

2. Morphology of Reproductive Parts

Flower:

Introduction and Definition:

Parts of typical flower:

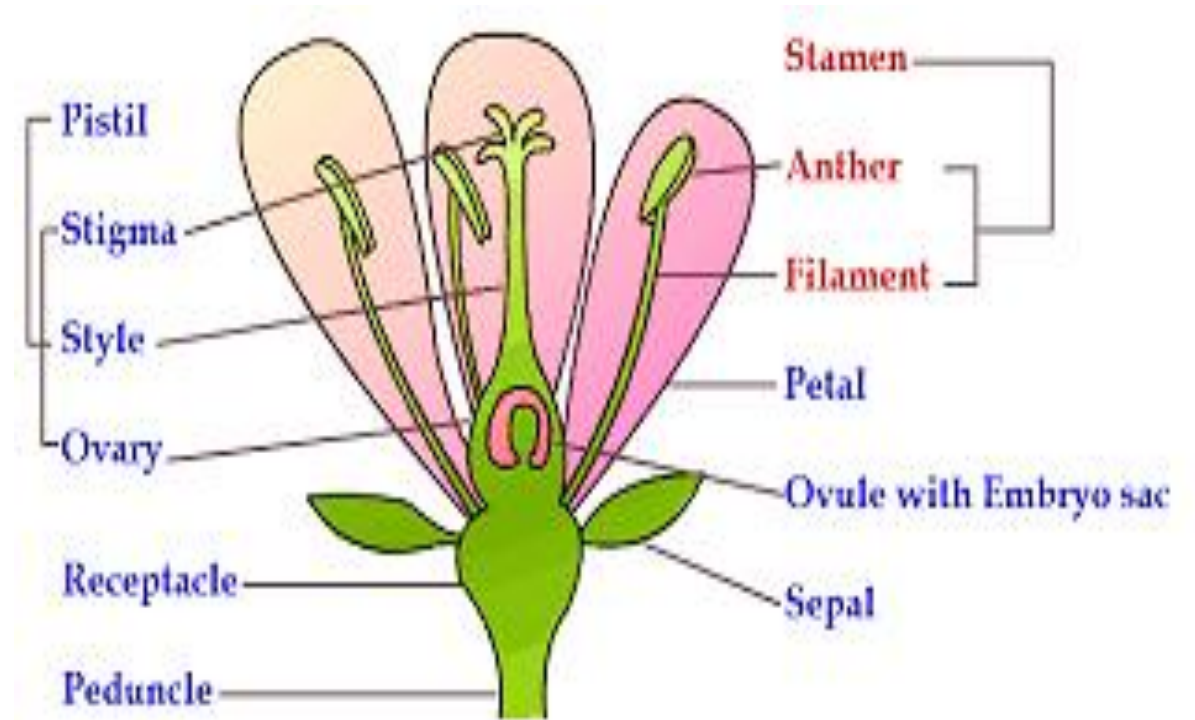
a. Pedicel:

b. Bract:

c. Thalamus: Anthophore, Androphore,
Gynophore, Androgynophore

d. Floral whorls:

Calyx, Corolla, Androecium and
Gynoecium



Parts of a typical flower

Symmetry of flower

Actinomorphic e.g. Hibiscus

Zygomorphic e.g. Clitoria

Irregular e. g. Canna



Figure 4.13: (a)
Actinomorphic



Figure 4.13: (b)
Zygomorphic



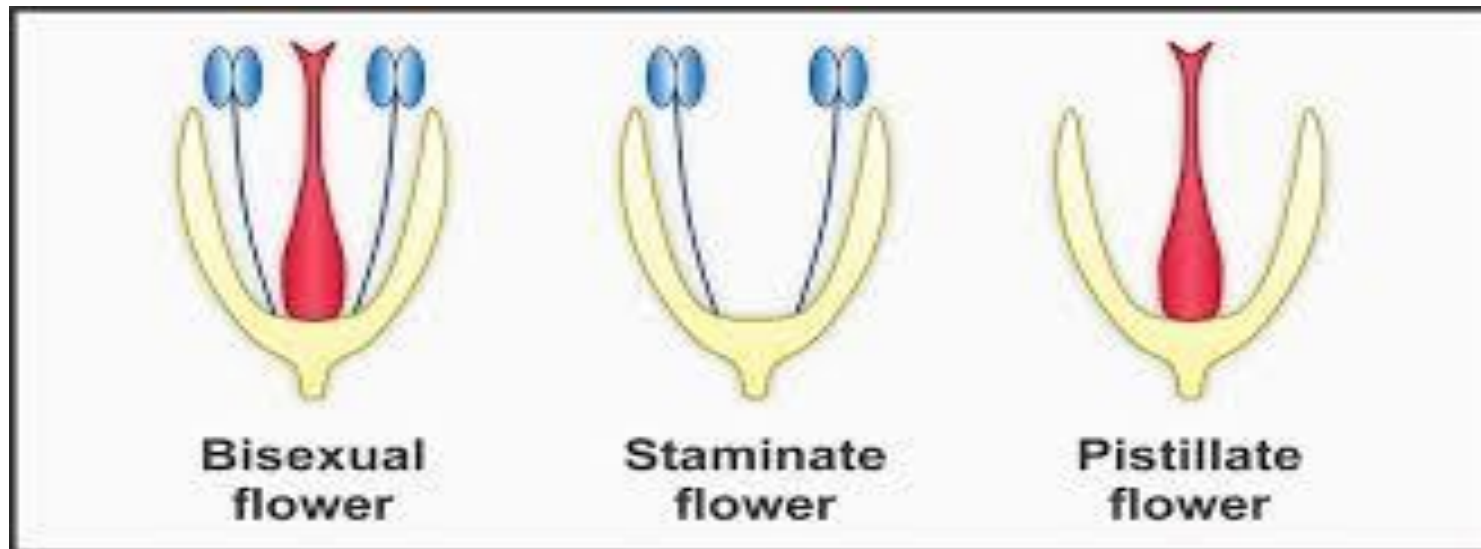
Figure 4.13: (c)
Asymmetric

Sexuality

Bisexual flowers e. g. Hibiscus, Datura

Unisexual- Staminate/ male flower e.g. Maize

Unisexual- Pistillate/ female flower e.g. Maize

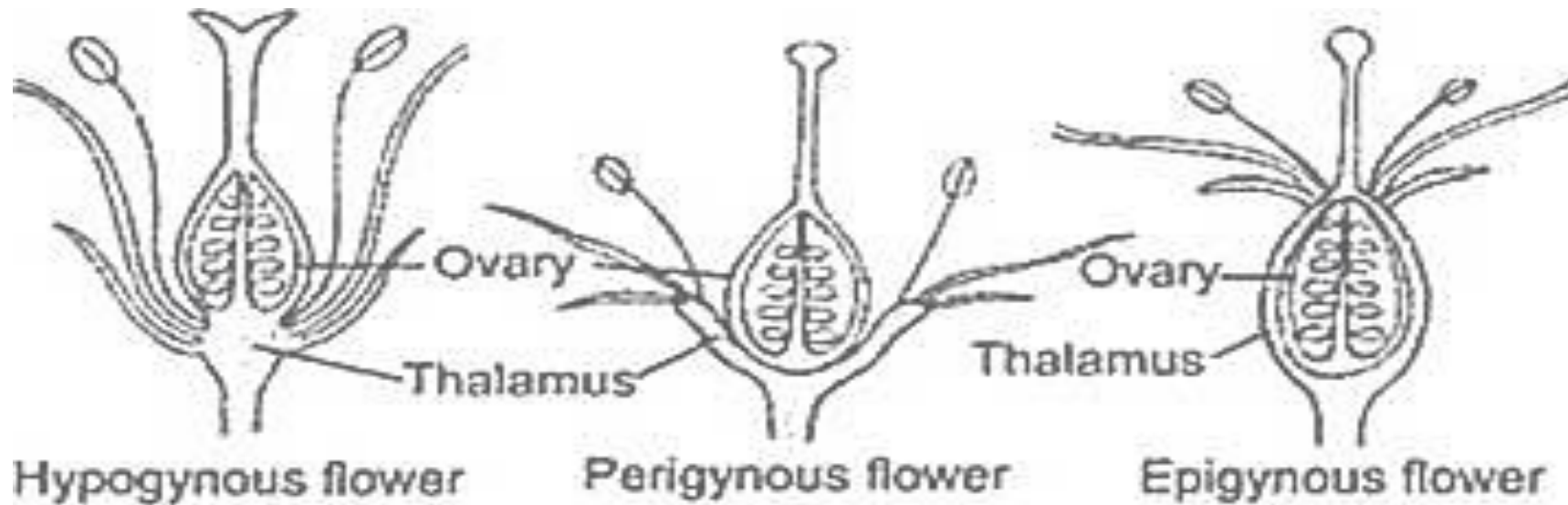


Insertion of floral whorls on the thalamus

1. Hypogynous flower e. g. Hibiscus, Datura

2. Perigynous e. g. Rose

3. Epigynous e. g. Guava, Cucurbita



Merous condition

Trimerous e. g. Monocots

Tetramerous e. g. Crucifers

Pentamerous e. g. Hibiscus, Datura, Dicots



Floral Whorls

1. Calyx:

Introduction:

Nature- Polysepalous, gamosepalous

TYPES OF CALYX: BASED ON FUSION



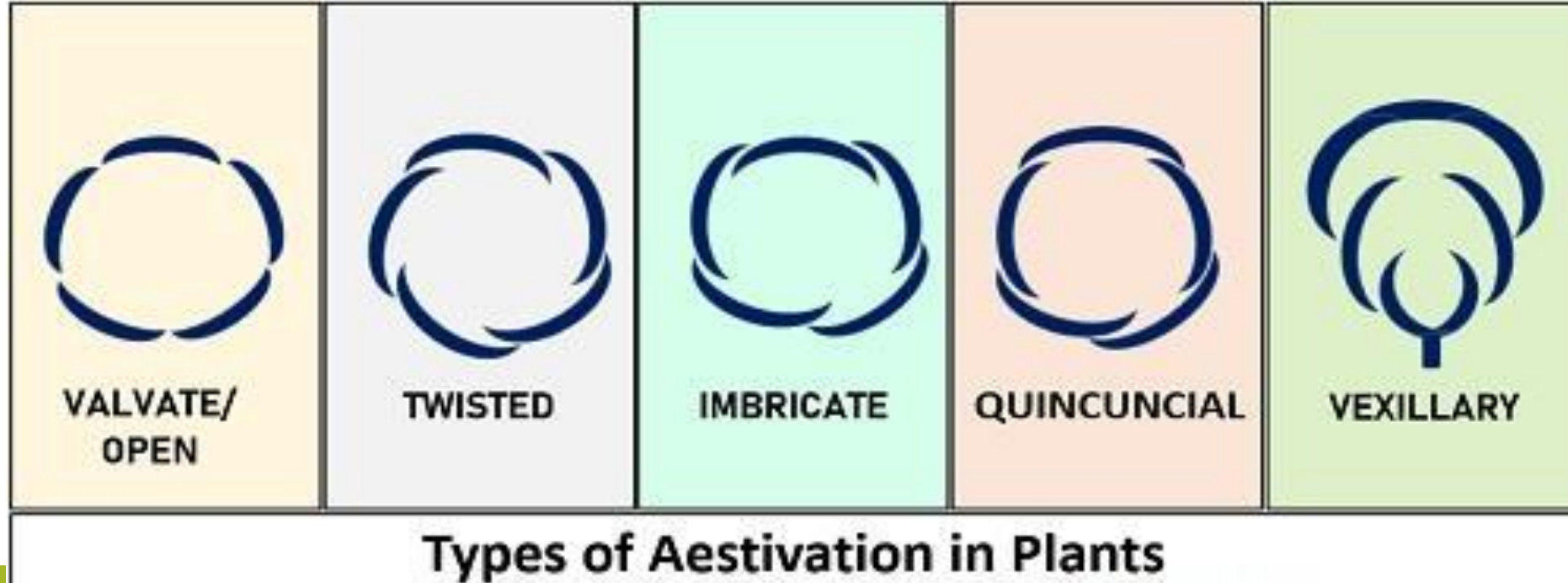
GAMOSEPALOUS



POLYSEPALOUS

Aestivation

- i. **Valvate- *Solanum***
- ii. **Twisted- *Hibiscus***
- iii. **Imbricate- *Cleome***
- iv. **Quincuncial- *Dianthus***
- v. **Vexillary- *Clitoria***



Modifications in calyx

Petaloid calyx- *Mussaenda*

Pappus calyx- *Tridax*



Corolla

Introduction

Forms of corolla

1. Regular and Polypetalous-

Cruciform corolla- *Brassica*

2. Irregular and Polypetalous-

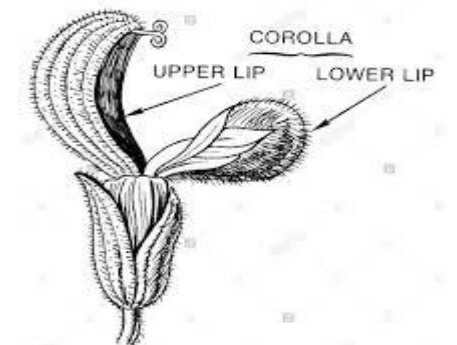
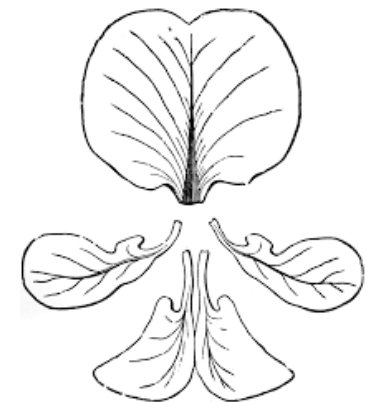
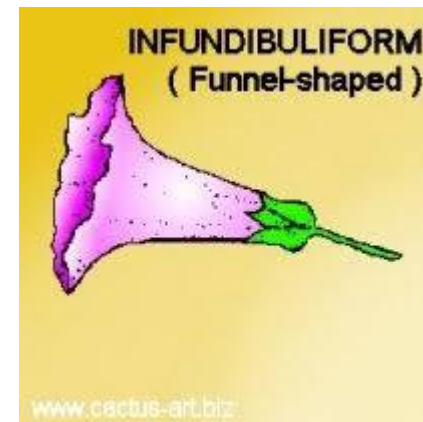
Papilionaceous corolla- *Clitoria*

3. Regular and gamopetalous-

Infundibuliform corolla- *Datura*

4. Irregular and gamopetalous-

Bilabiate corolla- *Oscimum, Salvia*



Corolla Aestivation

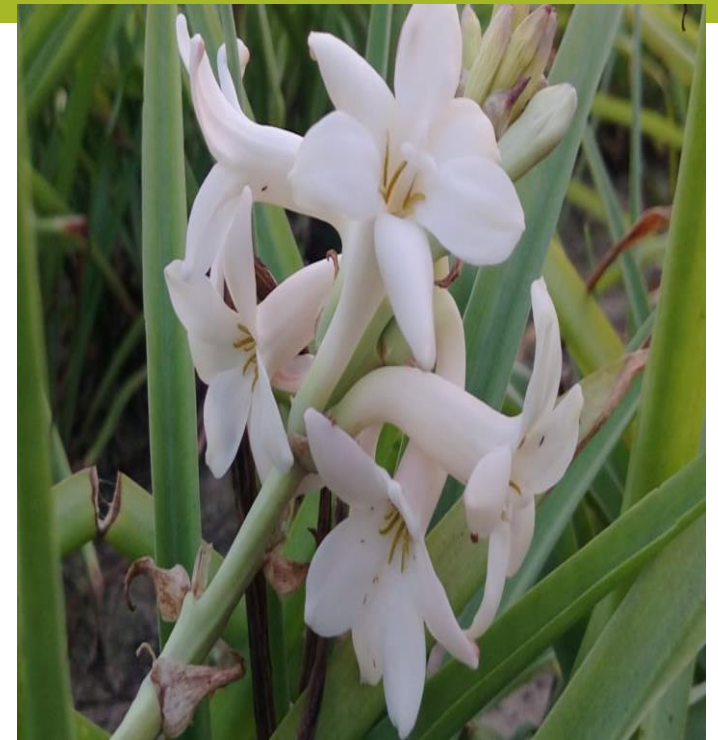
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- ii. Twisted- *Hibiscus***
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- v. Vexillary- *Clitoria***

Perianth

Definition

Polytepalous- *Tuberose*

Gamotepalous- *Michelia*



Androecium

Introduction

Parts of stamen

Filament

Connective

Another lobe

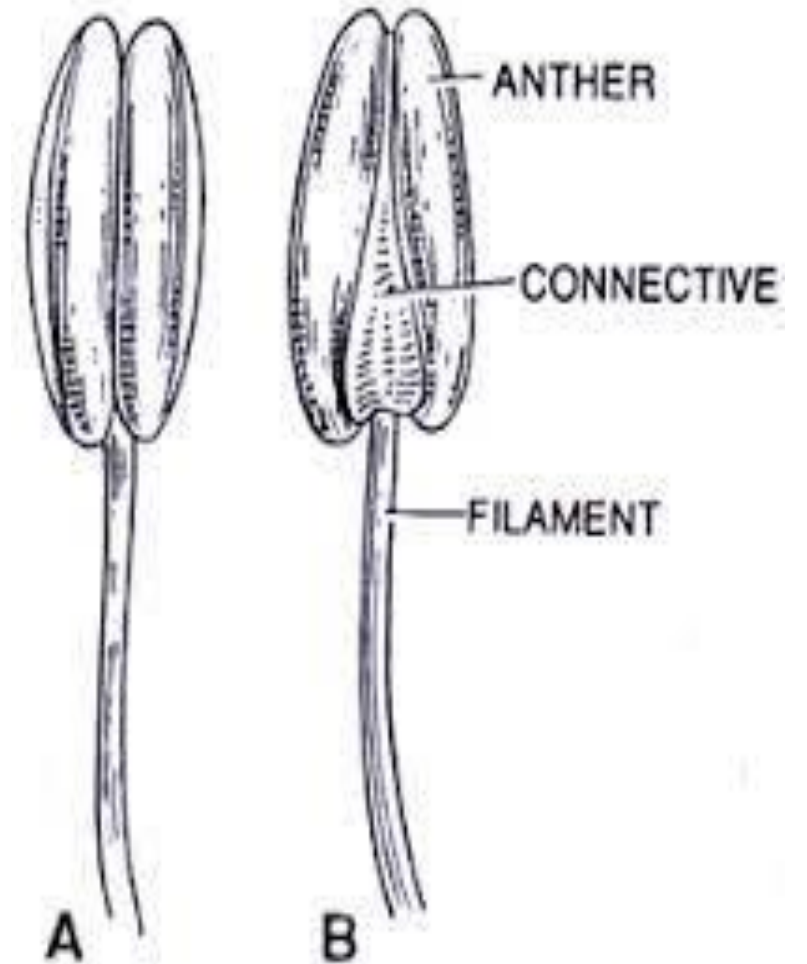
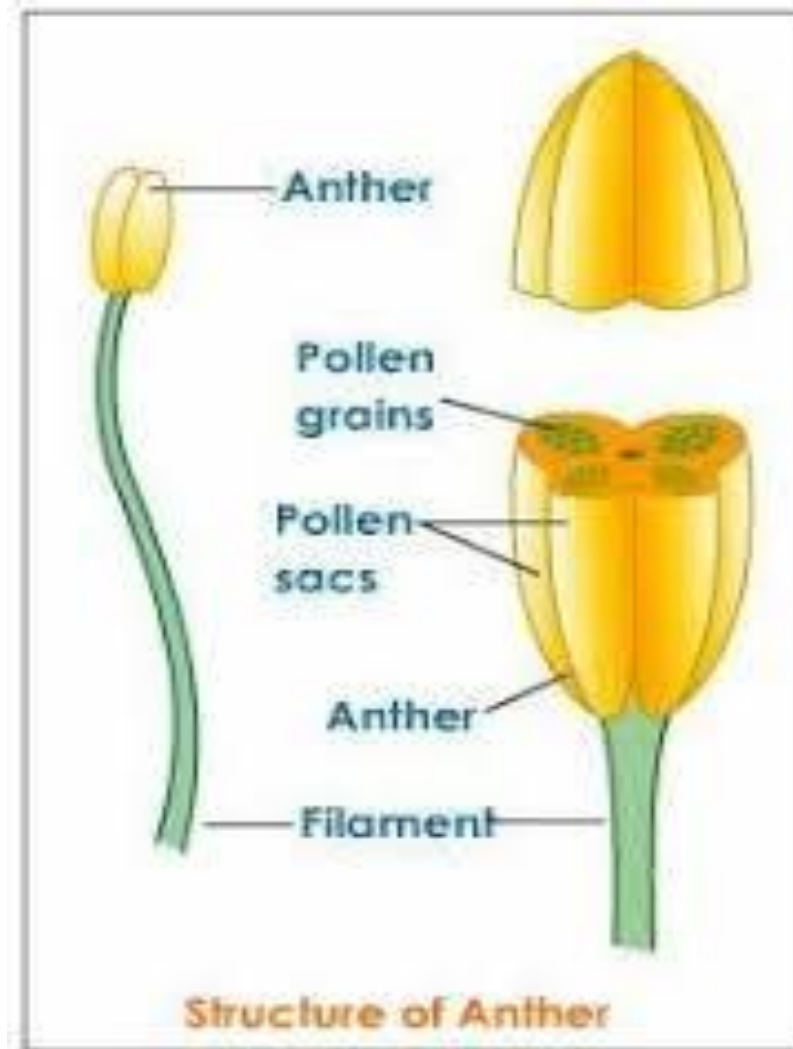


Fig. 12.52. Stamens. A, face; B, back.

Cohesion

Definition

Types:

a. Adelphy

b. Syngeny- Sunflower, *Tridax*

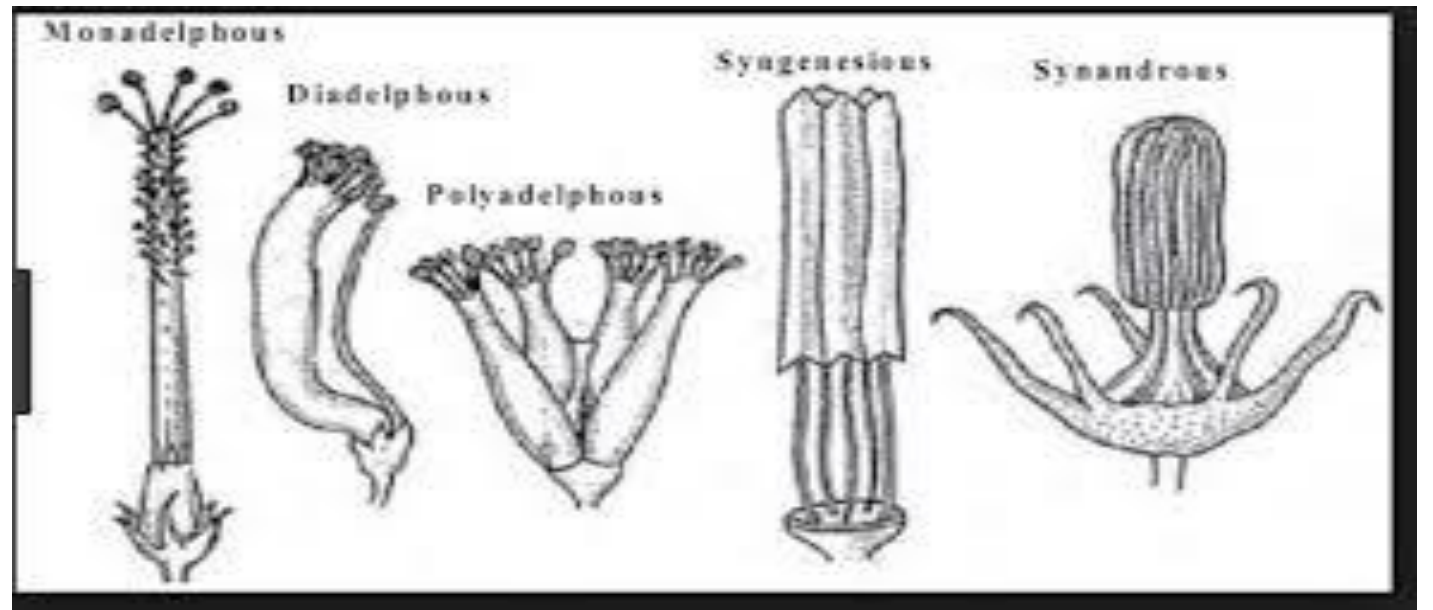
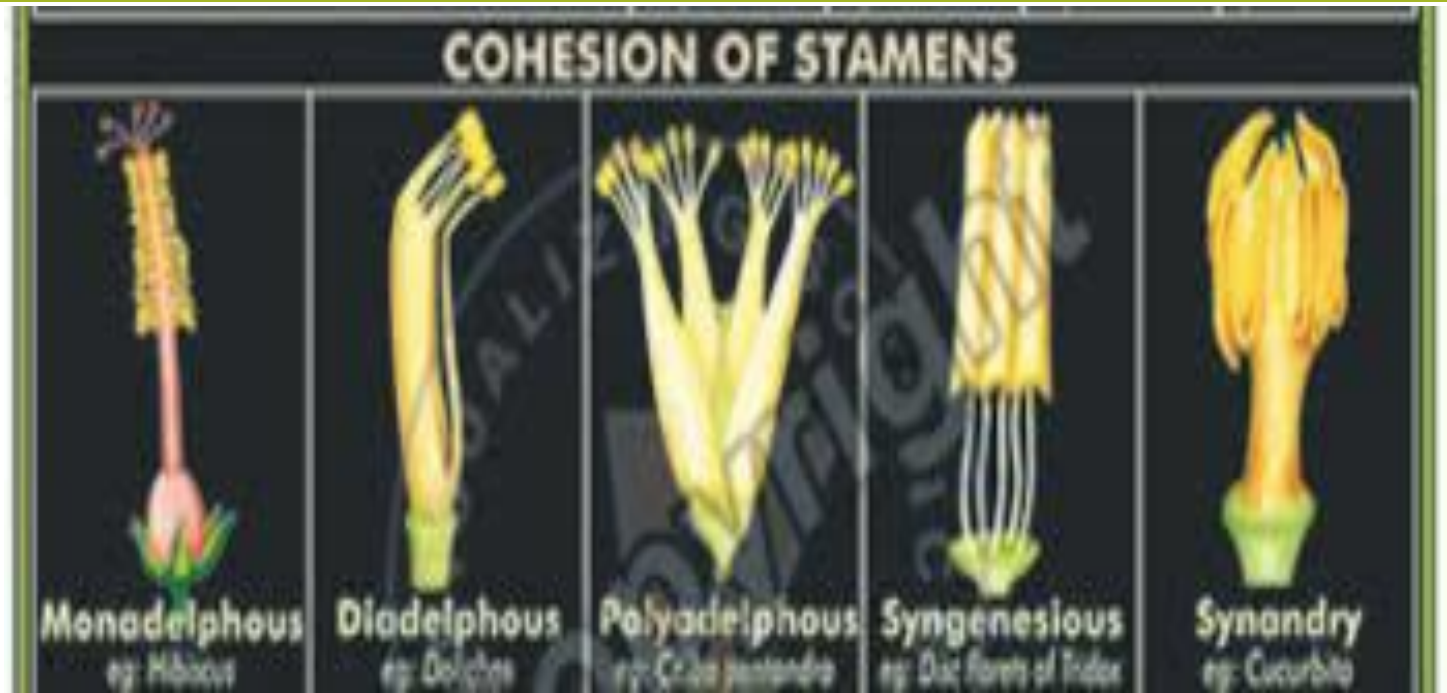
c. Synandry- *Cucurbita*

a. Adelphy

i. Monadelphous- *Hibiscus*

ii. Diadelphous- *Clitoria*

iii. Polyadelphous- *Citrus*



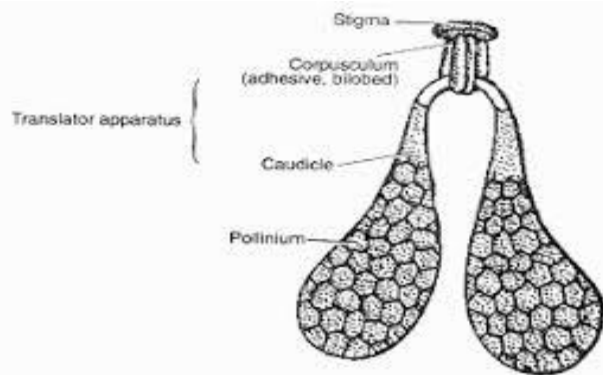
Adhesion

Introduction

Definition

Types:

- i. Epipetalous- Datura
- ii. Epiphyllous- Polyanthes, Lily
- iii. Gynandrous- Calotropis
(Gynandry, Gynostegium)



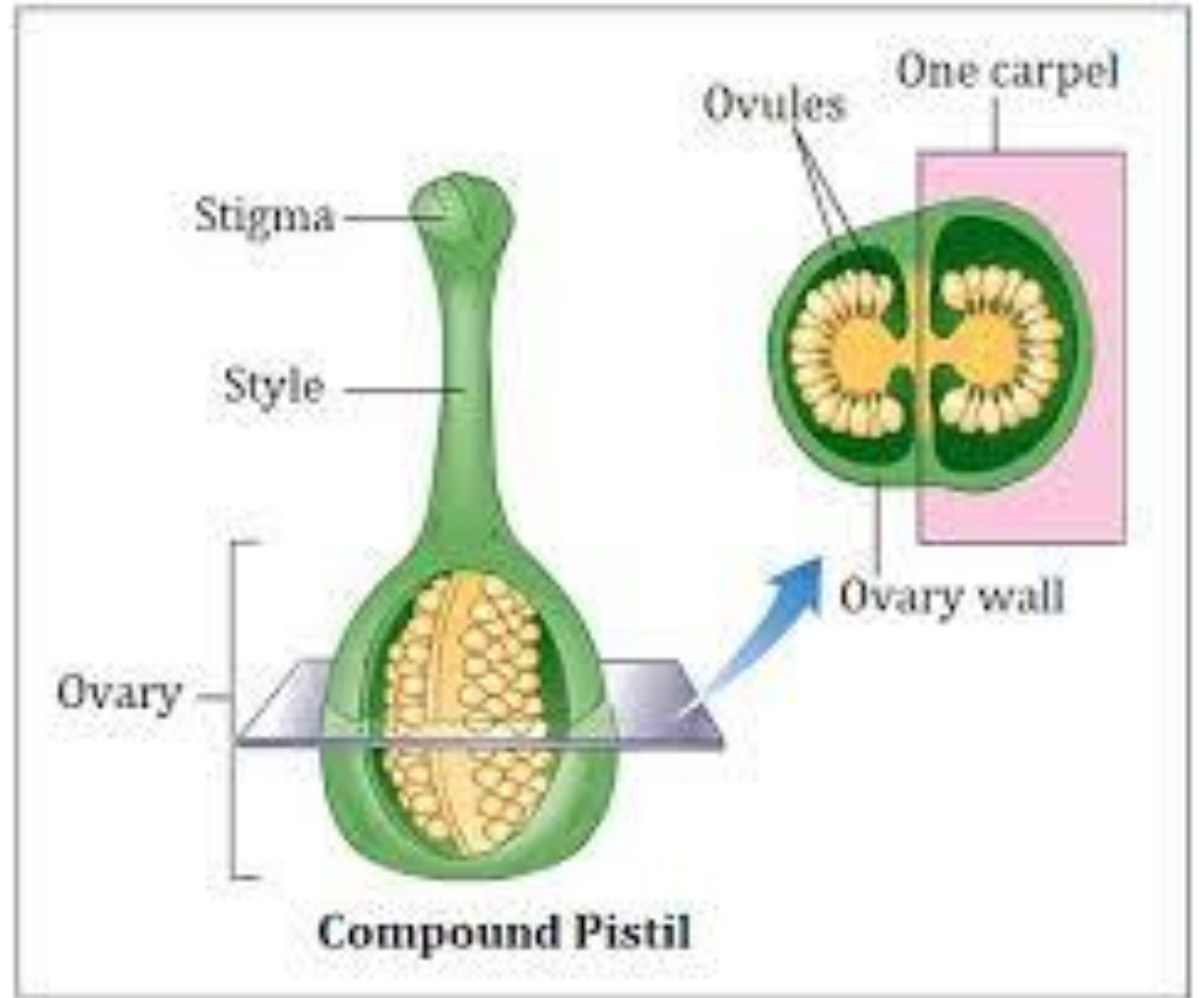
Gynoecium

Introduction

Definition

Parts of Carpel

- a. Ovary- Locule, mono, bi, tri, multi
- b. Style
- c. Stigma



Types of Gynoecium

i. Simple– Clitoria

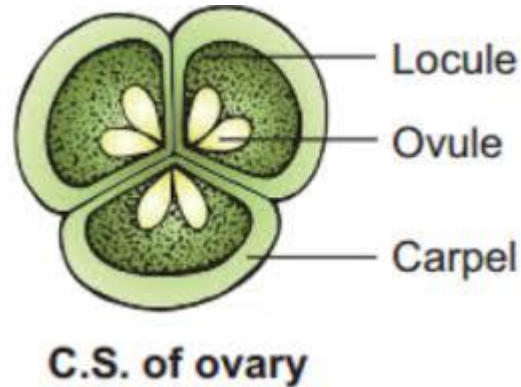
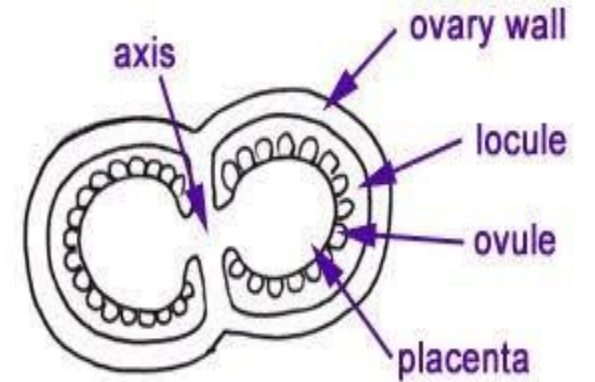
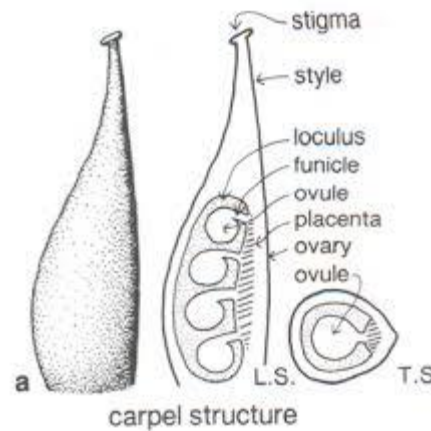
ii. Compound gynoecium –

Bicarpellary – Datura

Tricarpellary – Euphorbia

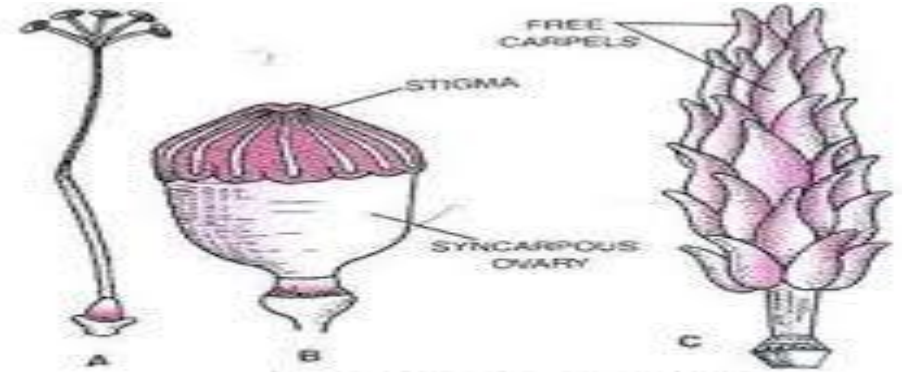
Pentacarpellary – Hibiscus

Polycarpellary - Rose

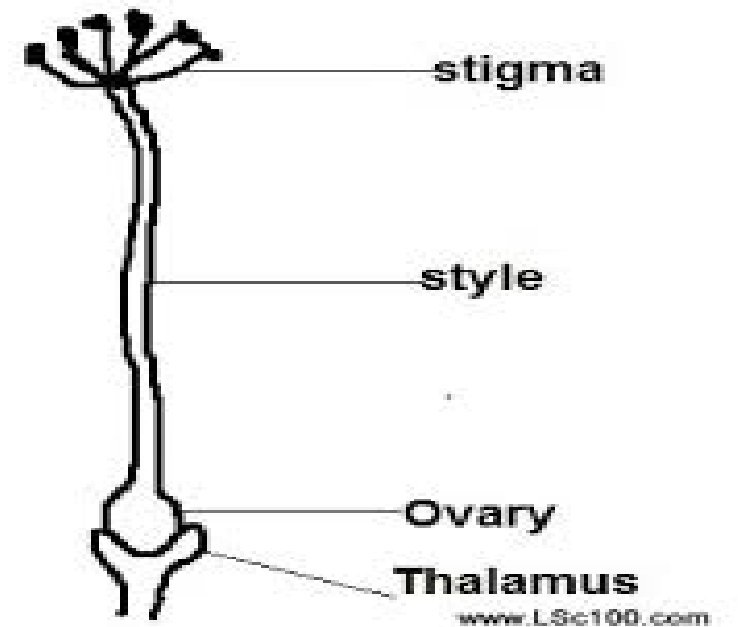


Apocarpous Gynoecium- Anona, Michelia

Syncarpous Gynoecium - Hibiscus



Gynoecium. A, a syncarpous pentacarpellary pistil of *Hibiscus*. B, a syncarpous multicarpellary pistil of *Papaver*. C, an apocarpous multicarpellary gynoecium of *Michelia*.



Placentation

Definition

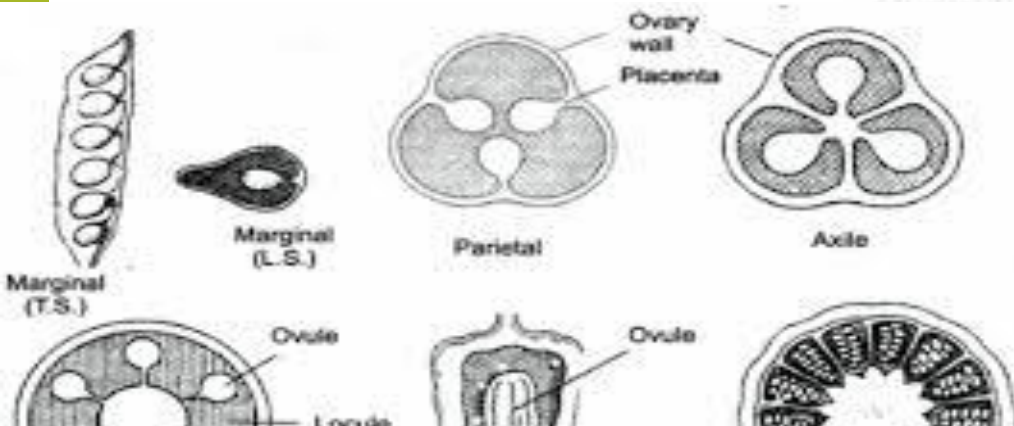
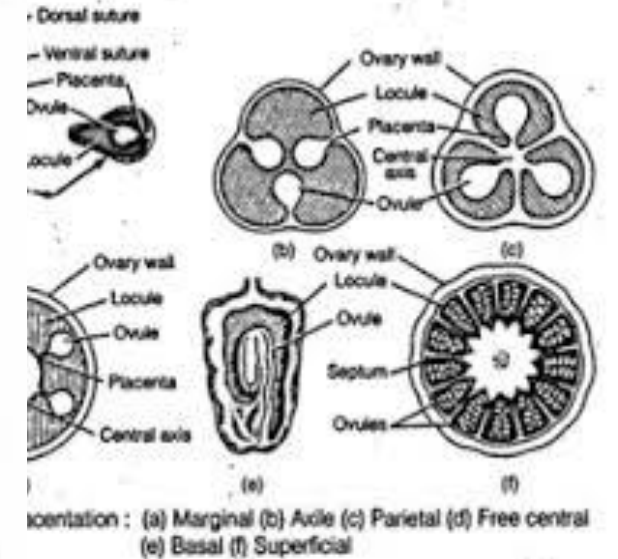
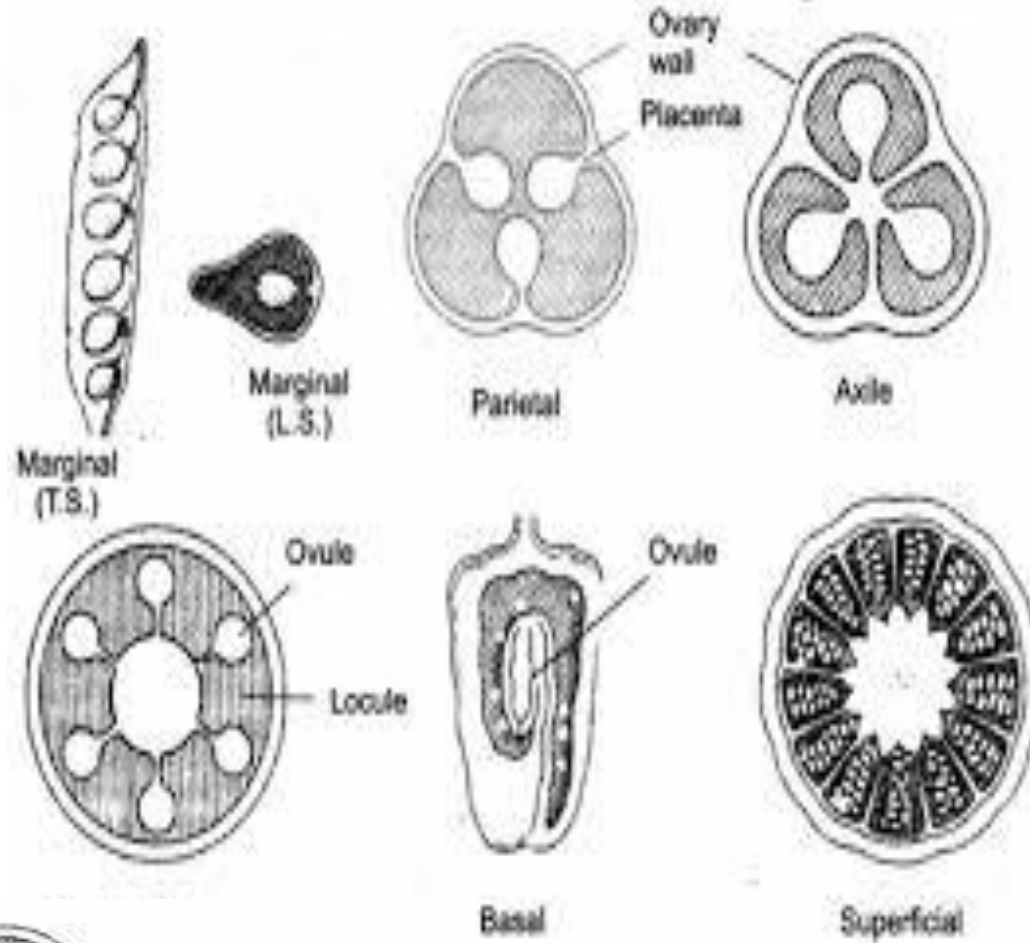
a. Marginal- Clitoria

b. Axile- Hibiscus

c. Parietal- Cucurbita

d. Basal- Tridax

e. Free central- Dianthus



Fruit

Introduction:

Matured and ripened ovary

Seeds and fruit.

True fruit - Mango

False fruit – Cashewnut

Parthenocarpic fruit – Seedless –

Guava, Papaya



Parts of Fruit

A- Placenta-

Seed

Testa

Endosperm

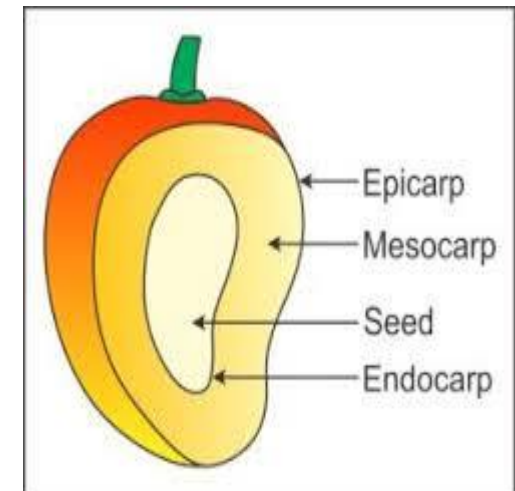
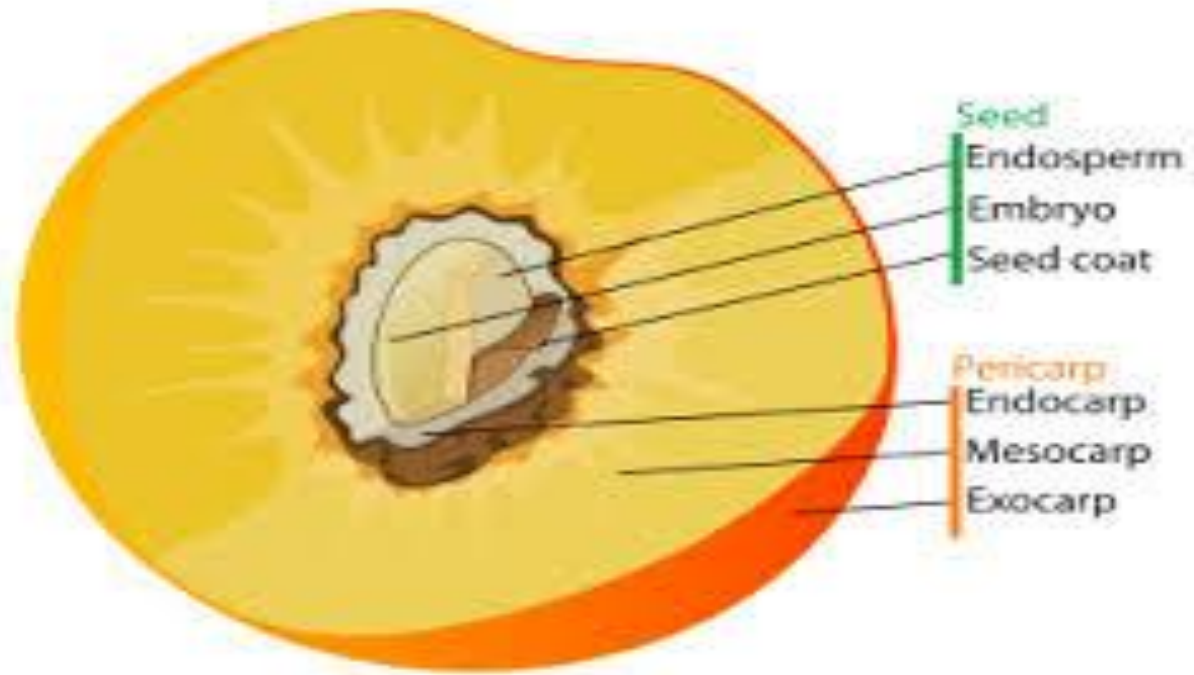
Embryo

B- Pericarp (Covering)

Epicarp

Mesocarp

Endocarp



Outline of classification of fruits

Sr. No.	Simple fruit	Aggregate fruit	Composite / Multiple fruit
1	Develops from single flower with single ovary.	Develops from single flower with many free ovaries.	Develops from many flowers of a single inflorescence.
2	Pistil is monocarpellary or polycarpellary syncarpous, unilocular or multilocular, pericarp is simple or modified.	Pistil is polycarpellary apocarpous.	Complete inflorescence modifies in to a fruit.
3	Sunflower	Annona	Pineapple

Simple Fruit

Indehiscent fruit		Dehiscent fruit
Dry fruit	Fleshy fruit	
1. Achene – <i>Mirabilis</i>	1. Drupe – Mango	1. Legume/ Pod – Bean
2. Caryopsis – Maize	2. Berry -	2. Follicle – <i>Calotropis</i>
3. Cypsela – Sunflower	a. Single seeded berry – Date	3. Capsule -
4. Samara – Hiptage	b. Multi seeded berry – Tomato	a. Loculicidal – Lady’s finger
5. Nut – Cashew nut	c. Hesperidium – Lemon	b. Septicidal – Castor
	d. Amphisarca – Wood apple	c. Septifragal – <i>Datura</i>
	3. Pepo – <i>Cucurbita</i>	d. Porous – Poppy
	4. Pome - Apple	e. Pyxis - <i>Portulaca</i>
		4. Schizocarpic -
		a. Lomentum - <i>Acacia</i>
		b. Cremocarp - Coriander

Simple, Indehiscent and Dry fruits:

1. Achene – *Mirabilis*



2. Caryopsis – Maize

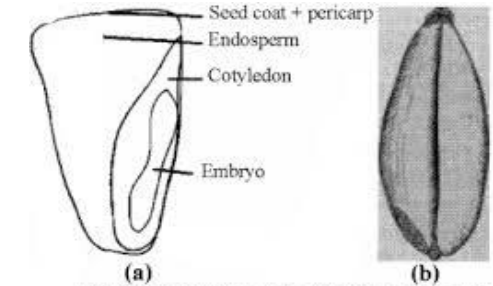


3. Cypsela – Sunflower



4. Samara – Hiptage

5. Nut – Cashew nut

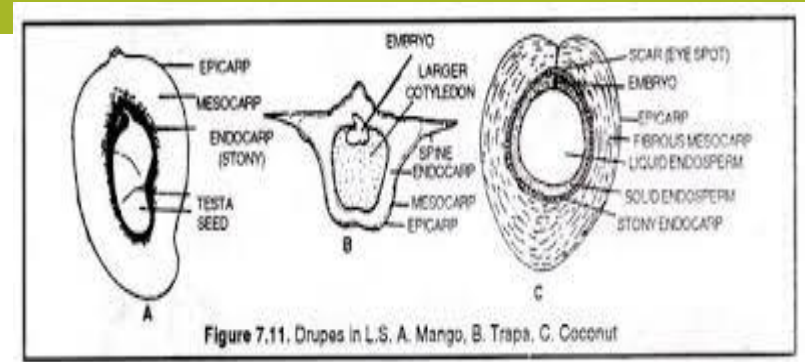
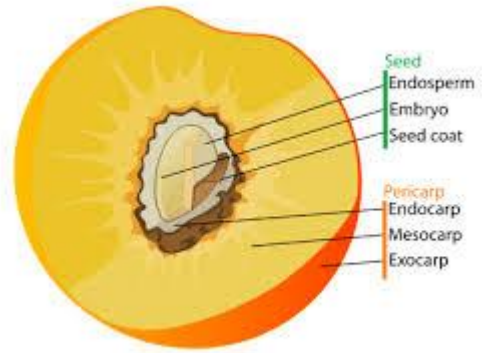


(a) Caryopsis of maize, (b) Caryopsis of wheat



Simple, Indehiscent and Fleshy fruits:

1. Drupe – Mango

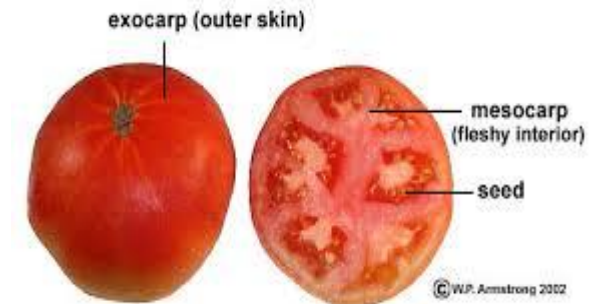


2. Berry -

a. Single seeded berry – Date

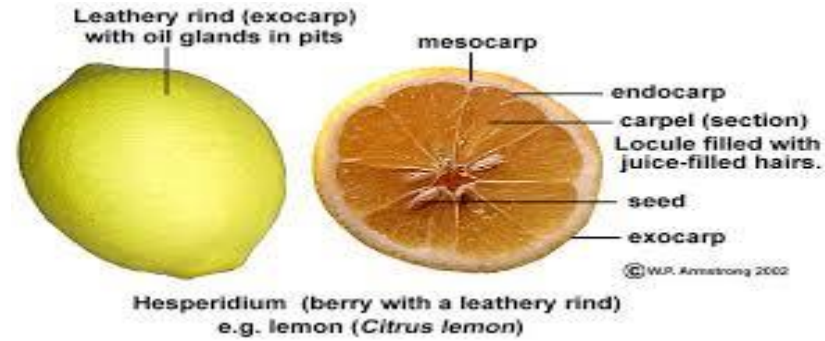


b. Multi seeded berry – Tomato



Berry (All of most of pericarp is fleshy)
e.g. tomato (*Lycopersicon esculentum*)

c. Hesperidium – Lemon



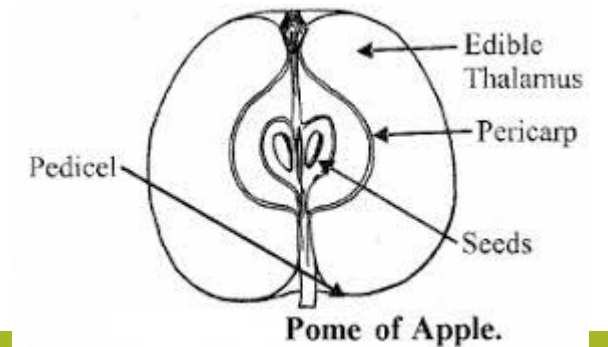
d. Amphisarca – Wood apple



3. Pepo – *Cucurbita*



4. Pome - Apple



Dehiscent Fruits

1. Legume – Pea, Bean



2. Follicle – Calotropis



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3. Capsule –

a. Loculicidal – Cotton, Lady's finger

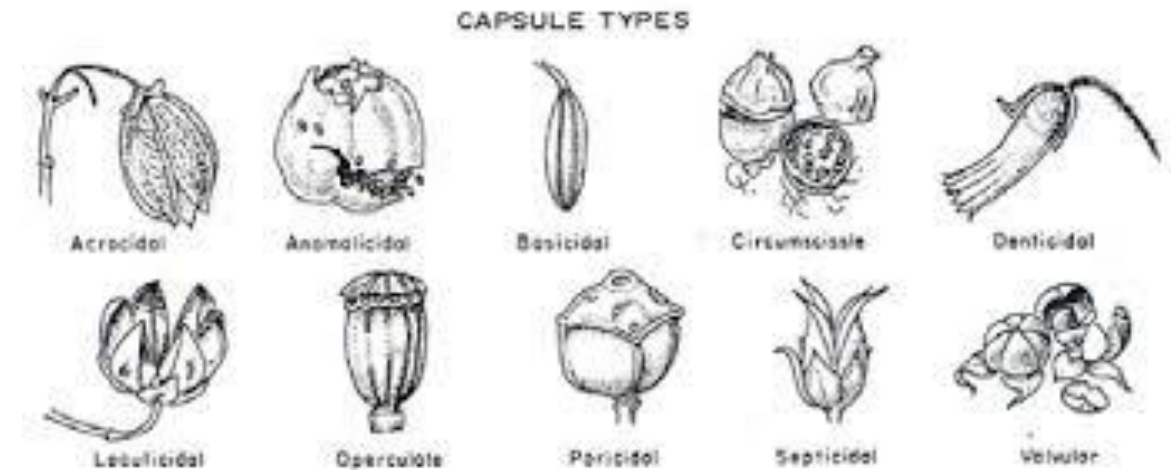


b. Septicidal – Caster



c. Septifragal – Datura

d. Circumscissile – Portulaka (Gholu)

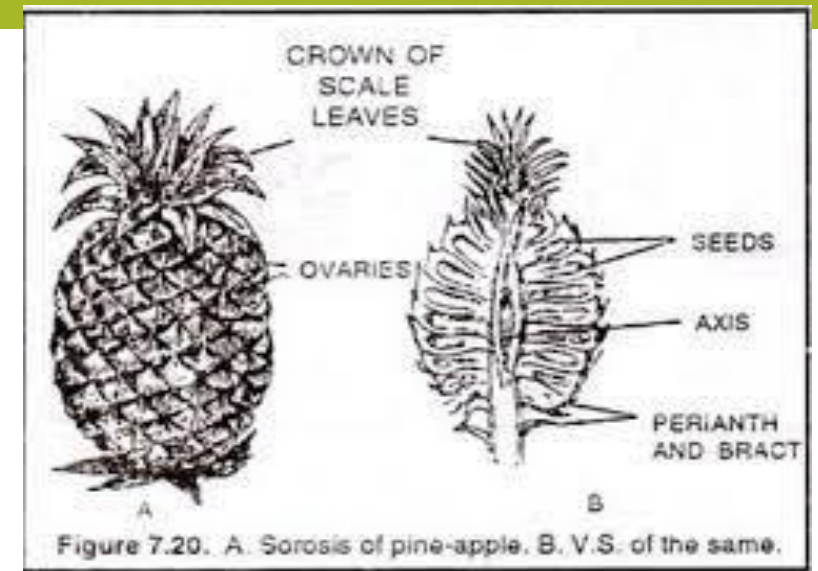


Aggregate Fruit - Annona



Composite or Multiple fruits

1. Sorosis – Pine apple



Jack fruit



2. Syconus - Ficus

