

The flower

The flower is a modified shoot of limited growth, bearing reproductive organs-microsporophyll (stamen) and megasporophylls (carpel) or only one, often with two accessory whorls-calyx and corolla, sometimes only one or even none at all.

Characteristics of flower

- ❖ Flower is the modified shoot
- ❖ Bear the reproductive organ
- ❖ Use for sexual reproduction
- ❖ It arises in the axil of leaf or in the axil of modified leaf (bract)
- ❖ The ripened ovary (female whorl) modified into fruit

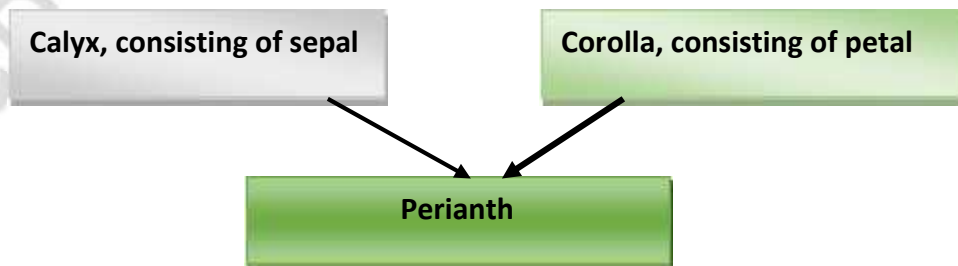
The flower contains following parts:

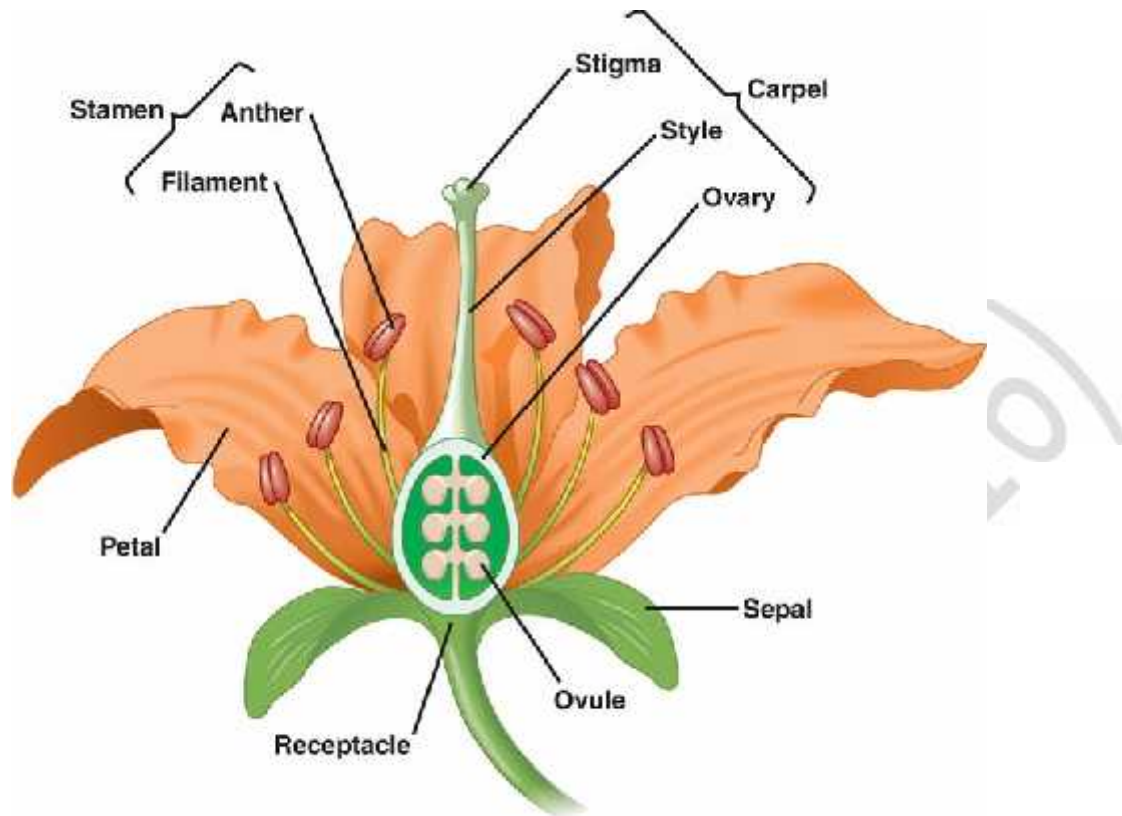
Pedicel- the stalk of the flower

Peduncle- the stalk of entire inflorescence or a single solitary flower.

Receptacle-floral axis laterally extended form and it is the part of stem where floral parts are arisen which consists of few short node and internodes.

Perianth-floral envelope subdivided into calyx and corolla, the term is applied to calyx and corolla collectively.





Androecium: It is a male whorl which bears a group of stamens where pollen or microsporophyll is produced.

Stamen: The unit of androecium which produces the pollen, it has three parts anther, filament and connective.

Complete Flower: When all the whorls i.e. calyx, corolla, androecium and gynoecium are present in the flower then it is called complete flower, absence of any or more whorls is termed as incomplete flower.

Staminode: It is a sterile non-functional stamen.

Gynoecium: It is a female whorl which contains carpel (s) where embryo sac or megaspore is produced.

Carpel: the unit of gynoecium which produces the embryo sac, it has three parts viz. stigma, style and ovary.

Stigma: It is the apical or top portion of the carpel which attracts the pollen grain for germination.

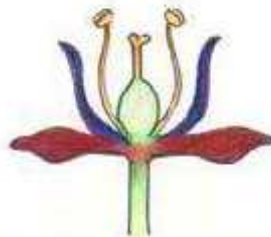
Style: the elongated stalk connecting to the ovary is called style.

Ovary: the lower portion of the carpel which contains the ovule.

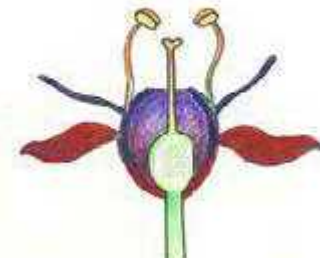
Hypanthium: The fused structure of base of sepal, petal and stamens forming the floral cup or tube

Position of floral parts on the thalamus

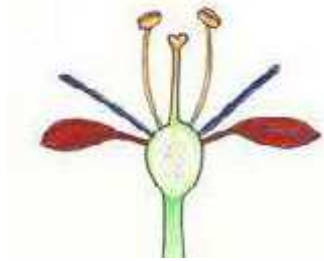
Hypogyny: Calyx, corolla and gynoecium remain below the ovary, where the ovary occupy the highest position, is also known as superior ovary.



Perigyny: In a perigynous flower the margin of the thalamus grows upward to form a cup-shaped structure, called the calyx-tube, enclosing the ovary but remaining free from it and carrying with the sepals, petals and stamens.



Epigyny: The calyx, corolla and androecium are remain above the ovary i.e. the ovary is inferior.



Bract

It is a modified leaf which protects the flower from the external environment. The bract may be following types:

- i) **Foliaceous** (leafy) bract: These are green, flat and leaf-like appearance, as in *Adhatoda*, *Acalypha*, *Gynandropsis* etc.



Spathe: This is a large, sometimes very large, and commonly boat-shaped bract enclosing a cluster of flowers or even an inflorescence (spadix), as in banana, aroids, palms, maize.



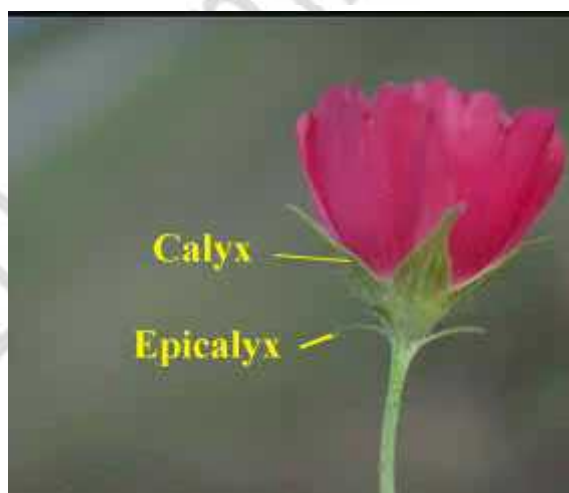
Petaloid bract: these are brightly colored bract looking somewhat like petals as in glory of the garden (*Bougainvillea*).



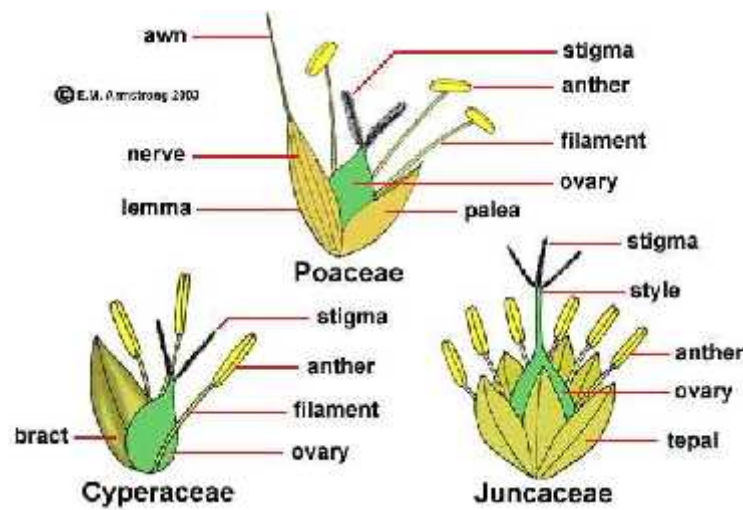
Involucre bract: This is one or more whorls of bracts, normally green in color, present around a cluster of flowers, it is found in Asteraceae family.



- i) **Epicalyx:** This is one or more whorls of bracteoles developing at the base of the calyx
e.g. flower of Malvaceae family.



- vi) **Scale bracteole:** Special bracteole generally found at the base of the individual florets of the head or capitulum of the Asteraceae family.
- vii) **Glumes:** These are special bracts-small, dry and scaly-found in spikelet of Poaceae.



Hermaphrodite/bisexual-having both essential whorls i.e. androecium and gynoecium

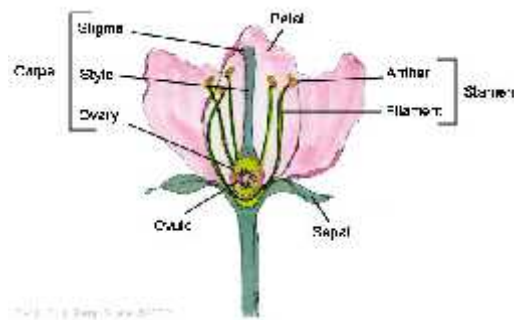
Complete flower-When four whorls i.e. calyx, corolla, androecium and gynoecium are present in a flower.

Incomplete flower-When one or more of four whorls are absent in the flower.

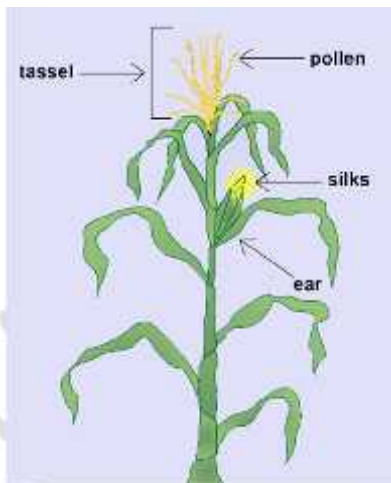


Imperfect flower-When only stamen or pistil is present in the flower not both

Perfect flower- When both stamen and pistil present in a flower



Monoecious plant- When staminate and pistillate flowers are present in the same individual plant e.g. maize, bitter gourd etc.



Dioecious plant- When staminate and pistillate flowers are present in the different individual e.g. Teasle gourd



Polygamous: When perfect, staminate flowers all on the same plant

pistillate and

Polygamo-dioecious- Polygamous, but mostly dioecious

Polygamo-monoecious- Polygamous, but mostly monoecious

Gynodioecious- Pistillate, but mostly dioecious

Bracteate flowers: The flowers which possess bract is known as bracteate flower e.g. sunflower

Ebracteate flowers: The flowers which do not possess bract is known as ebracteate flower e.g. jute

Pedicellate flower: The flowers having pedicel e.g. *Hibiscus rosa-sinensis*

Sessile flowers: Flowers without pedicel e.g. wheat

Polysepalous flowers: When sepals are free in a flower e.g. mustard

Gamosepalous flower: When the sepals are united in the flower

Polypetalous flowers: When petals are free in a flower e.g. mustard

Gamopetalous flower: When the petals are united in the flower