Quadrant II – Transcript and Related Materials

Programme: Bachelor of Science (Third Year)

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Unit: 01 -Morphology of Angiosperms

Module Name: Calyx & Aestivation Types

Module No: 20

Name of the Presenter: Mrs. Bhagyashri Laxman Halarnkar

Notes

Calyx

Calyx is the first or lowermost whorl of the flower and consists of a number of sepals. It is a sterile whorl and meant for protection of the inner whorls of the flower in bud condition.

It is usually green in colour. Green coloured calyx is called sepaloid calyx. Eg. *Hibiscus rosa sinensis, Mirabilis jalapa.* In some flowers, the calyx is coloured and it is called petaloid calyx. E.g. *Caesalpinia pulcherrima, Mussaenda sp*. In *Mussaenda sp.,* One of the sepals become large leafy and often bright coloured or white in colour.

The calyx also varies in shape and size. It may be bell, cup, urn, funnel, tube, hairy or beak shaped. The tube like calyx is called as tubular calyx e.g. *Datura spp*. whereas hairy calyx is called as pappus. It may be regular, zygomorphic or irregular.

The sepals may remain free from each other or the sepals may be united. The calyx is said to be **Polysepalous,** if it is free e.g. *Achrus sapota, Brassica* campestris (Mustard) and **Gamosepalous** when united e.g. *Hibiscus rosa sinensis.* Fusion of sepals in Gamosepalous calyx varies. The calyx with the sepals completely fused is called toothed calyx. When the sepals are fused half way, it is called fid calyx. Sepals fused less than half way is called partite calyx. When the calyx is fused only at the base, it is called connate calyx.

The calyx may fall off as soon as the floral bud opens, it is called Caducous calyx e.g. Poppy or more commonly it falls off with the corolla when the flower withers- Deciduous calyx e.g. *Brassica spp.* In some plants the calyx persists even after the fertilization of the flower and remains adhered to fruit. Such a calyx is called **persistent** calyx e.g. *Solanum melongena.* In some plants, the calyx may continue to grow and cover entirely the fruit e.g. *Physalis minima* .

Functions of calyx:

1. Protects the flower in bud condition.

2. Helps in assimilation when green in colour.

3. When coloured, attracts insects for pollination.

4. Pappus calyx is persistent in the fruit and helps in fruit dispersal by the wind.

Aestivation Types

The mode of arrangement of sepals or petals in a floral bud with respect to the members of the same whorl ie calyx or corolla is known as **aestivation.**

Aestivation is an important character from the view point of classification of plants and is of the following types:

1. Valvate: When the members of the whorl are in contact with each other by their margins or when they lie close to each other but do not overlap. E.g. *Cleome viscosa*

2. Twisted: It is also called as contorted aestivation. When one margin of the sepal or the petal overlaps that of the next one and the other margin is overlapped by the third one. The twisting of the petals is clock wise or anticlock wise E.g. *Hibiscus rosa sinensis.*

3. Imbricate: when out five, one of the sepal or petal is internal being overlapped on both the margins, and one of them is external and each of the remaining ones is overlapped on one margin ane it overlaps the next one on the other margin. E.g.*Cassia sp., Bauhinia sp*.(Kanchan).

4. Quincuncial: when out of five two of the petals are completely internal and two completely external and the fifth petal having one margin external while other margin is internal. E.g. *Psidium guajava, Punica granatum* (Pomogrante).

5. Vexillary
   The posterior petal overlaps two lateral petals. These in turn overlap two anterior petals. E.g.*Clitoria ternatea*