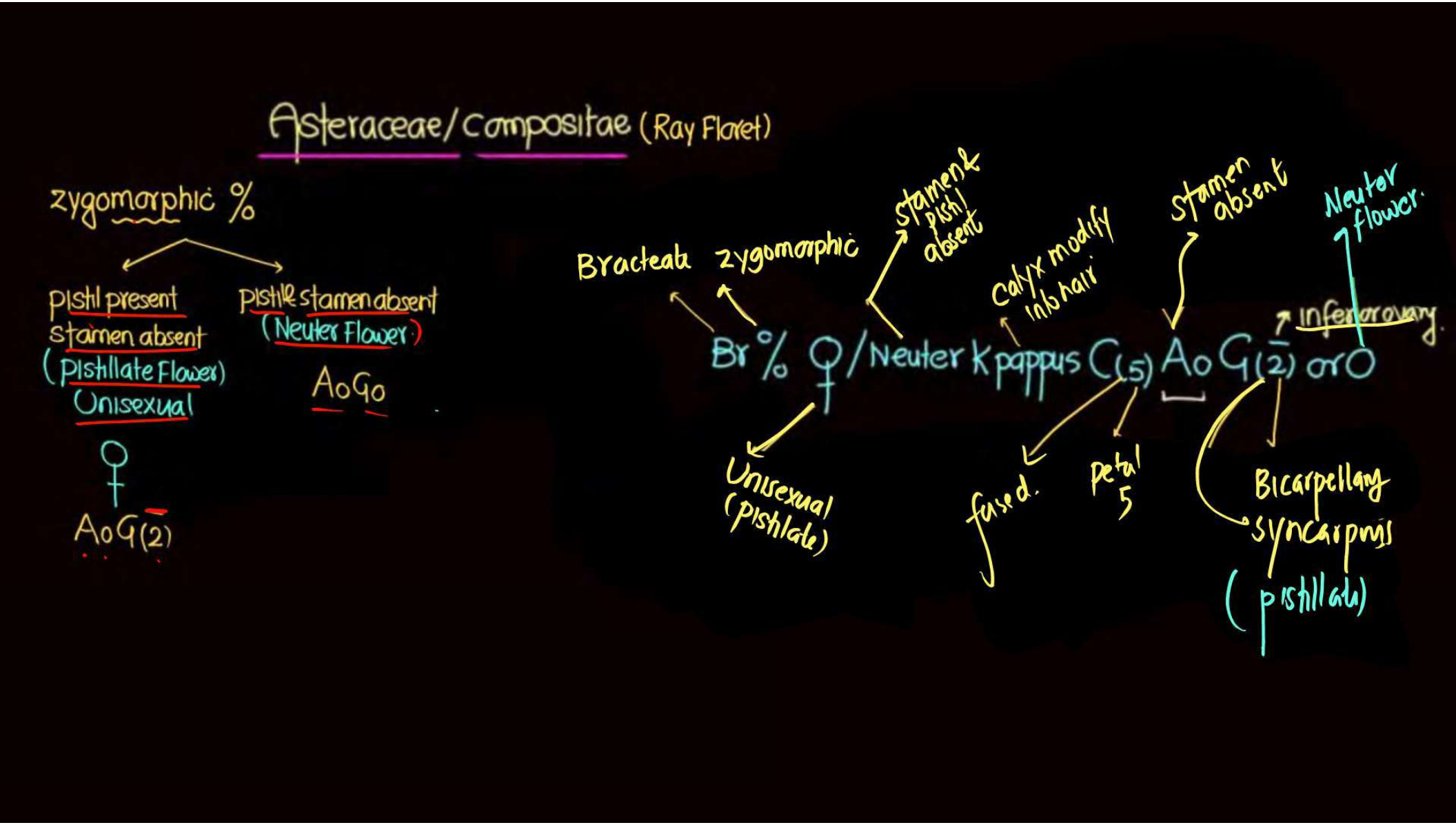
Gynoecium: Unilocular, Bicarpellary, Syncarpous ovary, Inferor ovary.

Bract: Collection → INVOLUCRE

pappus → Calyx modify into Hair like structure pappus (Helps in fruit dispersal)

Fruit (Cypsela)


Asteraceae/compositae
Bracteate
Bisexual.
Disc Floret
epipetalous.
inferior ovary.
syncarpous
Bicarpellary.
Br ⊕ ♂ K pappus C(5) A(5) G(2̄)
actinomorphic
Calyx modify into Hair like structure.
Corolla
5petals
Fused petal
stamen 5
Fused (anther)
Syngenious


Asteraceae/Compositae (Ray Floret)
zygomorphic %
pistil present
stamen absent
(pistillate Flower)
Unisexual
♀
A0G(2)
pistil stamen absent
(Neuter Flower)
A0G0
Bracteate
zygomorphic
stament & pistil absent
Br % ♀/Neuter
Unisexual (pistilate)
calyx modify in hair
pappus
C(5)
fused.
petal 5
stamen absent
A0
G(2)
inferior ovary.
Neuter flower.
or 0
Bicarpellary syncarpous (pistillate)