

**Course: B.Sc Botany**  
**SEMESTER IV**  
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**PAPER: Plant Systematics**  
**TOPIC: *Lamiaceae***  
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**Family: *Lamiaceae***

**Distribution of *Lamiaceae*:**

It is commonly called Mint family. The family includes 260 genera and 3200 species of world wide distribution. In India it is represented by 400 species.

**Vegetative Character:**

**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:**

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, unicostate reticulate venation.

**Reproductive Character**

**Inflorescence:**

Very commonly verticillaster consisting of a pair of condensed dichasial cymes at each node, 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*.

**Corolla:**

The corolla possesses a tubular base which widens towards the mouth. Petals generally 5, gamopetalous and the five teeth are sub-equal and mostly bilabiate.

In *Ocimum*, *Plectranthus* etc. the petals arrangement is gamopetalous 4/1 i.e. four petals in the posterior upper lip and only one petal in the anterior lower lip. In extreme cases the arrangement may be gamopetalous 0/5 i.e. all the five petals forming the lower lip so that the corolla becomes one lipped. Aestivation in the petals is valvate or imbricate.

**Androecium:**

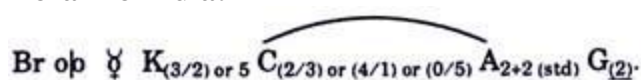
Typically only 4 stamens, didynamous (2+2) and posterior stamen is reduced or represented by a staminode; in *Calamintha* only two perfect stamens are found, two are imperfect and the fifth reduced. In *Salvia* only two stamens on the anterior side are found; they are characterised by peculiarly long connectives which help in insect pollination stamens generally introrse and ditheous.

**Gynoecium:**

Bicarpellary, syncarpous, superior, situated on 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 nutlets rarely drupaceous.

**Floral- formula:****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 serpyllum* give Menthol and Thymol respectively, which are extensively used in medicines. *Ocimum sanctum* and other species of *Ocimum* are used in various ailments.

### **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.

### **Primitive characters:**

1. Some members are perennial shrubs.
2. Leaves simple.
3. Flowers hermaphrodite, hypogynous, coloured and scented.
4. Pollination by insects.

### **Advanced characters:**

1. Plants mostly herbaceous.
2. Leaves exstipulate, opposite or whorled.
3. Flowers in distinct inflorescence.
4. Flowers zygomorphic and in some unisexual
5. Calyx gamosepalous and bilabiate.
6. Corolla gamopetalous and bilabiate.
7. Stamens epipetalous and reduced to 2.
8. Gynoecium bicarpellary, syncarpous, axile placentation.
9. One ovule per loculus.
10. Fruit simple.
11. Seeds non-endospermic.

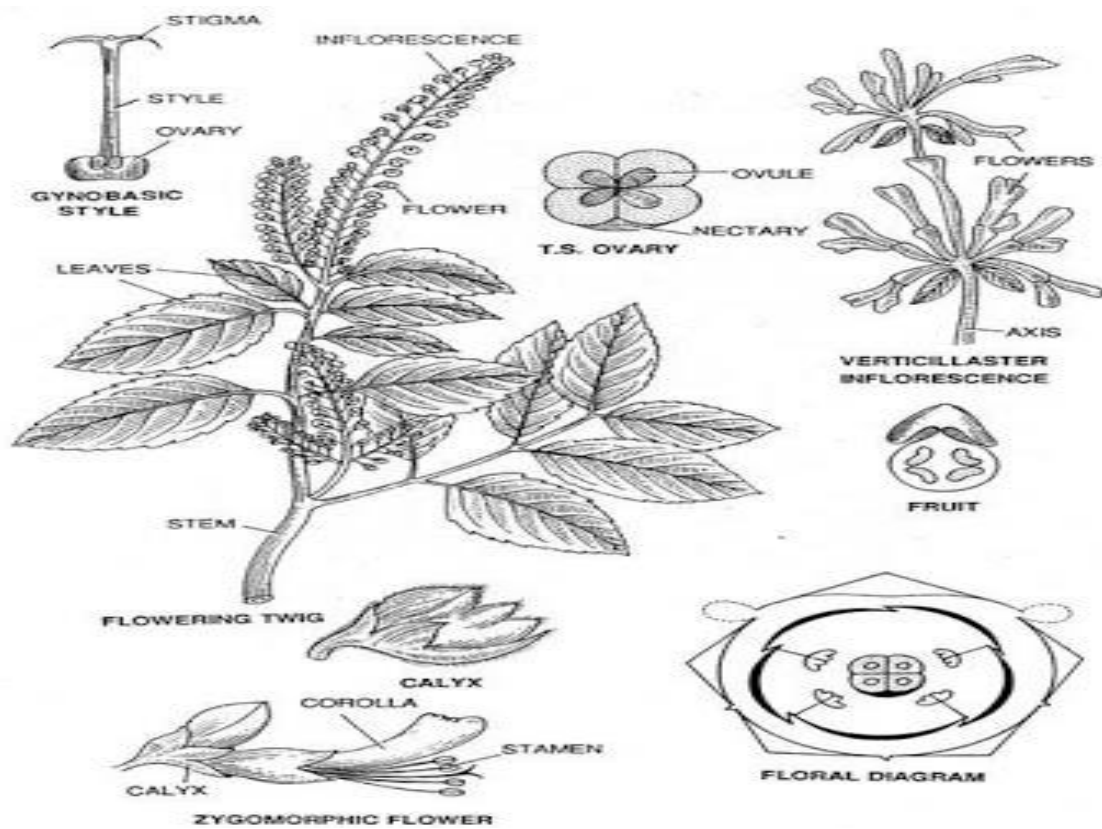


Fig: *Ocimum sanctum*