

UMBELLIFERAE* (APIACEAE)

Coriandrum sativum Linn.

Stem. Herbaceous, aerial, erect, angular, branched, solid, glabrous, nodes are very prominent, aromatic smell present.

Leaf. Cauline and ramal, alternate, exstipulate, compound decomposed, petiolate, leaf base sheathing, pinnae narrow, entire, acute, uncostate reticulate, aromatic smell present.

Inflorescence. Compound umbel consisting of many umbellules.

Flower. Bracteate, pedicellate, complete, central flowers actinomorphic, peripheral flowers zygomorphic due to unequal size of petals, hermaphrodite, pentamerous, epigynous and cyclic.

Calyx. Sepals 5, polysepalous, valvate, persistent.

Corolla. Petals 5, polypetalous, valvate, each petal is bilobed. In central flowers (actinomorphic) the lobes of all petals are equal in size. In case of peripheral flowers (zygomorphic) one anterior petal has 2 large equally developed lobes, two lateral petals have one bigger and one smaller lobe and the rest two petals have two equal small lobes.

Androecium. Stamens 5, polyandrous, filaments long and slender, ditheous, dorsifixed and introrse.

Gynoecium. Bicarpellary, syncarpous, ovary inferior, bilocular, with one pendulous ovule in each locule, placentation axile, styles 2, stigmas 2 and capitate. A disc called stylopodium is present below the style.

Fruit. Cremocarp splitting into 2 mericarps.

Floral formula.

(a) *Central flower.* Br, ⊕, ♀, K₅, C₅, A₅, $\overline{G}_{(2)}$.

(b) *Peripheral flower.* Br, ⊕, ♀, K₅, C₅, A₅, $\overline{G}_{(2)}$.

Classification and identification.

Class. *Dicotyledonae*

1. Venation reticulate. 2. Flowers pentamerous.

Sub-Class. *Polypetalae*

1. Petals free.

Series. *Calyciflorae*

1. Thalamus cup-shaped. 2. Ovary inferior.

Order. *Umbellales*

1. Inflorescence umbel. 2. Ovary inferior with 1, 2, or 8 fused carpels and as many locules. 3. Ovules solitary, pendulous in each locule.

Family. *Umbelliferae*

1. Stems fistular. Leaves alternate, exstipulate usually much dissected with sheathing leaf base. 2. Carpels 2, fused, with 2 styles on swollen style base (stylopodium). 3. Fruit schizocarp, splitting into 2 mericarps.

*1. **English name.** Parsley family.

2. **Systematic position in other systems of classification.**

Rendle (1925)

Dicotyledons

Dialypetalae

Umbelliflorae

Umbelliferae

Engler and Prantl (1931)

Dicotyledoneae

Archichlamydeae

Umbelliflorae

Umbelliferae

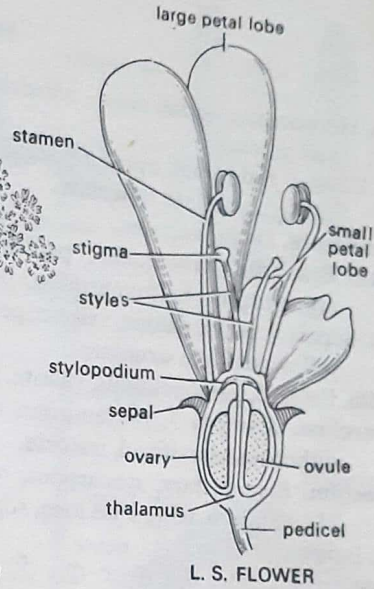
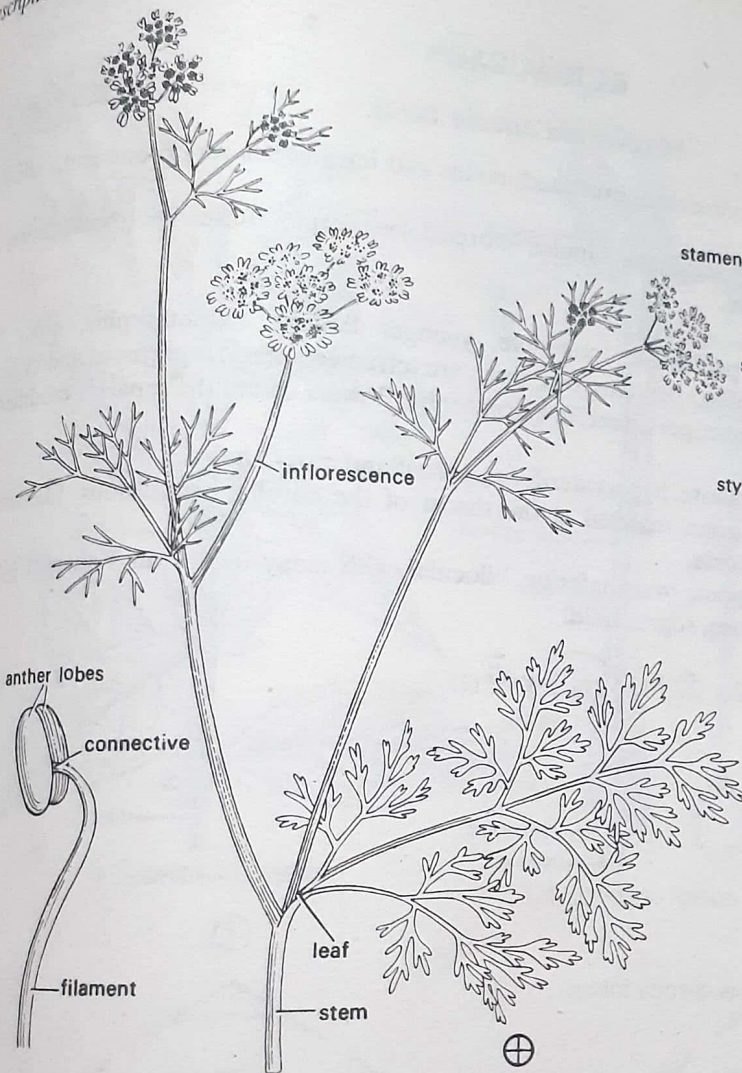
Hutchinson (1959)

Dicotyledons

Herbaceae

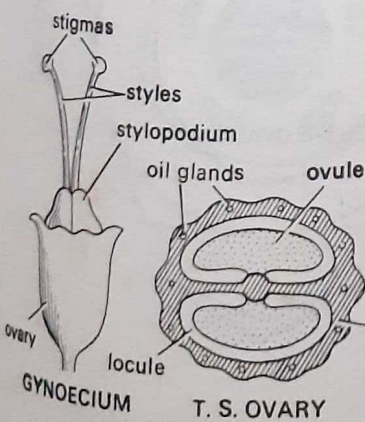
Umbellales

Umbelliferae



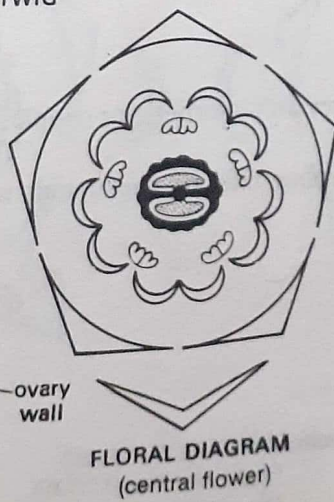
STAMEN

A FLOWERING TWIG



GYNOECIUM

T. S. OVARY



FLORAL DIAGRAM
(central flower)



FLORAL DIAGRAM
(peripheral flower)

Fig. 39. *Coriandrum sativum*.

English name. Coriander.
 Sanskrit name. Dhania.
 Economic importance. The leaves and fruits are used as condiment and flavouring material.

COMPOSITAE* (ASTERACEAE)*Sonchus brachyotes* DC.(=*S. arvensis* Linn.)

Stem. Herbaceous, aerial, erect, cylindrical, branched, fistular, glabrous, younger portions with glandular hairs, green.

Leaf. Cauline and ramal, alternate, exstipulate, simple, sessile, amplexicaul, hastate, dentate, acute, glabrous, uncostate reticulate.

Inflorescence. Capitulum, homogamous and ligulate, involucre of bracts present at the base of inflorescence.

Flower. Bracteate, pedicellate, complete, zygomorphic, hermaphroditic, pentamerous, epigynous and cyclic.

Calyx. Reduced to pappus.

Corolla. Petals 5, gamopetalous, valvate, corolla ligulate, with 0/5 arrangement..

Androecium. Stamens 5, syngenesious, epipetalous, anthers are joined around the style, dithecous, basifixed and introrse.

Gynoecium. Bicarpellary, syncarpous, ovary inferior, unilocular, placentation basal, ovule only one, style long and stigma bifid.

Fruit. Cypsella.

Floral formula. Br, \oplus , \ominus , K_{pappus} , $\overset{\curvearrowright}{\text{C}_{(0/5)}}$, $\text{A}_{(5)}$, $\overline{\text{G}_{(2)}}$.

Classification and identification.

Class. *Dicotyledonae*

1. Venation reticulate.

2. Flowers pentamerous.

Sub-Class. *Gamopetalae*

1. Petals fused.

Series. *Inferae*

1. Ovary inferior.

2. Stamens usually as many as corolla lobes.

Order. *Asterales*

1. Stamens epipetalous.

2. Ovary unilocular with one ovule.

Family. *Compositae*

1. Leaves generally alternate.

2. Inflorescence capitulum.

3. Calyx reduced to hairy pappus.

4. Stamens epipetalous and syngenesious.

*1. English name. Composite family.

2. Systematic position in other systems of classification.

Rendle (1925)

Dicotyledons

Sympetalae

Tetracyclae

Inferae

Campanulales

Compositae

Engler and Prantl (1931)

Dicoyledoneae

Sympetalae

Campanulatae

Compositae

Hutchinson (1959)

Dicotyledons

Herbaceae

Asterales

Compositae

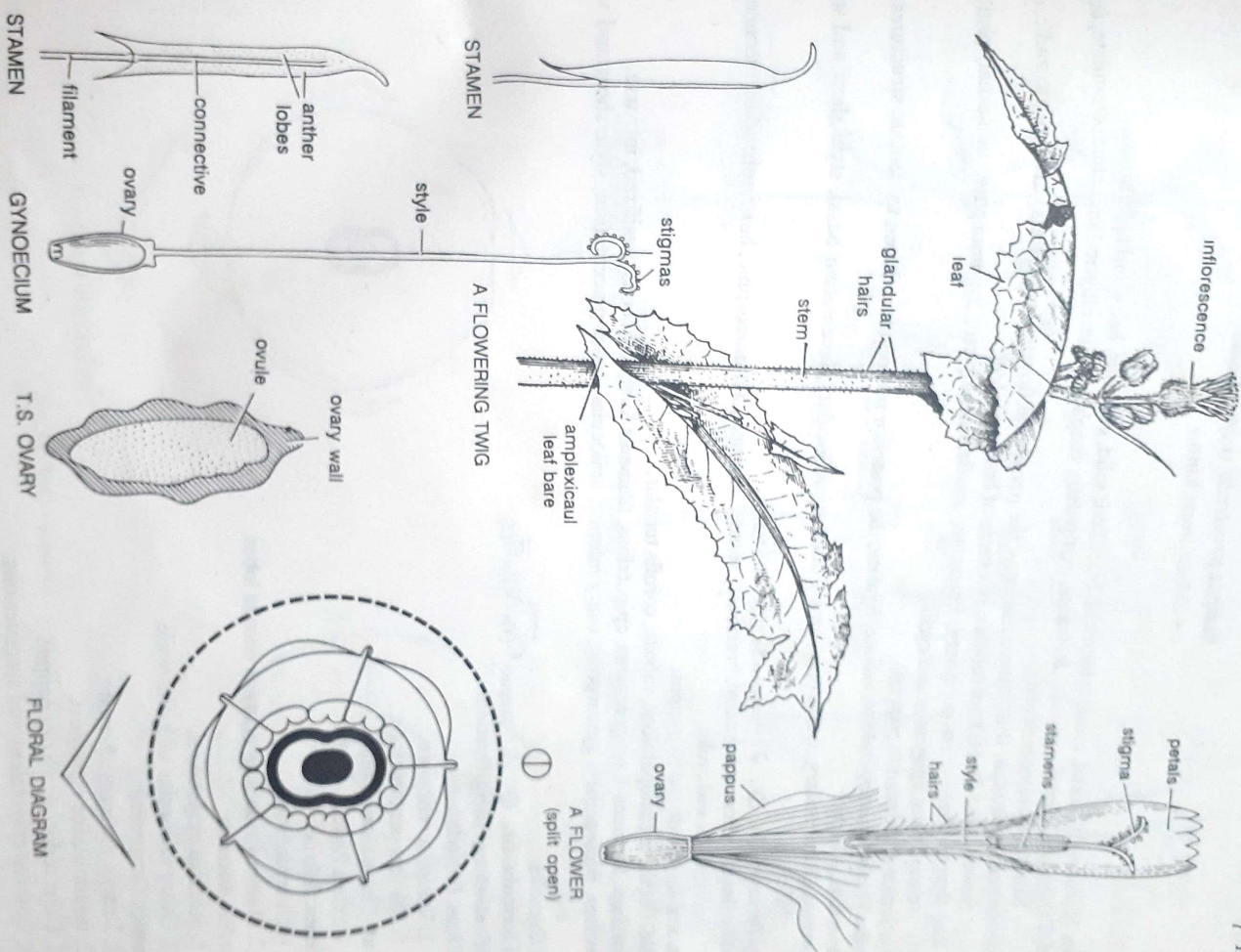


Fig. 43. *Sonchus arvensis*.

1. *Economia* *Arvensis* The plant is used medicinally in many parts of this country.

***Ageratum conyzoides* Linn.**

Stem. Herbaceous, aerial, cylindrical, branched, solid, hairy and purple-green.

Leaf. Cauline and ramal, lower leaves opposite, upper leaves alternate, exstipulate, simple, petiolate, ovate, serrate, acute, hairy, unicostate reticulate.

Inflorescence. Compound capitulum, the heads are arranged in a cymose fashion. The inflorescence is homogamous with all the flowers tubular, involucre of bracts present.

Flower. Bracteate, sessile, complete, actinomorphic, hermaphrodite, pentamerous, epigynous and cyclic.

Calyx. Sepals 5, polysepalous, valvate, reduced to long scaly pappus.

Corolla. Petals 5, gamopetalous, valvate, tubular, violet and hairy.

Androecium. Stamens 5, syngenesious, epipetalous, anthers are jointed round the style, dithecos, basifixed, introrse.

Gynoecium. Bicarpeillary, syncarpous, ovary inferior, unilocular, with one basal ovule, placentation basal, style long, stigma bifid and hairy.

Fruit. Cypsella.

Floral formula. Br, \oplus , $\overset{\circ}{\sigma}$, K_{pappus} , $\overline{C(5)}$, $A(5)$, $\overline{G(2)}$.

Classification and identification

Class. *Dicotyledonae*.

1. Venation reticulate.
2. Flowers pentamerous.

Sub-Class. *Gamopetalae*

1. Petals fused.

Series. *Inferae*

1. Ovary inferior.
2. Ovary unilocular with one ovule.

Order. *Asterales*

1. Stamens epipetalous.

2. Ovary unilocular with one ovule.

Family. *Compositae*

1. Leaves generally alternate.
2. Inflorescence capitulum.
3. Calyx reduced to hairy pappus.
4. Stamens epipetalous and zygomorphic.

***Launaea asplenifolia* Hook. f**

Stem — Extremely reduced; **Leaf** — Radical, exstipulate, simple, sessile, somewhat lyrate, margins spinulose, unicostate reticulate; **Inflorescence** — Homogamous heads (capitula), raised on a scape, scape is aerial, erect, cylindrical, branched, solid and smooth; **Flower** — All ligulate, bracteate, bracts form involucre, sessile, complete, zygomorphic, hermaphrodite, pentamerous, epigynous, epigynous and cyclic; **Calyx** — Reduced to pappus; **Corolla** — Petals 5, gamopetalous, valvate, ligulate forming a short tube at the base, yellow; **Androecium** — Stamens 5, syngenesious, epipetalous, anthers joined around the style, dithecos, basifixed, introrse; **Gynoecium** — Bicarpeillary, syncarpous, ovary inferior, unilocular, with one ovule, placentation basal, style long, stigmas two and unimose; **Fruit** — Cypsella.

Floral formula - Br, \oplus , $\overset{\circ}{\sigma}$, K_{pappus} , $\overline{C(5)}$, $A(5)$, $\overline{G(2)}$.

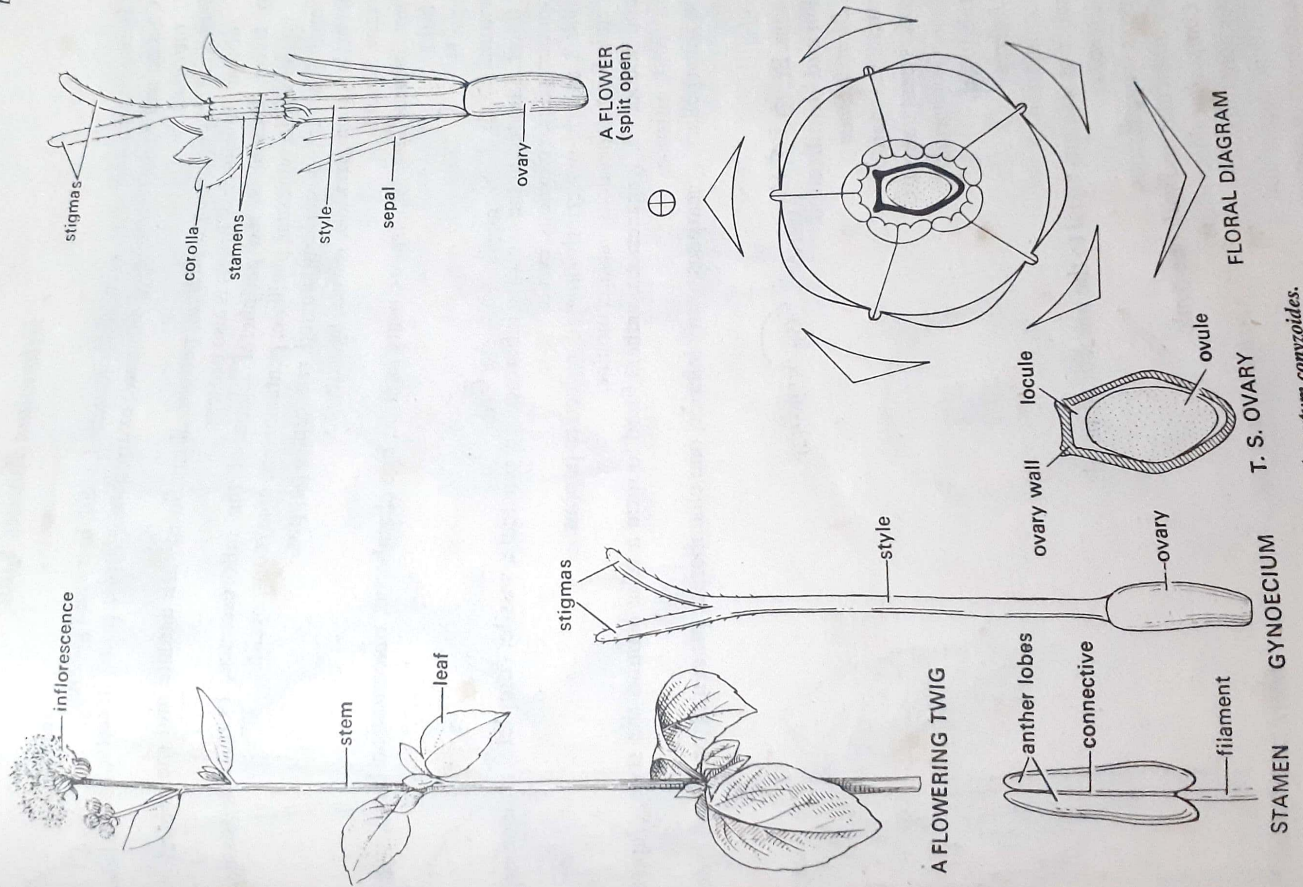


Fig. 45. *Ageratum conyzoides*.

***Eclipta prostrata* (Linn.) Linn.**
(= *Eclipta erecta* Linn.)

Stem. Herbaceous, aerial, erect, cylindrical, branched, solid, glabrous, hairy and light brown.
Leaf. Cauline and ramal, opposite decussate, exstipulate, simple, sessile, elliptic-lanceolate, crenulate, acute, hairy, uncostate reticulate.

Inflorescence. Capitulum. It is heterogamous — the peripheral flowers (ray florets) are ligulate and central flowers (disc florets) are tubular, involucre of bracts present.

[I] **Ray florets.** Present on periphery, bracteate, sessile, incomplete, zygomorphic, unisexual, pistillate, tetramerous, epigynous and cyclic.

Calyx. Sepals 4, reduced to pappus.

Corolla. Petals 4, gamopetalous, valvate, ligulate, the posterior two petals reduced to dentate structures.

Androecium. Absent.

Gynoecium. Bicarpellary, syncarpous, ovary inferior, unilocular, placentation basal, style short and stigma bifid.

Floral formula. Br, \ominus , φ , $K_{\text{pappus}} C_{(2/2)}, A_0, \bar{G}_{(2)}$.

[III] **Disc florets.** Present in centre, bracteate, sessile, complete, actinomorphic, hermaphrodite, tetramerous, epigynous and cyclic.

Calyx. Sepals 4, reduced to pappus.

Corolla. Petals 4, gamopetalous, valvate, corolla tubular.

Androecium. Stamens 4, syngenesious, epipetalous, filaments long, ditheous, basifixed, introrse.

Gynoecium. Bicarpellary, syncarpous, ovary inferior, unilocular, basal placentation, style short and stigma bifid.

Fruit. Cypsella.

Floral formula. Br, \oplus , φ , $K_{\text{pappus}} C_{(4)}, A_{(4)}, \bar{G}_{(2)}$.

Classification and identification.

Class. *Dicotyledonae*

1. Venation reticulate.
2. Flowers pentamerous.

Sub-Class. *Gamopetalae*

1. Petals fused.

Series. *Iniferae*

1. Ovary inferior.
2. Stamens usually as many as corolla lobes.

Order. *Asterales*

1. Stamens epipetalous.
2. Ovary unilocular with one ovule.

Family. *Compositae*

1. Leaves generally alternate.
2. Inflorescence capitulum.
3. Calyx reduced to hairy pappus.
4. Stamens epipetalous and syngenesious.

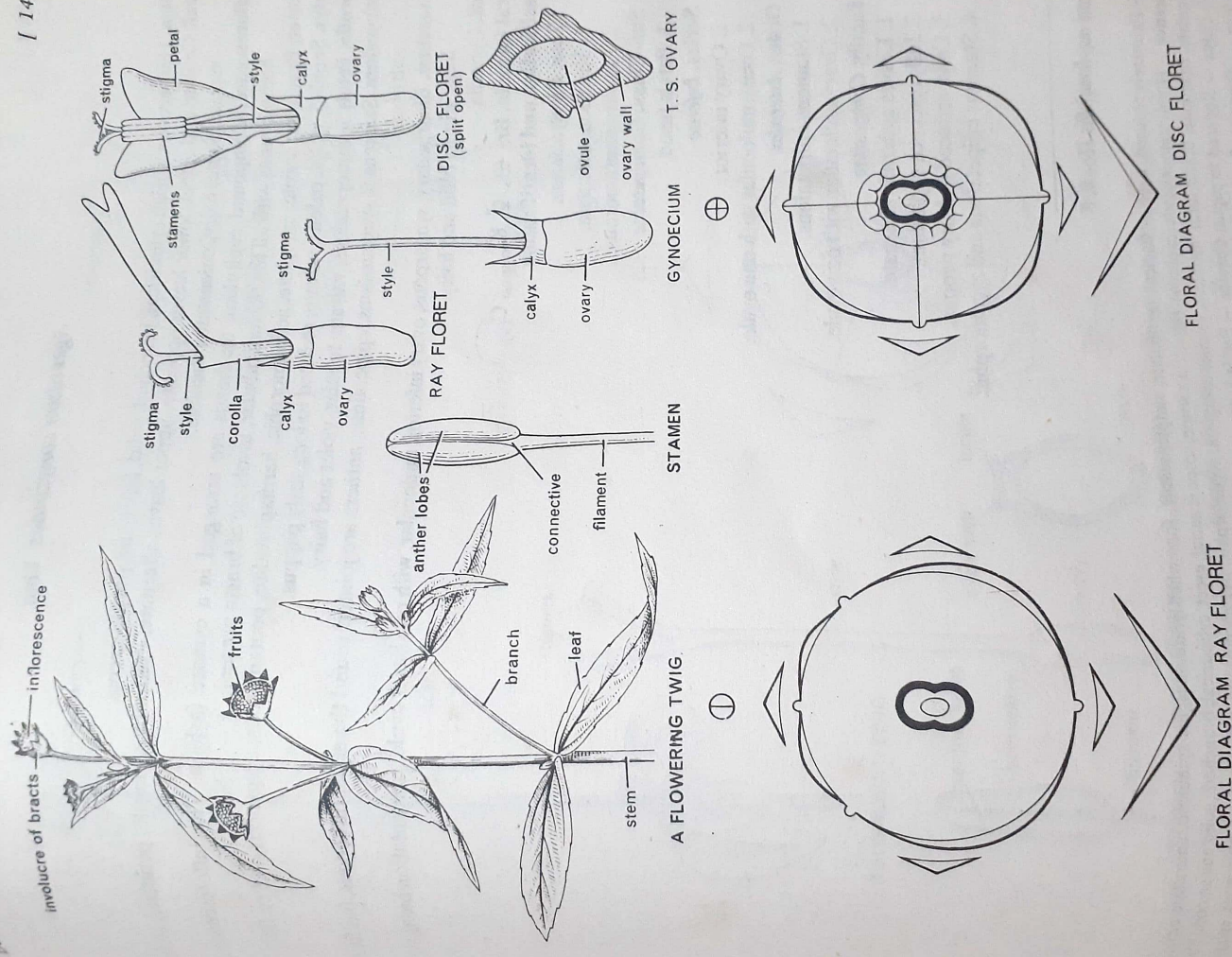


Fig. 44. *Eclipta prostrata*.

1. Vernacular name, Bhangra.
 2. Economic importance. The juice of the plant is used in cases of spleen enlargement. In Bengal the fresh leaves are employed in