

THE FLOWER

Flower is a specialized shoot in which the leaves are modified into floral structures.

The stalk which supports the flower is called **pedicel** and such flower is called **pedicellate flower**. Some flowers may be without stalk called **sessile**.

The tip of the stalk may also be enlarged to form a cup-shaped **receptacle or thalamus**. The thalamus holds all the 4 whorls of the flower - calyx, corolla, androecium, and gynoecium.

Four whorls of a flower are :

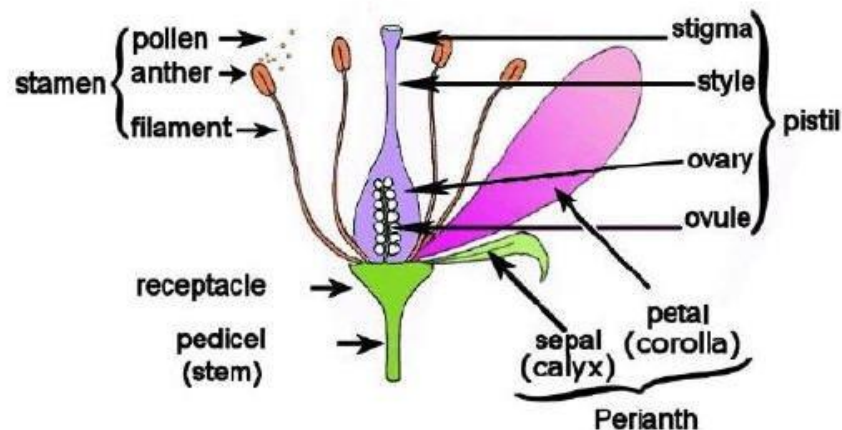
1. First whorl - green sepals (collectively called **calyx**).

2. Second whorl - large brightly coloured petals (collectively called **corolla**).

3. Third whorl (male parts) - long thread-like structures (filament) project outward and each usually ending in a bilobed tip (anther) called as **stamen** (collectively named **Androceium**).

4. Fourth whorl (female parts)- centrally located **pistil** that may be formed of a single female unit called **carpel**, or of several fused carpels (collectively called **gynoecium**). Carpel consists of basal ovary, middle style and uppermost stigma.

Parts of a Flower



Complete and Incomplete flowers

A **complete (or perfect) flower** is one which contains all the four floral whorls.

If one or more sets of floral whorls are missing, the flower is called **incomplete (or imperfect)**.

Essential (reproductive) and non-essential (non-reproductive) parts of a flower.

The **essential parts** of a flower are those that are directly concerned with reproduction. These parts consist of the **stamens (male parts)** and the **carpels (female parts)**.

The **non-essential (accessory) parts** are simply the helping parts which either protect the reproductive parts of the flower or make the flower attractive for pollination.

In some case sepals and petal are alike called **Perianth**.

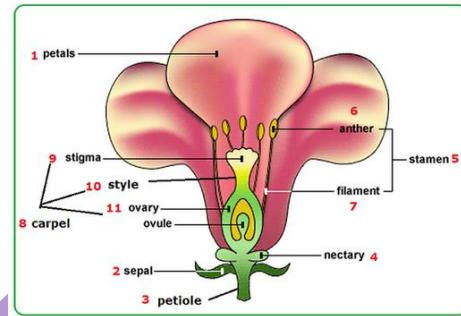
When the perianth is green like the sepals, it is described as **sepaloid perianth**.

When the perianth is non-green, it is described as **petaloid perianth**.



Bracts - When a flower arises in the axil of a leaf-like structure, this structure is known as a **bract**. Bracts be may green or coloured. Ex- Bougainvillea

Nectaries : A sweet fragrant liquid called nectar. Groups of nectar-secreting cells called **nectaries** are situated usually at the base of the pistil or on the bases of the petals. The nectar attracts insects for cross pollination.



Sexuality In Flowers- Male, female and bisexual flowers.

The anthers of the stamens produce pollen which forms the male cells (male gametes).

The ovary of the carpel bears the ovule which encloses the egg cell (female gamete).

Bisexual or Hermaphrodite Flower – Contains both male and female parts

Unisexual flower – Contains either male or female parts

Staminate flower- Contains only male part

Pistillate Flower- Contains only female parts

Neutar Flower – Both male and female parts are absent.

GENERAL DESCRIPTION OF THE FLORAL PARTS

(a) Calyx (sepals). Any of the outer parts of a flower that enclose and protect the unopened flower bud. The sepals may be free (**polysepalous**) or fused (**gamosepalous**).

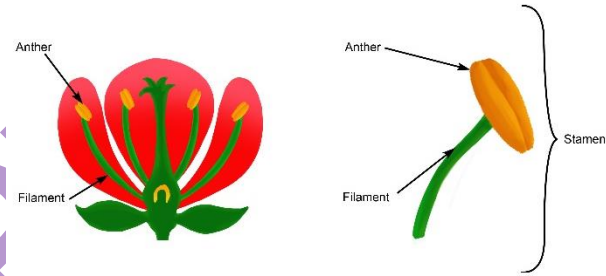
In Hibiscus, there is a second series of sepals called episepals, collectively called **epicalyx**.

Petaloid – when sepals are brightly coloured. ex- Gulmohar

(b) Corolla (petals) . Petals are modified leaves that surround the reproductive parts of flowers. They are often brightly colored or unusually shaped to attract pollinators. They protect stamens and pistils. Petals may be free (**polypetalous**) or united (**gamopetalous**) forming a tube.

(c) Androecium (stamens)- Stamen is the male reproductive part of a flowering plant .

The pollen producing part of a flower, usually with a slender filament supporting the anther. Each stamen consists of : a long filament and an anther attached to its end. The anther is usually two lobed having pollen sacs. It contains pollen grains



Monadelphous



Diadelphous



Polyadelphous



(i) **Monadelphous** : Stamens are united in one group by their filaments. Only anthers are free. e.g., china rose (staminal tube), cotton.

(ii) **Diadelphous** : The filaments are united in two bundles. e.g. pea (out of ten, nine stamens form a staminal tube while one is free).

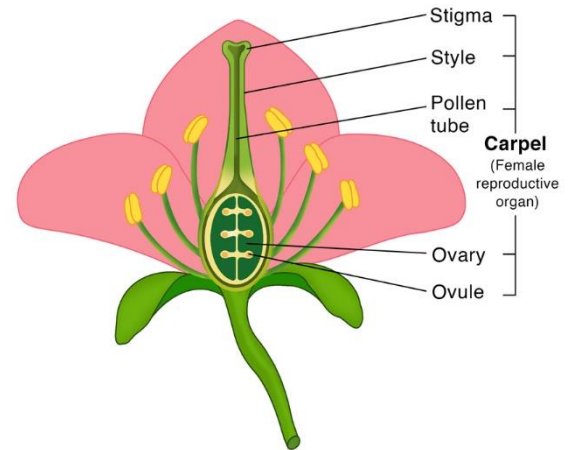
(iii) **Polyadelphous** : The filaments are united in several groups. e.g. Bombax.

(d) Gynoecium (carpels). Gynoecium is also known as **pistil**. It is composed of one or more carpels. Each **Carpel** consists of three parts-stigma, style and ovary.

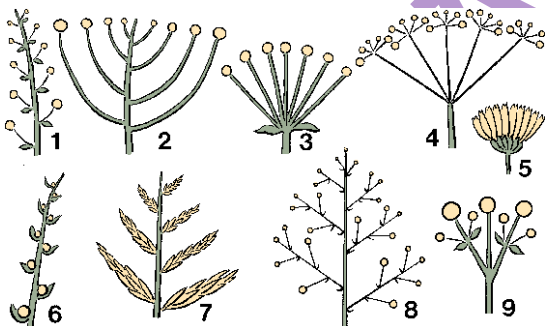
Stigma is the terminal knob-like part. It is landing place for pollen during pollination.

Style is the tubular slender stalk which connects the stigma to the ovary.

Ovary is the swollen basal portion composed of one or many carpels fused together. The inner cavity of the ovary may be a single chamber or divided into several chambers (**locules**) each containing a number of rounded bodies, **the ovules**.

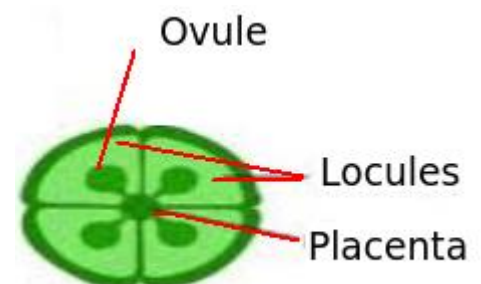


INFLORESCENCE AND PLACENTATION



Inflorescence is the mode of arrangement of flowers on the axis of a plant.

Placenta is the tissue that attaches the ovule to the wall of the ovary.



Placentation is the manner in which the ovules are arranged/attached to the wall of the ovary. Ovary becomes fruit and ovules into seed after fertilization.

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