

Programme: Bachelor of Science (Third Year)

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Unit: 1. Morphology of Angiosperms

Module Name: Flower Part- III (Gynoecium)

Module No: 23

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Glossary of terms/words:

Gynoecium: It is the topmost or centrally placed floral member and forms the second essential whorl; its individual members are known as **carpels**, which are female reproductive parts

Gynobasic : When the styles grow from the base of the ovary and appear to be free from the ovaries.

Monocarpellary: Gynoecium simple, consists of one carpel

Compound gynoecium: Consists of two or more carpels

Compound type is further known as **bicarpellary**, **tricarpellary**, **tetracarpellary** and **pentacarpellary** based on number of carpels.

Compound gynoecium is of two types:

- ☂ **Apocarpous** - when carpels are completely free from one another
- ☂ **Syncarpous** - when two or more carpels of a compound gynoecium are united with each other

Types based on position of ovary

- ☂ **Superior:** Ovary borne above the insertion of the perianth (or hypanthium if present). Flowers with superior ovary is **Hypogynous**:
- ☂ **Half-inferior:** The sepals, petals, and stamens or hypanthium inserted around the ovary; the hypanthium adnate only to the lower part of the ovary. : Flowers with half-inferior ovary is **Perigynous**
- ☂ **Inferior:** Ovary borne below the attachment of the sepals, petals, and stamens, due to the adnation of the hypanthium to the ovary wall or to the recession of the ovary into the receptacle. Flowers with inferior ovary is **Epigynous**

The Placenta - The ovules are attached to the inside of ventral suture along a line or at a point called placenta.

The arrangement of ovules within the ovary is called **Placentation**

Placentation types:

- ☂ **Marginal** - Here the ovules are attached to the inner wall of the ovary on one or more placentae. Gynoecium is monocarpellary or apocarpous.
- ☂ **Parietal** - Each carpel more or less open with margins of adjacent ones, coherent thus forming one chambered compound ovary with placentae on walls at the line of union.
- ☂ **Axile** - The ovules are attached near the centre of the ovary at the junction or axis of the partitions that divide the ovary into compartments. This can occur only in compound pistils.
- ☂ **Free central** - In an ovary of more than one carpel ovules attached to a compound placenta that arises at a column from the base. This column may be formed by suppression of the portions of carpel.
- ☂ **Superficial** - Ovules arise all over inner surface.
- ☂ **Basal** - The ovary is unilocular and a single ovule borne at the base of the ovary.

Based on number of locules in each carpel :

- ☂ **Unilocular**
- ☂ **Bilocular**
- ☂ **Trilocular**

☂ **Tetralocular**

☂ **Pentalocular**

Shapes of Stigma:

- **Capitate**- Formed like head, single headed
- **Plumose**- Feather like, or with fine hairs
- **Bifid**- Having clefts, forked
- **Trifid**- Having two clefts, three lobed
- **Discoid**- Disc-shaped
- **Dumbell shaped**
- **Funnel shaped**

Possible misconceptions/clarification

Case Studies and Additional Examples/Illustrations