

SOLANACEAE*

Solanum nigrum Linn.

Stem. Herbaceous, aerial, erect, cylindrical, branched, solid, smooth or puberulous and green.
Leaf. Cauline and ramal, alternate, but due to the fusion of the petiole with the stem axis, the leaves at some places seem to be opposite, exstipulate, simple, petiolate, ovate, entire or slightly lobed or sometimes serrate, acute, glabrous, uncostate reticulate.

Inflorescence. Extra-axillary cyme.

Calyx. Sepals 5, gamopetalous, valvate, persistent.

Corolla. Petals 5, gamopetalous, valvate, rotate, white.

Androecium. Stamens 5, polyandrous, epipetalous, filaments broad at the base and hairy, anthers conniving, ditheous, basifixed and dehisce by apical pores.

Gynoecium. Bicarpellary, syncarpous, ovary superior, bilocular with many ovules in each locule, placentation axile, septum oblique, placentae highly swollen, style long and hairy, stigma bilobed.

Fruit. Berry.

Floral formula. Ebr. $\Theta, \overset{\curvearrowright}{\underset{\curvearrowright}{\text{♂}}}, \overset{\curvearrowright}{\underset{\curvearrowright}{\text{K}}}_{(5)}, \overset{\curvearrowright}{\underset{\curvearrowright}{\text{C}}}_{(5)}, \overset{\curvearrowright}{\underset{\curvearrowright}{\text{A}}}_5, \overset{\curvearrowright}{\underset{\curvearrowright}{\text{G}}}_{(2)}$.

Classification and identification.

Class. *Dicotyledonae*

1. Venation reticulate.
2. Flowers pentamerous.

Sub-Class. *Gamopetalae*

1. Petals fused.

Series. *Bicarpellatae*

1. Carpels two.
2. Ovary usually superior.

Order. *Polemoniales*

1. Alternate, exstipulate leaves.
2. Flowers actinomorphic.

Family. *Solanaceae*

1. Flowers solitary terminal or cymosely umbelled.
2. Septum is oblique and the placentae are highly swollen.
3. Fruit - berry or capsule.

*1. English name. Nighthshade family.

2. Systematic position in other systems of classification.

Rendle (1925)

Dicotyledons
 Sympetalae
 Tetracyclae
 Superac
 Tubiflorae
 Solanineae
 Solanaceae

Engler and Prantl (1931)

Dicotyledonae
 Sympetalae
 Tubiflorae
 Solanaceae

Hutchinson (1959)

Dicotyledons
 Herbaceae
 Solanales
 Solanaceae

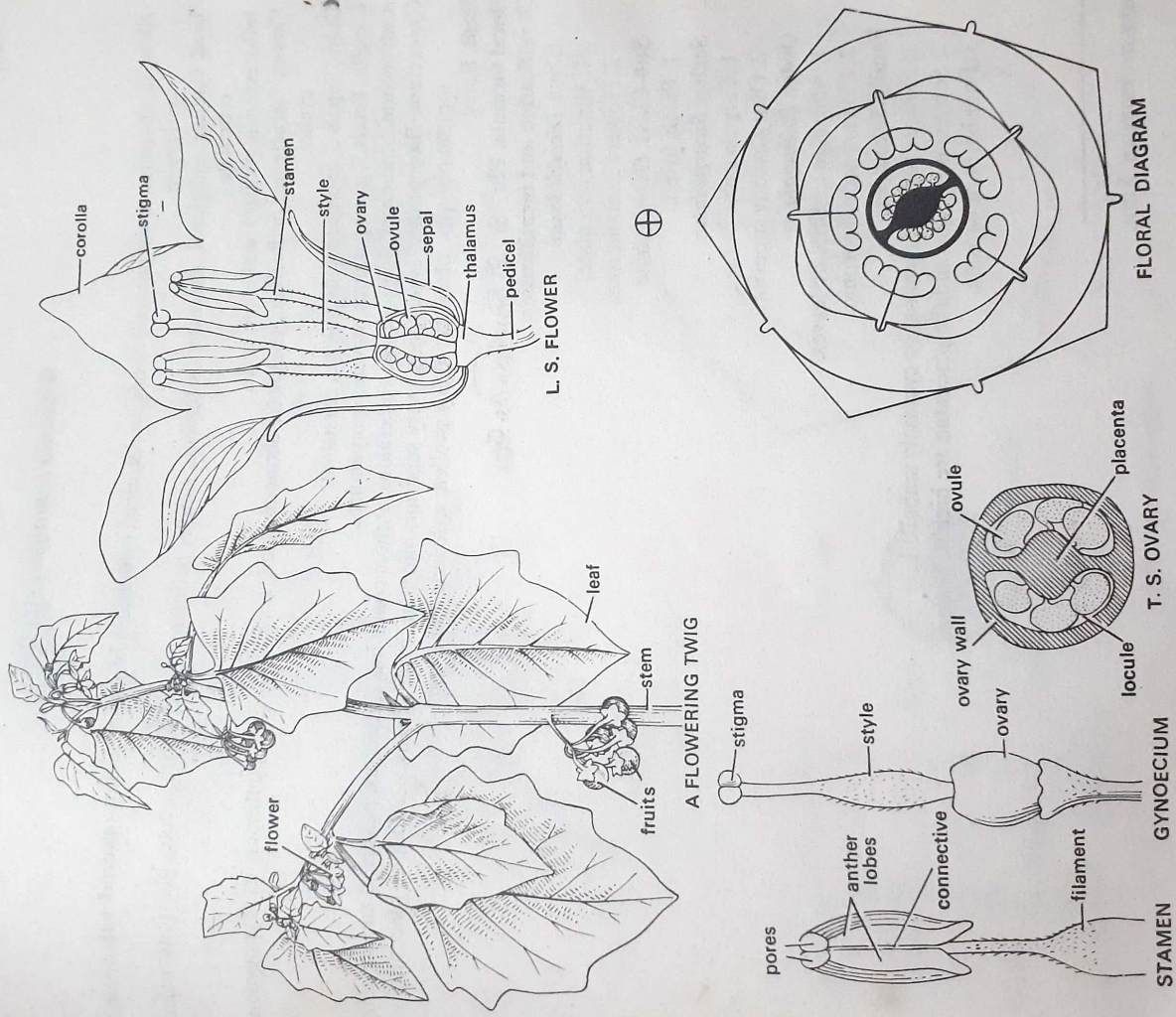


Fig. 56. *Solanum nigrum*.

Withania somnifera (L.) Dunal

Stem. Herbaceous, lower portions woody, aerial, erect, cylindrical, branched, solid, covered with woolly hairs and green.

Leaf. Cauline and ramal, alternate, exstipulate, simple, petiolate, ovate, entire, acute, glabrous, unicostate reticulate.

Inflorescence. Axillary umbellate cyme.

Flower. Ebracteate, pedicellate, complete, actinomorphic, hermaphrodite, pentamerous, hypogynous and cyclic.

Calyx. Sepals 5, gamosepalous, valvate, persistent.

Corolla. Petals 5, gamopetalous, valvate, campanulate.

Androecium. Stamens 5, polyandrous, epipetalous, anthers conniving, dithecos, basifixed and introrse.

Gynoecium. Bicarpellary, syncarpous, ovary superior, bilocular, ovules many per locule, placentation axile, septum oblique, placentae highly swollen, style long and stigma capitate.

Fruit. Berry.

Floral formula. Ebr, ⊕, ♂, K₍₅₎, C₍₅₎, A₅, G₍₂₎.

Classification and identification.

Class. *Dicotyledonae*

1. Venation reticulate.

2. Flowers pentamerous.

Sub-Class. *Gamopetalae*

1. Petals fused.

Series. *Bicarpellatae*

1. Carpels two.

2. Ovary usually superior.

Order. *Polemoniales*

1. Alternate exstipulate leaves.

2. Flowers actinomorphic.

Family. *Solanaceae*

1. Flowers solitary, terminal or cymosely umbelled.

2. Septum is oblique and the placentae are highly swollen.

3. Fruit berry or capsule.

Datura stramonium Linn.

Stem – Herbaceous, aerial, erect, cylindrical, branched, pubescent, green; **Leaf** – Cauline and ramal, alternate or sub-opposite, exstipulate, simple, petiolate, fused with the axis to some distance, ovate, entire, acute, pubescent, unicostate reticulate; **Inflorescence** – Solitary axillary or extra-axillary; **Flower** – Ebracteate, pedicellate, complete, actinomorphic, hermaphrodite, pentamerous, hypogynous and cyclic; **Calyx** – Sepals 5, gamosepalous, twisted, persistent; **Corolla** – Petals 5, gamopetalous, twisted, trumpet-shaped, white; **Androecium** – Stamens 5, polyandrous, epipetalous, anthers conniving, dithecos, basifixed, introrse; **Gynoecium** – Bicarpellary, syncarpous, ovary superior, bilocular at the apex and tetralocular at the base due to the false septum, ovules many per locule, placentation axile, septum oblique, placentae highly swollen, style long and stigma dome-shaped; **Fruit** – A septifragal capsule.

The ⊕ ♂, K₍₅₎, C₍₅₎, A₅, G₍₂₎.

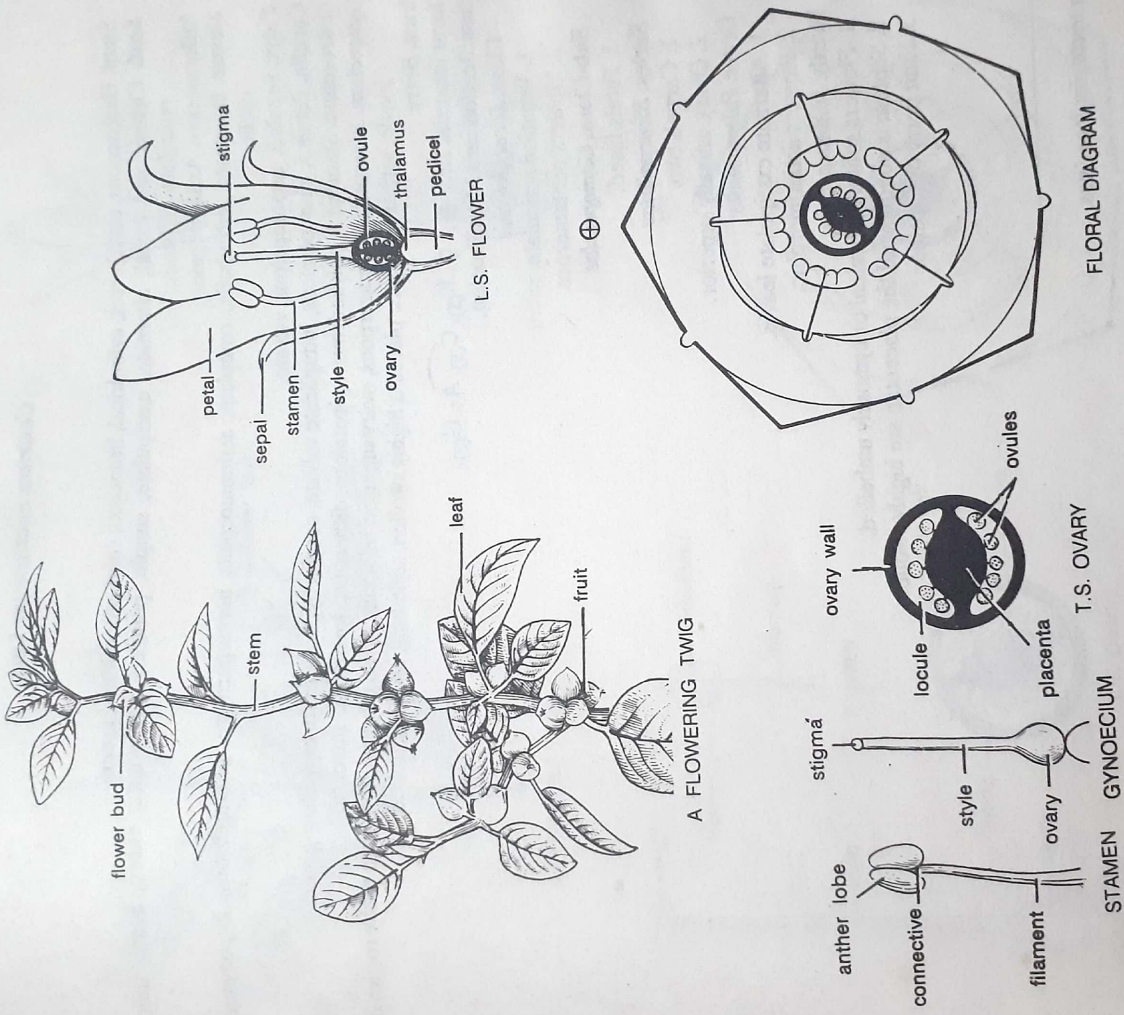


Fig. 57. *Withania somnifera*.

LABIATAE* (LAMIACEAE)
***Ocimum sanctum* Linn.**

undershrub.

Root. Branched tap root.

Stem. Herbaceous, aerial, erect, quadrangular, branched, solid, pubescent, green.

Leaf. Cauline and ramal, opposite decussate, exstipulate, simple, petiolate, ovate, serrate, acute, pubescent aromatic smell present, unicostate reticulate.

Inflorescence. Verticillaster.

Flower. Bracteate, pedicellate, complete, zygomorphic, hermaphrodite, pentamerous, hypogynous and cyclic.

Calyx. Sepals 5, gamosepalous, calyx 1/4 bilabiate, valvate, persistent.

Corolla. Petals 5, gamopetalous, corolla 4/1 bilipped, valvate.

Androecium. Stamens 4, polyandrous, epipetalous, didynamous, dithecous, dorsifixed, introrse.

Gynoecium. Bicarpellary, syncarpous, ovary superior, placentation axile, tetralocular with one ovule in each locule, a disc is present below the ovary, style gynobasic and stigma bifid.

Fruit. Carcerulus.

Floral formula. Br, $\text{\textcircled{O}}$, $\text{\textcircled{\text{G}}}$, $\text{\textcircled{\text{K}}}_{(1/4)}$, $\text{\textcircled{\text{C}}}_{(4/1)}$, $\text{\textcircled{\text{A}}}_{2+2}$, $\text{\textcircled{\text{G}}}_{(2)}$.

Classification and identification.

Class. *Dicotyledonae*

- 1. Venation reticulate.
- 2. Flowers pentamerous.

Sub-Class. *Gamopetalae*

- 1. Petals fused.

Series. *Bicarpellatae*

- 1. Carpels two.
- 2. Ovary usually superior.

Order. *Lamiales*

- 1. Flowers zygomorphic.
- 2. Corolla bilipped.
- 3. Stamens 4, didynamous or 2.
- 4. Ovary 2 - 4 locular.
- 5. Fruit drupe or schizocarpic.

Family. *Labiatae*

- 1. Stem quadrangular.
- 2. Decussate or whorled exstipulate leaves.
- 3. Inflorescence verticillaster.
- 4. Gynoecium generally bilocular with 2 ovules in each locule, sometimes tetralocular with one ovule in each locule.
- 5. Style gynobasic.
- 6. Fruit carcerulus.

*1. English name. Mint family.

2. Systematic position in other systems of classification.

Rendle (1925)

- Dicotyledons
- Sympetalae
- Tetracyclae
- Superae
- Tubiflorae
- Verbenincae
- Labiatae

Engler and Prantl (1931)

- Dicotyledonae
- Sympetalae
- Tubiflorae
- Labiatae

Hutchinson (1959)

- Dicotyledons
- Herbaceae
- Lamiales
- Labiatae

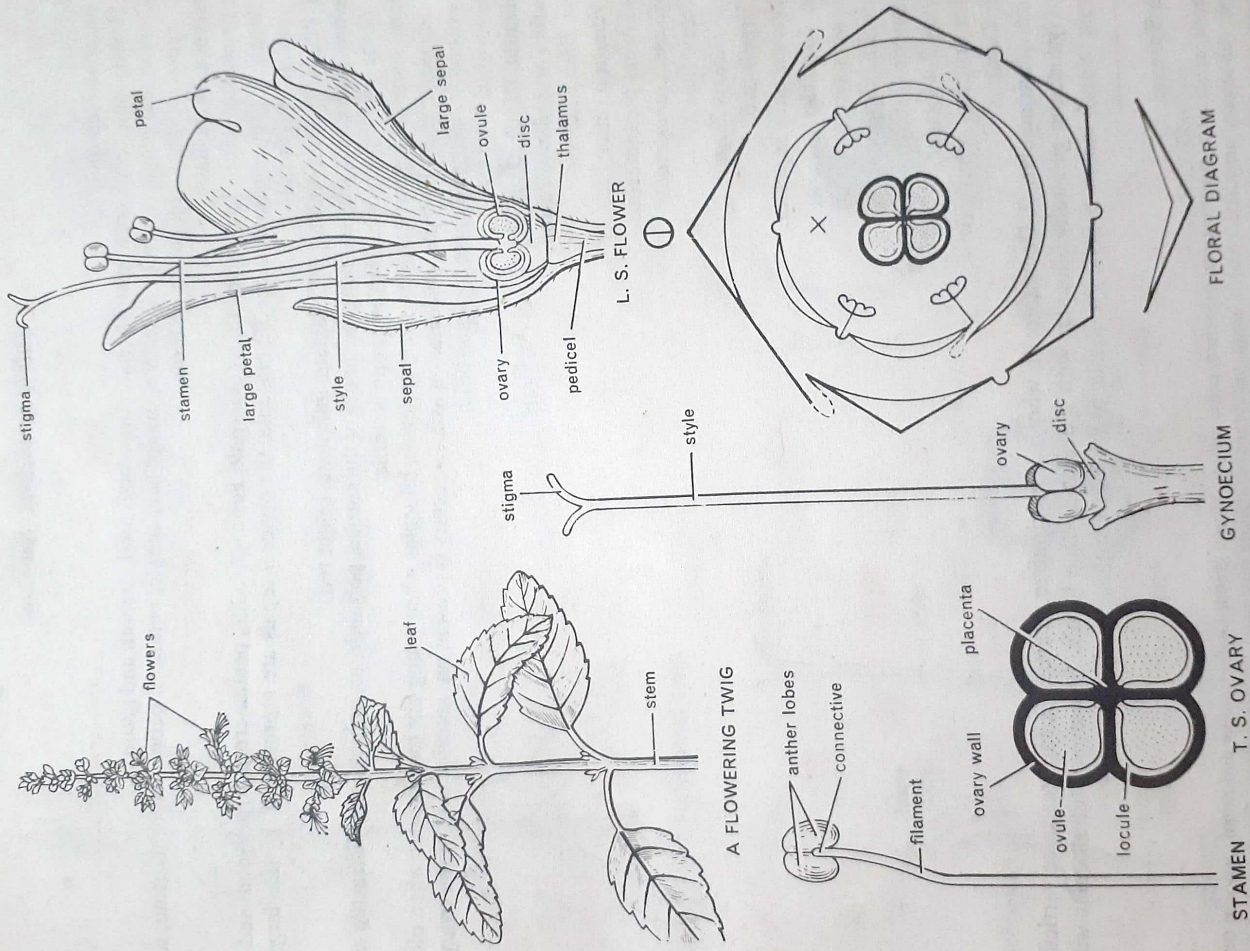


Fig. 66. *Ocimum sanctum*.

1. English name. Sacred Basil, Holy Basil.
 2. Vernacular name. Tulsi.
 3. Economic importance. The seeds are used in chronic diarrhoea and dysentery. Decoction of the leaves is said to be useful in cold.

Salvia splendens Ker-Gawl.**Habit.** Herb.

Root. Branched tap root.

Stem. Herbaceous, acrial, erect, quadrangular, branched, solid, smooth and green.

Leaf. Cauline and ramal, opposite decussate, exstipulate, simple, petiolate, petiole filiform, ovate, serrate, acute, uncostate reticulate, glabrous.

Inflorescence. Verticillaster.

Flower. Bracteate, pedicellate, complete, zygomorphic, hermaphrodite, pentamerous, hypogynous and cyclic.

Calyx. Sepals 5, gamosepalous, calyx 3/2 bilabiate, the upper 3 sepals are represented by one large lobe, valvate, bright red.

Corolla. Petals 5, gamopetalous, 2/3 bilabiate, imbricate, bright red.

Androecium. Stamens 2, situated near the mouth of the corolla, polyandrous, epipetalous, distractile and out of the two anther lobes, the lower one is sterile.

Gynoecium. Bicarpellary, syncarpous, ovary superior, bilocular when young but tetralocular when old, with one ovule in each locule, placentation axile, a nectary is present on anterior side of the ovary, style gynobasic, long and curved, stigma bifid.

Fruit. Carcerulus.

Floral formula. Br, \bigcirc , $\overset{\circ}{\text{K}}$, $\overset{\circ}{\text{K}}_{(3/2)}$, $\overset{\circ}{\text{C}}_{(2/3)}$, $\overset{\circ}{\text{A}}_2$, $\overset{\circ}{\text{G}}_{(2)}$.

Classification and identification.**Class.** *Dicotyledonae*

1. Venation reticulate.
2. Flowers pentamerous.

Sub-Class. *Gamopetalae*

1. Petals fused.

Series. *Bicarpellatae*

1. Carpels two.
2. Ovary usually superior.

Order. *Lamiales*

1. Flowers zygomorphic.
2. Corolla bilipped.
3. Stamens 4, didynamous or 2.
4. Ovary 2-4 locular.
5. Fruit drupe or schizocarpic.

Family. *Labiatae*

1. Stem quadrangular.
2. Decussate or whorled, exstipulate leaves.
3. Inflorescence verticillaster.
4. Gynoecium generally bilocular with 2 ovules in each locule. Sometimes tetralocular with one ovule in each locule.
5. Style gynobasic.
6. Fruit carcerulus.

***Leucas aspera* Spreng.**

Stem—Herbaceous, acrial erect, quadrangular, branched, solid, pubescent and green; **Leaf**—Cauline and ramal, opposite decussate, exstipulate, simple, sub-sessile, lanceolate, crenate, acute, pubescent, uncostate reticulate; **Inflorescence**—Condensed verticillaster; **Flower**—Bracteate, sub-sessile, complete, zygomorphic, hermaphrodite, pentamerous, hypogynous and cyclic; **Calyx**—Sepals 10, gamosepalous, valvate; **Corolla**—Petals 5, gamopetalous, corolla 2/3 bilipped, imbricate, white; **Androecium**—Stamens 4, polyandrous, epipetalous, didynamous, filaments long, anther dithecous, dorsifixed and introrse; **Gynoecium**—Bicarpellary, syncarpous, ovary superior, bilocular becoming tetralocular later on due to the development of a false septum, bifid; **Fruit**—Carcerulus.

Floral formula—Br, \bigcirc , $\overset{\circ}{\text{K}}$, $\overset{\circ}{\text{K}}_{(10)}$, $\overset{\circ}{\text{C}}_{(2/3)}$, $\overset{\circ}{\text{A}}_2+2$, $\overset{\circ}{\text{G}}_{(2)}$.

Description of Plant : Labiatae

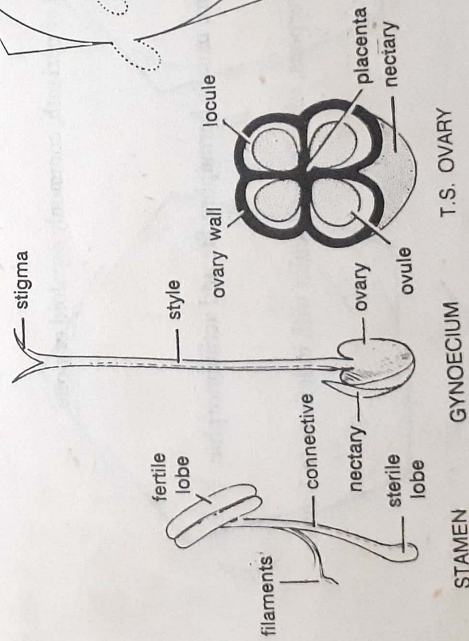
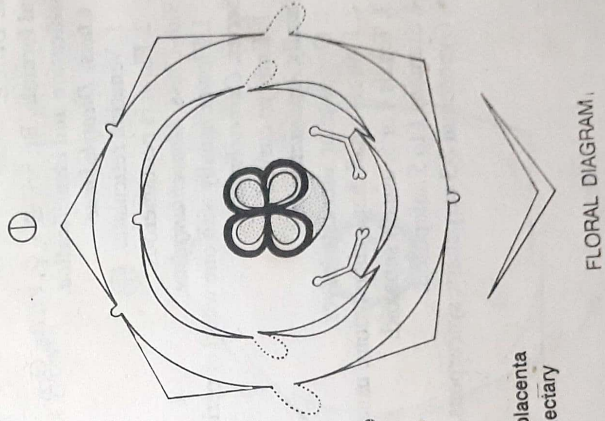
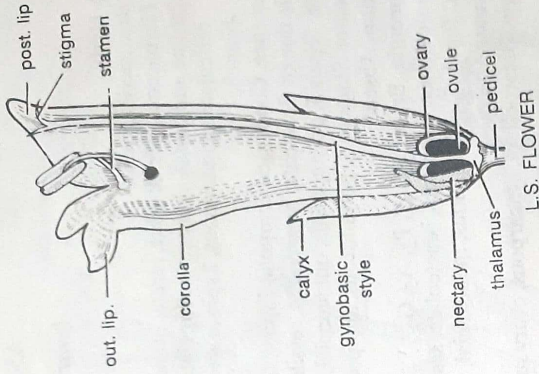
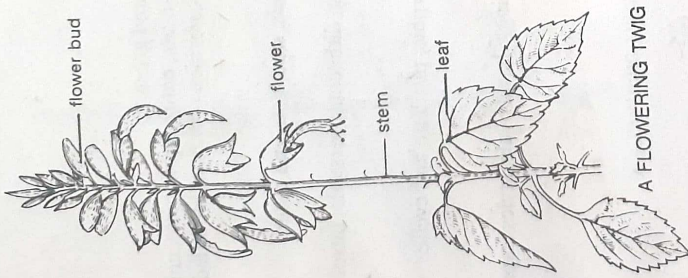


Fig. 67. *Salvia splendens*.

1. English name. Scarlet sage.
2. Vernacular name. Salvia sefakuss, Sesti.
3. Economic importance. Grown as an ornamental.