

Corolla and its Forms: An Overview (With Diagrams) | Flower

Corolla:

Corolla is the second axillary whorl composed of petals. Like the calyx, the corolla also protects the more essential stamens and carpels within.

The petals are usually brightly coloured because of the presence of water-soluble anthocyanin (red, orange, violet, blue, etc.) and anthoxanthin (yellow to ivory white) pigments or the carotenoids contained in the chromoplasts.

The bright colour of the petals combined with the scent of essential oils present in some flowers and the nectar secretion of special glands make the flowers highly attractive to insects which act as agents for pollination.

Petals may sometimes be green or have some dull colour like the sepals when they are termed sepaloid as in *Annona*, *Polyalthia*, *Artabotrys*, etc., of *Annonaceae* or in the green rose.

Petals are usually smooth but sometimes the surface may be hairy. Though usually thin, sometimes they may be thick fleshy structures. In a petal the lower part is usually narrow like the stalk of a leaf and is called the claw or unguis.

When a claw is present the petal is called clawed or unguisculate. The expanded portion of the petal is the limb. A clawless petal is sessile. A petal resembles the lamina not only in this but also in other characteristics.

It may be shaped linear, oblong, etc., and its margin may be entire, dentate, serrate, etc., just as in the leaf lamina. In some flower petals, as in *Dianthus*, the margin is deeply slashed or divided giving it a frilled appearance when it is called fimbriated or fringed.

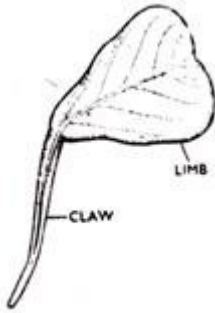


FIG. 325. A petal showing limb and claw.

The corolla may be regular or irregular. It is **polypetalous** or dialypetalous if the petals are free from one another and gamopetalous or sympetalous if there is any degree of cohesion. When united, the united portion is the corolla tube and the free portion above shows the corolla lobes. The junction of the tube and the lobe is called the throat.

Considering its duration, the corolla is caducous (e.g., grape vine) or, more commonly, deciduous. Very rarely it is persistent, as in heather, where it remains in a dry and shrivelled up marcescent form.

Like the calyx, the corolla also may have appendages. In *Antirrhinum* (snapdragon) the tube of the corolla is slightly dilated on one side forming a pouch. This condition is termed, saccate or gibbous. In some cases one or more petals, or the tube itself is prolonged downwards, forming a spur which usually stores nectar. Such a flower is called spurred.

There may be only one spur as in pansy or there may be several spurs as in *Aquilegia vulgaris* where each petal is spurred. Sometimes appendages of different kinds, such as scales, hairs, etc., develop from the inner wall of the throat.

This gives rise to what is known as the corona. Beautiful coronas are seen in passion flower, oleander etc. The corona of daffodil is a united tubular structure.

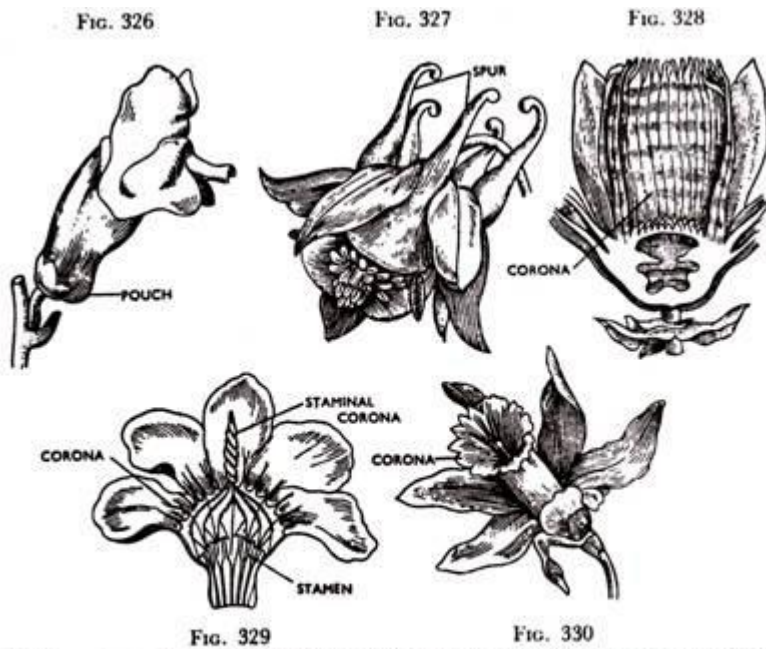


FIG. 326. Saccate corolla of *Antirrhinum*. FIG. 327. Spurred petals in *Aquilegia vulgaris*. FIG. 328. Corona developed on corolla of *Passiflora*. FIG. 329. *Nerium odorum* showing corona developed on corolla as well as staminal corona developed by staminal appendages. FIG. 330. Tubular corona developed on corolla of daffodil (*Narcissus pseudonarcissus*).

Forms of Corolla:

According to the nature of cohesion, shape, etc., corollas of the following types are usually met with:

A. Polypetalous or Dialypetalous:

(a) Regular forms:

1. Cruciform:

Four free clawed petals are arranged in the form of a cross as in the Cruciferae family, e.g., mustard .

2. Caryophyllaceous:

This is formed by five free clawed petals with limbs at right angles to the claws as in the family Caryophyllaceae, e.g., the pink flower (*Dianthus*).

3. Rosaceous:

There are five sessile (or with very short claws) petals with the limbs spreading outwards. The odd petal is anterior. This is found in the family Rosaceae (e.g., wild rose) and also in tea (*Thea chinensis*). Most cultivated roses however show more petals because of reasons explained .

(b) Irregular forms:

4. Papilionaceous:

Here five free petals resemble a butterfly (papilion=butterfly). The posterior superior petal is larger than the others and is termed the vexillum or standard; two anterior inferior ones are usually more or less united forming a boat-shaped structure and are called the carina or keel.

Two lateral petals called alae or wings overlap the carina and are themselves overlapped by the vexillum. This is a characteristic of the subfamily Papilionaceae, e.g., the pea flower.

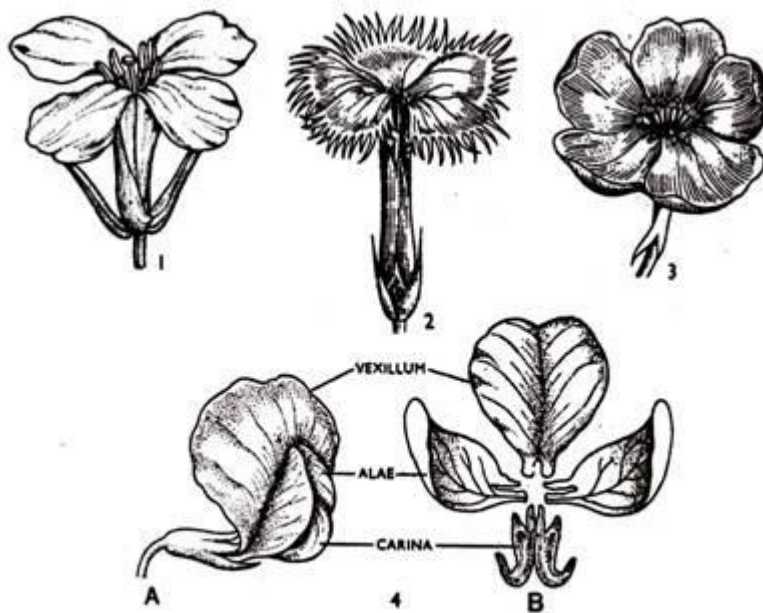


FIG. 331. POLYPETALOUS COROLLA FORMS. 1. Cruciform in mustard (*Brassica nigra*). 2. Caryophyllaceous in pink (*Dianthus chinensis*). 3. Rosaceous in wild rose. 4. Papilionaceous in pea. A. Complete flower. B. Corolla dissected to show arrangement and forms of petals.

B. Gamopetalous or Sympetalous:

(a) Regular forms:

1. Tabular:

The corolla tube is nearly cylindrical throughout and the limbs are not spreading. The central florets of most Composite are tubular, e.g., sunflower disc florets.

2. Campanulate or bell-shaped:

Corolla tubes are rounded at base gradually widening upwards like a bell. This may be seen in the family Campanulaceae and in many cucurbits, in *Physalis*, etc.

3. Infundibuliform or funnel-shaped:The corolla resembles an inverted cone like a funnel as seen in *Datura* or many plants of the family *Convolvulaceae* like *Ipomoea pulchella* .

4. Hypocrateriform or salver-shaped:

The corolla tube is long and narrow with the limb placed at right angles to it as seen' in *Vinca rosea* of *Apocynaceae*.

5. Rotate or wheel-shaped:

Here the tube is shorter than in hypocrateriform while the limb is at right angles to it as seen-in brinjal (*Solanum melongena*), *Nyctanthes arbor-tristis* of *Oleaceae* , etc.

6. Urceolate or urn-shaped:

(b) Irregular forms:

7. Ligulate or strap-shaped:

Five petals unite to form a short tube at base which splits on one side and becomes flattened like a strap above as seen in many *Compositae*, e.g., the ray florets of marigold where one can see that the strap is formed by the union of five petals.

8. Bilabiate or labiate or two-lipped:

This irregular corolla is united in such a way that the limb is divided into an upper posterior part (usually formed by the union of two petal lobes) and an unequal lower anterior part (usually formed by the union of three petal lobes) with the mouth gaping wide open.

This is characteristic of the family *Labiatae* (e.g., *Leucas*) and is also seen in some allied families (e.g., *Hygrophila* and *Adhatoda* of *Aearithaceae*).

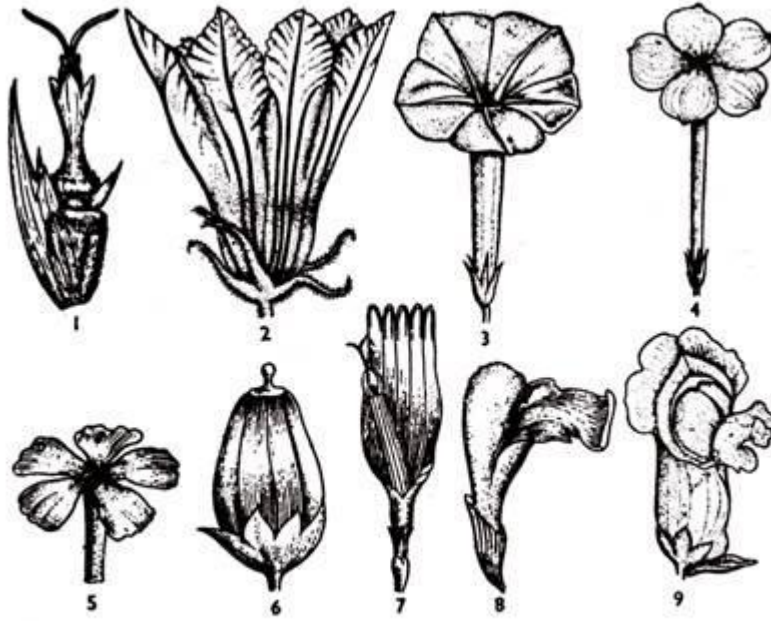


FIG. 332. GAMOPETALOUS COROLLA FORMS. 1. Tubular in sunflower disc floret. 2. Campanulate in *Cucurbita*. 3. Infundibuliform in *Ipomoea*. 4. Hypocrateriform in *Vinca*. 5. Rotate in *Nyctanthes*. 6. Urceolate in *Kalanchoe*. 7. Ligulate in marigold ray floret. Note 5 lobes signifying 5 petals. 8. Bilabiate in *Leucas*. 9. Personate in snapdragon.