LAMIACEAE

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SOURCE:Slideshare

Systematic position

Kingdom:	Plantae (Plants)
Sub kingdom:	Tracheobionta (Vascular plants)
Division :	Magnoliophyta (Flowering plants)
Class:	Magnoliopsida (Dicotyledons)
S.class:	Asteridae
Order:	Lamiales
Family:	Lamiaceae (Mint family)

Vegetative characters

Habit:

Plants are mostly aromatic herbs or shrubs (Leonotis, Pogostemon). Tree habit is found in the Brazilian genus Hyptis and climbing habit in American species of Scutellaria.

Root:

Tap, branched, rarely adventitious (Mentha). Stem:

Stem:

Aerial, herbaceous, rarely woody, erect or prostrate, quadrangular, hairy, branched, solid or hollow, sometimes underground suckers (Mentha).

Leaves:

Opposite decussate, rarely whorled, simple, petiolate or sessile, exstipulate, hairy with aromatic smell, entire, pinnatifid (Perovskia), unicostate reticulate venation.

Floral characters

Inflorescence:

Very commonly verticillaster consisting of a pair of condensed dichasial cymes at each node; often the verticillasters are grouped together in a thyrsus form; rarely solitary (Scutellaria)

Flower:

Pedicellate or sessile, bracteate, complete, zygomorphic rarely actinomorphic (Mentha, Elsholtzia), hermaphrodite, rarely unisexual (Nepeta, Thymus), pentamerous hypogynous.

calyx:

Sepals 5, gamosepalous, bilabiate (Salvia, Thymus) campanulate (Teucrium), persistent, valvate or imbricate aestivation. When a bilabiate calyx is present the arrangement of the sepals may be (1/4) as in Ocimum or (2/3) as in Calamintha.

In **Ocimum, Coleus, Plectranthus** etc. the petals arrangement is gamopetalous 4/1.

Ex:-i.e. Four petals in the posterior upper lip and only one petal in the anterior lower lip.

Aestivation :

Aestivation in the petals is valvate or imbricate.

Androecium:

Typically only 4 stamens, didynamous (2+2) and posterior stamen is reduced or represented by a staminode .

In Salvia only two stamens on the anterior side are found; they are characterised by peculiarly long connectives which help in insect pollination stamens generally introrse and dithecous.

Gynoecium:

Bicarpellary, syncarpous, superior,hypogynous honey secreting disc; bilocular becomes tetralocular by the formation of false septum; axile placentation, one ovule in each loculus; style gynobasic (arising from the base of the ovary), stigma bilobed. The gynoecium character is thus uniform without any variation.

Fruit:

Usually schizocarpic carcerulus or achenes or nutlets rarely drupaceous.

Seed:

Non-endospermic.

Ex . Of species - Ocimum santcum

Habit:

A perennial herb with strong aromatic smell.

Root:

Tap, branched.

Stem:

Herbaceous above and woody below, aerial, erect, solid, quadrangular, branched, hairy with aromatic smell.

Leaves:

Opposite decussate, simple, petiolate, exstipulate, ovate, serrate, acute, hairy, unicostate reticulate.

Inflorescence:

A verticillaster.

Flower:

Bracteate and bracteolate, pedicellate, complete, hermaphrodite, zygomorphic, pentamerous, hypogynous bilabiate, small and pink

Calyx:

Sepals 5, gamosepalous, bilabiate (1/4), posterior or upper lip broad and lower or anterior li with small sepals; gland dotted, violet green, imbric aestivation.

Corolla:

Petals 5, gamopetalous, bilabiate (4/1), corolla tube short, upper lip of 4 petals and lower of 1 petal; pink, imbricate aestivation.

Androecium:

Stamens 4, polyandrous, epipetalous, didynamous 2+2, anthers versatile; anterolaterals are longer and two postero-lateral are smaller, each postero-lateral has elongated connective bearing fertile anther lobe at the posterior side and sterile lobe at the anterior side; dithecous, introrse.

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Gynoecium:

Bicarpellary, syncarpous, superior, bilocular but becoming tetralocular, axile placentation, one ovule in each loculus; style gynobasic; stigma bifid

Fruit:

Carcerulus.

Seed:

Non-endospermic.

Floral formula:

Br, Brl o|o ☿ $K_{(1/4)}\overset{\frown}{C_{(4/1)}A_{2+2}}\,G_{\underline{(2)}}$.

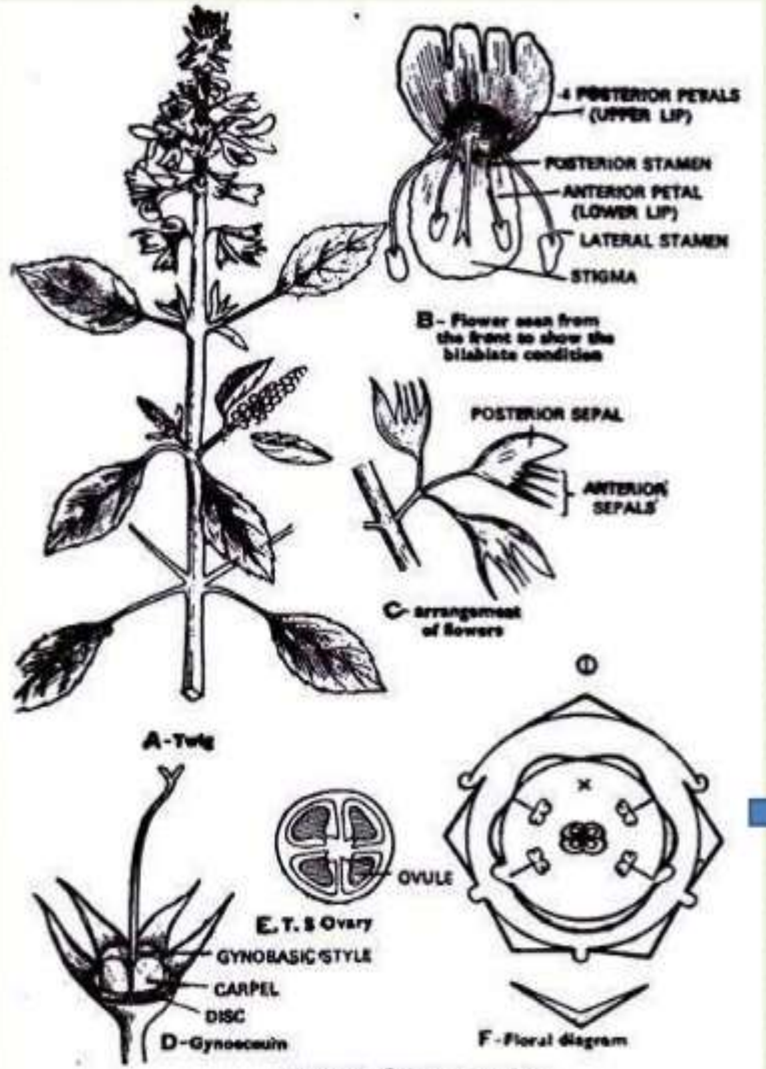

Fig. 85.1. *Ocimum sanctum.*

FLORAL DIAGRAM

Economic Importance of Lamiaceae:

1. Food:

Tubers of Stachys sieboldi are edible. Leaves of Mentha viridis, Ocimum basilicum, Melissa officinalis etc. are used as condiments.

2. Medicinal:

Many plants of this family are used in medicines. Ajuga bracteosa, Leucas cephalotes are used in fever.

Mentha piperata and Thymus serphyllum give Menthol and Thymol respectively, which are extensively used in medicines.

Leaves of Ocimum kilimandus charicum give camphor.

3. Ornamental:

Several species of Salvia, Coleus, Ajuga, Leonotis, Dracocephalum, Thymus, Lavandula etc. are cultivated in gardens for ornamental purposes.

4. Perfumes:

Aromatic oil is extracted from Thymus, Lavandula (Lavender oil), Rosmarinus (Rosemary oil), Calamintha, Pogostemon etc.

5. Dye:

Fruits of Lycopus europaeus yield red dye.