

Subject - Botany

Class - B.Sc (Hons.) Part-II, Paper-3rd Group-B.

Topic - Diagnostic features, Floral formula, floral diagram and economic importance of family - Verbenaceae.

By -

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Family :- Verbenaceae

Dicotyledones

Gamopetalae

Bicarpellatae

Lamiales

⇒ Distribution :-

Verbenaceae are a large family of 77 genera and 3015 species, distributed mostly in tropical and subtropical regions. In India the family is represented by 21 genera and 125 species occurring mostly in southern and western India and tropical and subtropical Himalaya.

Examples - Tectona grandis (Teak)

Lantana (*Lantana* spp.)

Clerodendrum (*Clerodendrum* spp.), etc.

- Stem: -

Stem is quadrangular and increases in thickness by the formation of concentric rings of cambium.

- Leaves: -

Leaves are usually opposite or whorled, exstipulate, simple or rarely pinnately (Persea) or palmately (Vitex) compound.

- Inflorescence: -

Inflorescence may be cymose, racemose or spike. The cymes are often compound or panicle as in Tectaria.

The bract and bracteoles are usually present and the bracts form a conspicuous involucre in Lantana.

- Flowers: -

Flowers are bisexual or sometimes polygamous by abortion, more or less zygomorphic usually pentamerous and hypogynous.

- Calyx: -

Calyx is gamosepalous, persistent and usually five toothed or lobed.

- Corolla: -

Corolla is gamopetalous, tubular and the tube often cylindric, limb bi-lipped (Verbena) or unequally five lobed. The lobes are imbricate in bud.

- Stamens: -

Stamens are four ~~imbricate~~, didynamous

"Cultivation of mind should be the ultimate aim of human existence." - B.R. Ambedkar

and epipetalous on the corolla tube. The fifth posterior stamen is either represented by a staminode or it is completely suppressed.

Rarely all the five stamens are perfect as in Tectaria. In Stachytarpheta, only two anterior lateral stamens are fertile and remaining three are reduced to staminodes.

The anthers are dithecal, introrse and opening length-wise.

• Cryholcium: -

Bicarpellary, syncarpous but rarely carpels are more than two, e.g. three to five in Cremna and four in Duranta.

The ovary is superior with many locules as the number of carpels are sometimes twice as many by the formation of false septa as in Premna.

→ The placentation is axile.

→ In several genera such as Verbena and Clonodendrum, in young conditions the ovary is unifolocular with parietal placentation but later on placentae meet in the centre and placentation becomes apparently axile.

→ In Avicennia the ovary is unifolocular with free central placentation.

→ The stigma has as many lobes as the number of carpels.

• Floral Formulae

Duranta: $\text{Br brl } \frac{5}{2} \text{ } \overline{\text{p}} \rightarrow \text{K}(5) \text{ } \overline{\text{C}}(2/3) \text{ } \overline{\text{A}}_{2+2} \text{ } \underline{\text{G}}(4)$

Lantana : - Br bnd% ♀' kes) C(4/1) A₂₊₂ C₍₂₎



Figure : - Floral diagram : Clerodendrum indicum

⇒ Economic Importance : -

The family provides important timbers and some beautiful garden plants -

• 1. Timbers : -

(i) Tectona grandis (Teak) is one of the most important hard woods in the world. It is used for ship building, bridge and heavy construction, furniture, railway carriages, musical instruments and cabinet work.

(ii) Amelina arborea (Gumhar) is one of the most valuable timbers of India, used for furniture, musical instruments, shafts, bridges and ship. It is also used in the match and paper industry.

(iii) Wood of Premna bengalensis is used for bridges and posts and it is also suitable for

Carving.

(iv) Wood of Vitex altissima is used for constructional work, agricultural implements and boats etc.

• 2. Ornamentals: -

Lantana camara

Holopteleodora sanguinea (Chinese hat plant)

Duranta repens (Golden dew drop)

Caryopteris incana (Blue beard)

Verbena spp. etc.

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