

M.Sc. Botany (Semester II)
Course Title : Systematics and Evolution

Unit II: Lamiaceae

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Mentha piperita



Salvia officinalis



Thymus serpyllum

Lamiaceae : Mint Family

- The Lamiaceae or Labiatae (Previously called) are a family of flowering plants commonly known as the mint or ocimum or sage family
- This family members are commonly cultivated, not only for their aromatic abilities, but also their ease of cultivation, since they are readily propagated by stem cuttings

Scientific classification:

- Kingdom : Plantae
- Phylum : Angiosperms
- Class : Magnoliopsida (Dicotyledonae)
- Order : Lamiales
- Family : Lamiaceae (Mint Family)

17- subfamilies

- Genera : 236
- Species : 7,000

Morphological characters

- **Habit:** Plants are mostly aromatic herbs or rarely shrubs (*Leonotis, Pogostemon*)
- **Roots:** Tap, branched, rarely adventitious (mint)
- **Stem:** Aerial, Herbaceous; quadrangular; glandular hairs are present. sometimes underground suckers (Mint)

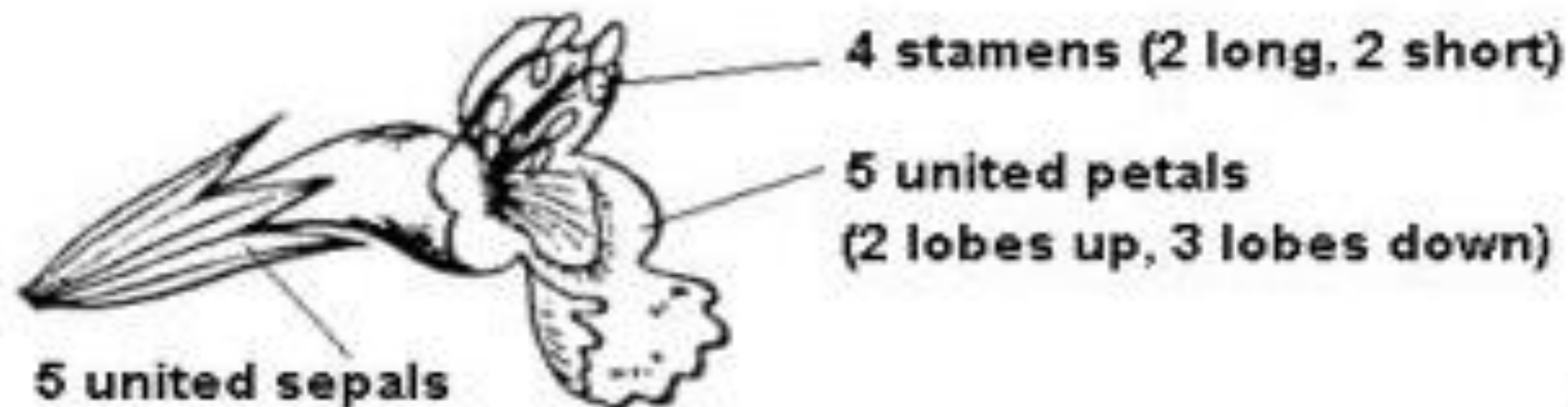
- **Leaves:** Petiolate; opposite and decussate; simple; without stipulate, venation reticulate, hairy with aromatic smell
- **Inflorescence:** Verticillaster consisting of a pair of condensed dichasial cymes at each node

Reproductive characters

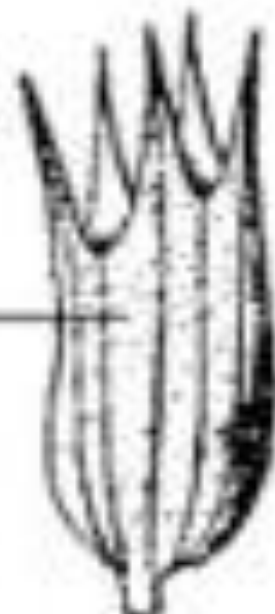
- **Flower:** Pedicellate; bracteate, zygomorphic rarely actinomorphic (Mint); complete; hermaphrodite; hypogynous.
- **Calyx:** 4 or 5 sepals; gamosepalous fused: tubular or funnel shaped, sometimes two lipped or bilabiate.
- **Corolla:** 4 or 5 petals; gamopetalous; forms bilabiate (two lips), upper lip has two notches and lower lips has three notches.

- **Androecium:** Typically only 4 stamens; didynamous (2+2); epipetalous; basifixed
- **Gynoecium:** Bicarpellary; syncarpous; ovary superior; tetralocula due to formation of false septum; axile placentation, style gynobasic (arising from the base of the ovary); Stigma bifid

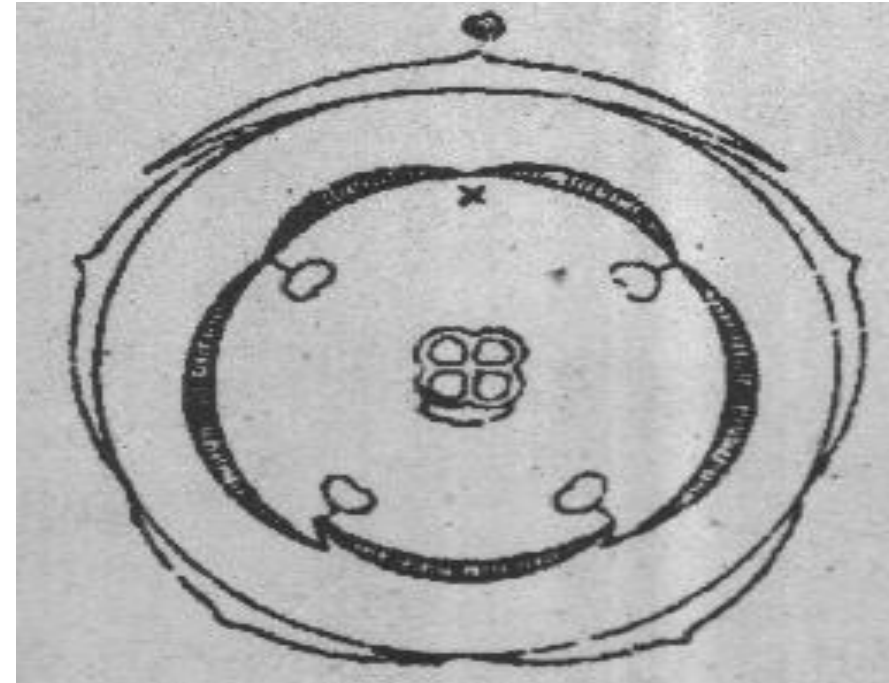
Typical Mint Flower



flower matures into seed capsule
containing
4 nutlets



- **Fruits:** Usually schizocarpic carcerulus or achenes or nutlets
- **Seed:** Non-Endospermic
- **Pollination:** By Insect
- **Floral Formula:** $\ast \overset{\text{♂}}{\underset{\text{♀}}{\bigcirc}} K (1+4), \overline{C(4+1)}, A 2+2, G(2).$



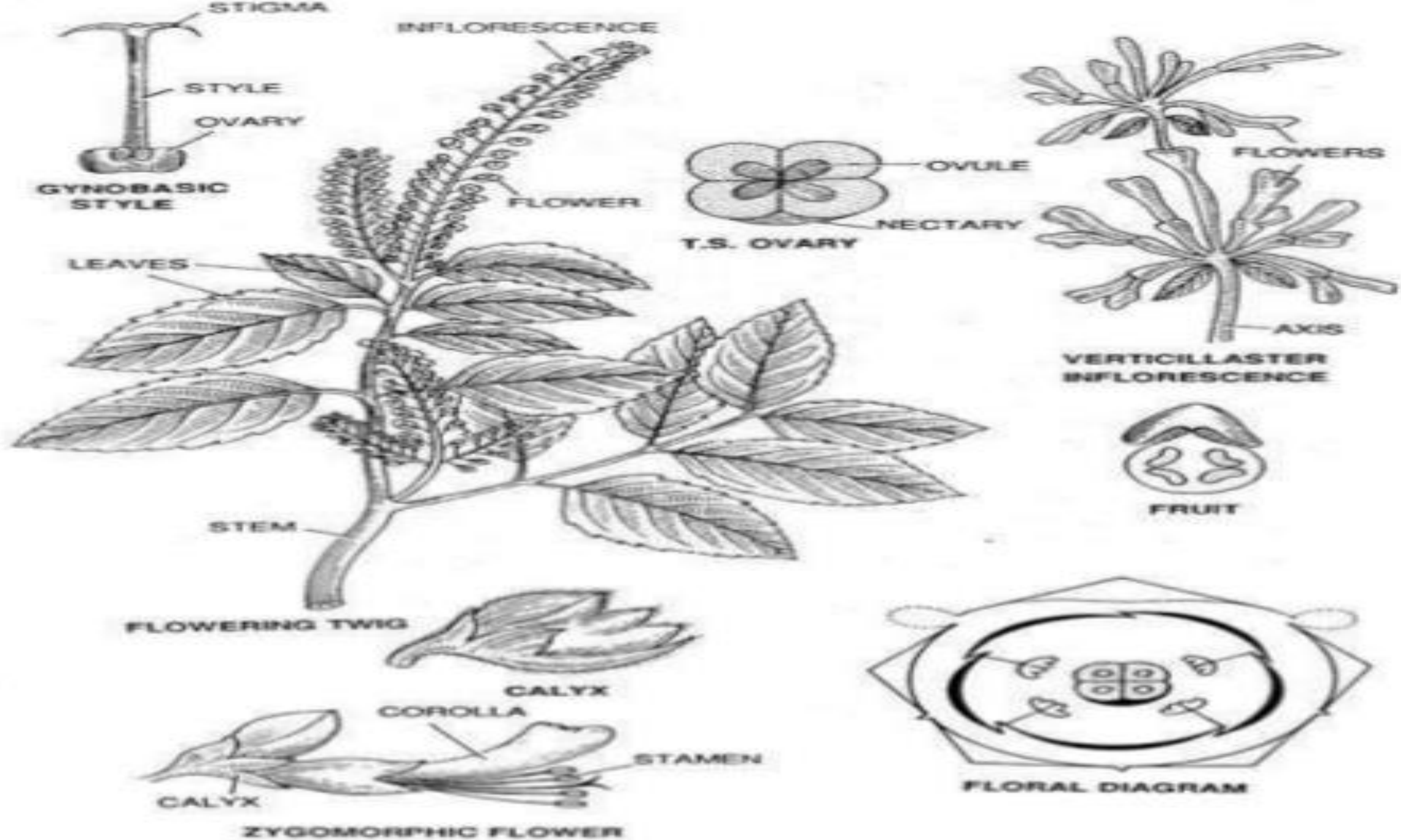


Fig. 28.1. Labiatae—*Ocimum sanctum* Linn. (Vern. tulsi).

Lamiaceae the most economically important family of angiosperms.

Lamium purpureum



Lamium purpureum
(bilaterally symmetrical flower)



Salvia



Mint Plant



Ocimum sanctum: holy basil or tulsi, an aromatic perennial plant



Economic Importance

This family has economic importance:

- **Food:** Leaves of *Mentha viridis* (Mint) is used as salad. Tubers of *Stachys affinis* (Chinese artichoke) are edible.
- **Condiments:** *Mentha*, *Ocimum*, *Melissa officinalis*, *Coleus forskohlii* are used as condiments.

Medicinal importance:

Many plants of this family are used in medicines. *Ajuga bracteosa* (Nilkanthi) used in fever and *Leucas cephalotes*, treatment for snakebite. *Mentha piperata* (Menthol) and *Thymus serpyllum* (Thymol), which are widely used in medicines.

- **Ornamental plants:** Several species of *Salvia*, *Coleus*, *Ajuga*, *Leonotis*, *Dracocephalum*, *Thymus*, *Lavandula* etc. So, these plants cultivated in gardens/ parks for ornamental significance.
- **Aromatic oils (Perfumes):** Aromatic oil is extracted from *Mentha piperita*, *Thymus* (Thymole), *Lavandula officinalis* (Lavender oil), *Rosmarinus* (Rosemary oil), *Calamintha*, *Pogostemon* etc. This oil is used in perfumes and soap industry for making infusions.

- **Dye:** Fruits of *Lycopus europaeus* (Gypsywort) yield red dye
- ***Meriandm bengalensis***- The leaves possess medicinal properties. They emit a camphor-like scent. The leaves are used to preserve clothes against insects.

Acknowledgements

- Pandey BP (2010) A Textbook of Botany: Angiosperms. S. Chand & Co. Ltd. (ISBN: 9788121904049, 9788121904049)
- Stussy TF (1990) Plant taxonomy. Columbia University Press, USA
- Sharma OP (1993) Plant Taxonomy. Tata McGraw-Hill Education
- <https://en.wikipedia.org/wiki/laminaceae>
- I apologize to all authors whose findings could not be substantiated or cited in our presentation due to reasons of brevity

Thank you for your attention

