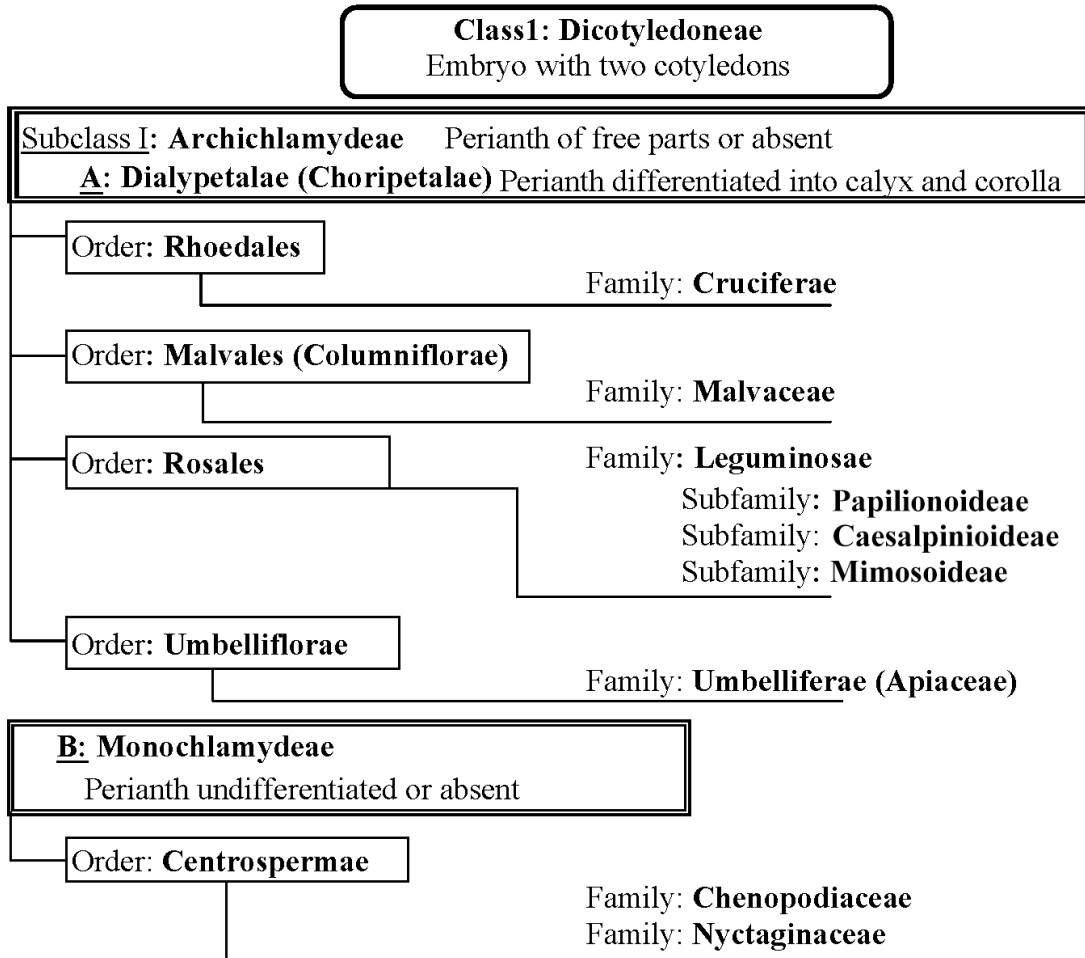


## SELECTED FAMILIES OF ANGIOSPERMS

The Families of Angiosperms according to Melchior system (1964) "modified or updated" Engler system as follows:



**Subclass 2. Sympetalae**

Perianth of united parts, at least the corolla

**Order: Tubiflorae**Family: **Convolvulaceae**Family: **Labiatae (Lamiaceae)**Family: **Solanaceae**Family: **Bignoniaceae****Order: Gentianales**Family: **Apocynaceae****Order: Campanulales**Family: **Asteraceae (Compositae)****Order: Cucurbitales**Family: **Cucurbitaceae****Class2: Monocotyledoneae**

Embryo with one cotyledon

**Order: Graminales (Glumiflorae)**Family: **Graminae (Poaceae)****Order: Cyperales**Family: **Cyperaceae****Order: Principes**Family: **Palmae (Araceae)****Order: Liliflorae**Family: **Liliaceae**Family: **Agavaceae**

**Class1: Dicotyledoneae**

Embryo with two cotyledons

**Subclass1: Archichlamydeae**

A-Dialypetalae

Perianth differentiated into calyx and corolla.

1- Order: Rhoeadales

**1. Family: Brassicaceae (Cruciferae) - The Mustard****Inflorescence and flower**

Flowers solitary or aggregated in inflorescences: in corymbs, or in racemes, or in spikes, or in fascicles. The terminal inflorescence unit racemose. Inflorescences terminal, or axillary.

**Perianth**

with distinct calyx and corolla, or sepaline; 8, or 4; characteristically 3whorled (K 2+2 decussate with the outer pair median, C4, the corolla diagonal), or 2 whorled. Calyx 2 whorled. Corolla 4 (diagonal); 1 whorled; polypetalous; imbricate,

or contorted; regular; white, or yellow, or orange, or purple, or blue. Petals clawed, or sessile.

**Androecium**

6, or 2–4, or 8–16. free of one another, or coherent (the inner four sometimes basally connate in pairs); 2 whorled (usually, 2+4), or 1 whorled.

Androecium exclusively of fertile stamens. Stamens 6, or 2–4, or 8–16; tetradynamous.

**Gynoecium**

2 carpelled. Gynoecium syncarpous; eu-syncarpous; superior. Ovary 1–2locular. Stigmas 1–2; commissural, 1 lobed, or 2 lobed.

**Placentation**

parietal.

**Fruit**

non-fleshy; dehiscent, or indehiscent or a schizocarp or lomentaceous Mericarps when schizocarpic, 2. Fruit a silicula to a siliqua. Capsules when dehiscent, valvular.

**Common Plants**

*Brassica oleracea* var. *capitata* (cabbage)

*Brassica oleracea* var. *botrytis* (cauliflower).

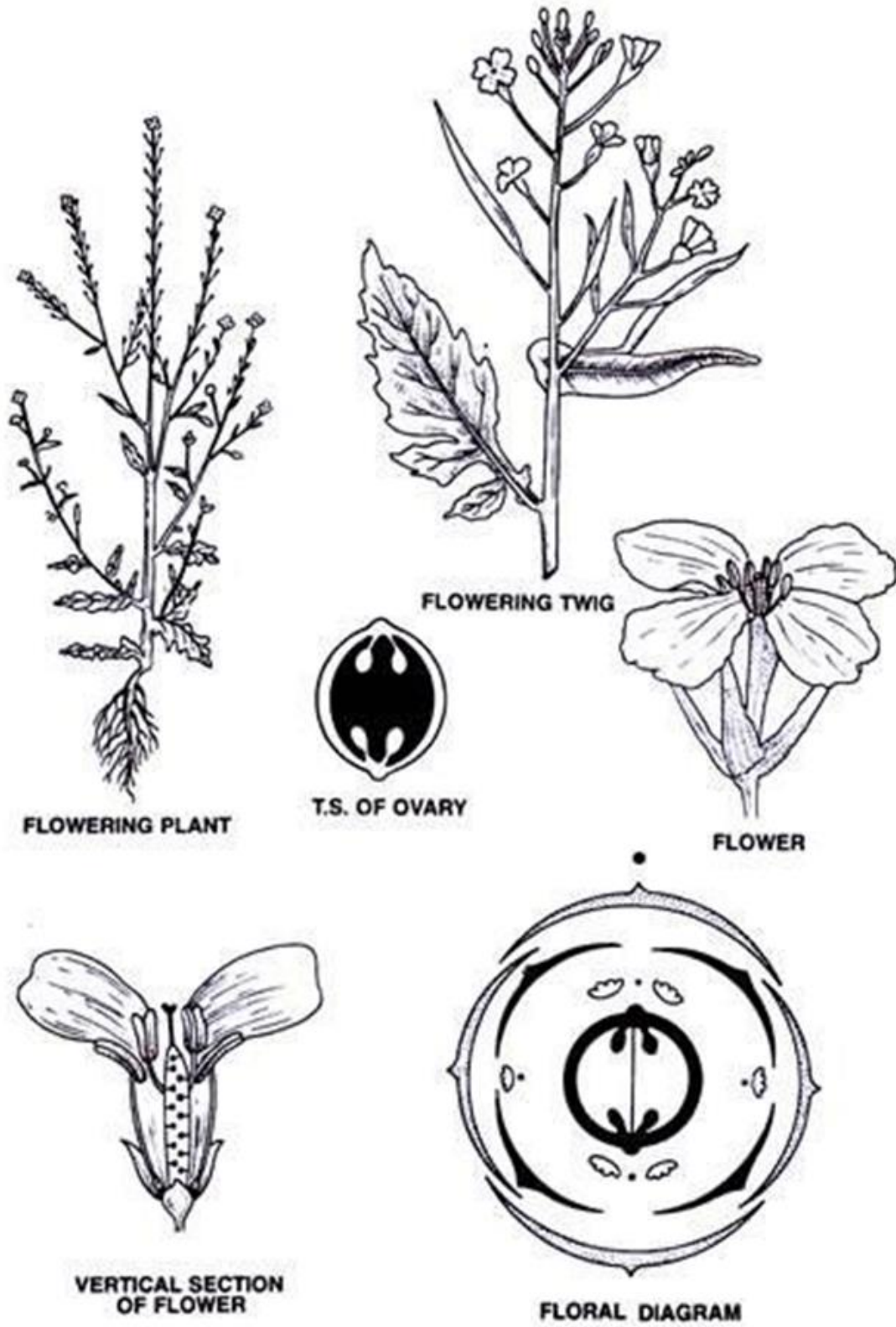


Fig. 31.1. *Brassica campestris*.

**Order: Malvales (Columniferae)**

1. **Family:** Malvaceae - The Mallow Family Inflorescence and flower.

Flowers solitary, or aggregated in 'inflorescences', in cymes. The terminal inflorescence unit cymose. Inflorescences compound cymose.

**Flowers** small to large; regular to somewhat irregular.

Perianth with distinct calyx and corolla; 10; 2 whorled; isomerous. Calyx 5; 1 whorled; polysepalous, or gamosepalous; regular; valvate. Epicalyx present.

**Corolla** 5; 1 whorled; polypetalous.

**Androecium** (5–)15–100 . Androecial members branched .

**Gynoecium** (1–5(–100) carpelled. Gynoecium syncarpous; synovarious to synstylovarious; superior. Ovary (1–5(–100) locular. Styles (1–)5(–20); free to 48 partially joined; apical. Stigmas dry type; papillate, or non-papillate.

**Placentation** axile. Ovules 1–50 per locule.

**Fruit** non-fleshy, or fleshy; dehiscent, or indehiscent, or a schizocarp. Mericarps when schizocarpic, (1–)5(–100); comprising follicles or comprising nutlets. Fruit a capsule , or a berry . Capsules loculicidal.

**Common Plants:**

*Gossypium barbadense* (Cotton) important for oil and fibers

A number of species in this genus are cultivated as cotton and oil crops; these are *G. hirsutum* and *G. barbadense*. *Hibiscus esculentus* and *Malva parviflora* are cultivated as vegetables. *Hibiscus cannabinus* is cultivated as source of fibers. The roots and leaves of *Althaea officinalis* are used as demulcents. *Althaea rosa* and *Hibiscus rosa sinensis* are cultivated as ornamental plants.

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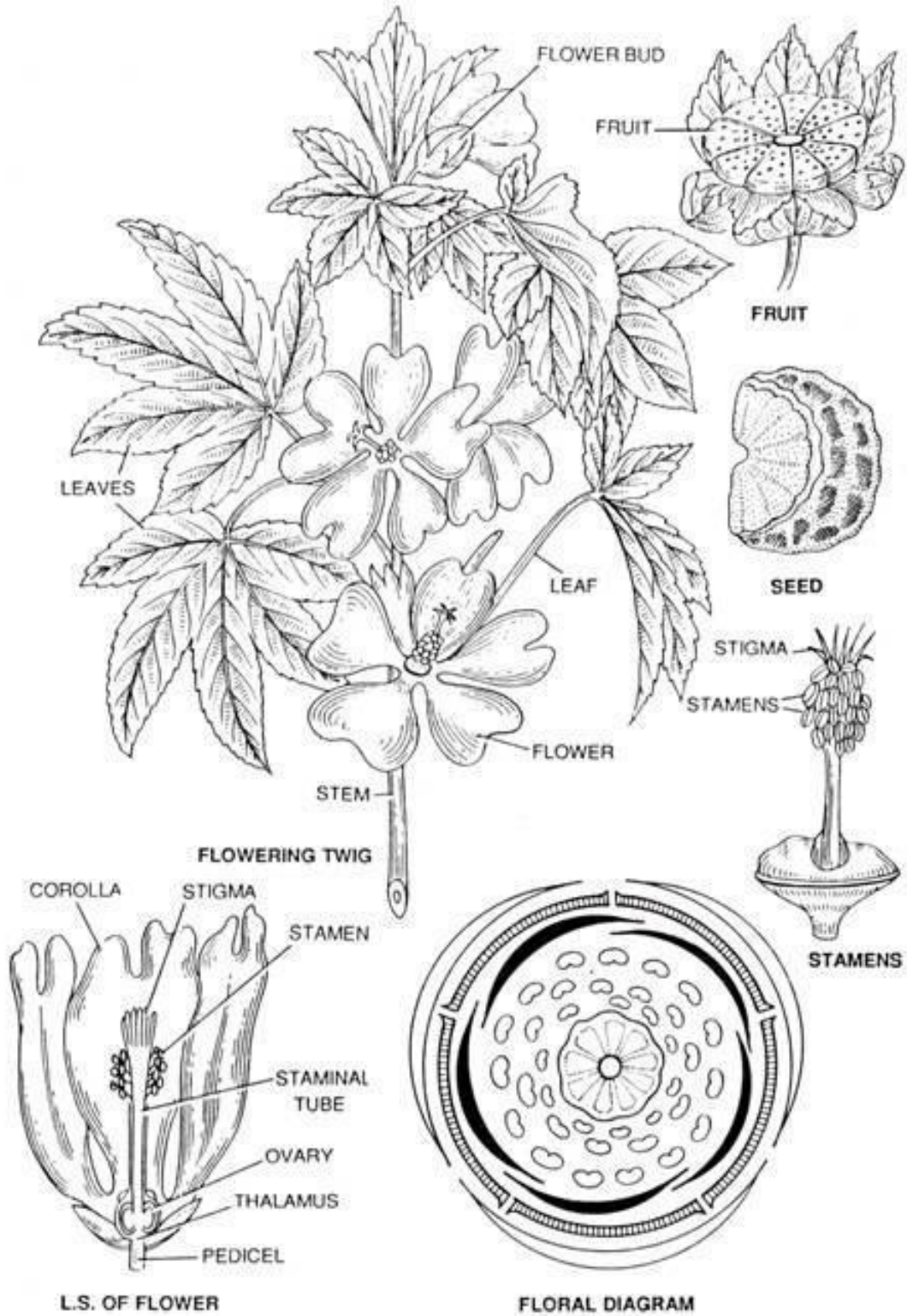


Fig. 16.1. Malvaceae. *Malva sylvestris* Linn., Eng., Common mallow; Verna. Vilayati Kangi.

**Order: Rosales****Suborder: Leguminosineae****Family: Leguminosae*****Key to the subfamilies of the Leguminosae:***

1. Flowers actinomorphic.....**Mimosoideae**
1. Flowers zygomorphic.....2
2. Perianth showing some connation, the uppermost petal (standard) enclosing the lateral petals (wings).....**Faboideae (Papilionoideae)**
2. Perianth with separate parts, the standard enclosed by the Wings.....**Caesalpinioideae**

**2. Subfamily: Faboideae (Papilionoideae)- The Bean or Pea Family****Inflorescence and flower.**

Flowers aggregated in Inflorescences' , or solitary; in panicles, in fascicles, in racemes, in spikes, and in heads. The terminal inflorescence unit cymose, or racemose. Flowers somewhat irregular to very irregular , or regular; usually zygomorphic.

**Perianth**

with distinct calyx and, 2 whorled; isomerous, or anisomerous. Calyx 5, or(3-5(-6), 1 whorled; usually gamosepalous; unequal but not bilabiate, or bilabiate, or regular; persistent or not persistent; accrescent, or non-acrescent; ascending imbricate. Corolla when present, 5, or 1-5; 1 whorled.

**Androecium**

(5-) 9-10(-30), 1 adelphous, or 2 adelphous; even when 10, 1

**Stamens**



(5–) 9–10(–30); isomerous with the perianth, or diplostemonous (commonly, more or less), or triplostemonous to polystemonous. Anthers separate from one another to connivent.

### **Gynoecium**

1 carpelled. Carpels reduced in number relative to the perianth. Gynoecium monomerous; of one carpel; superior. Carpel apically stigmatic; (1–)2–100 ovuled. Placentation marginal (along the ventral suture).

### **Fruit**

non-fleshy, or fleshy. The fruiting carpel dehiscent, or indehiscent; a legume , or a follicle, or an achene, or samaroid, or a loment, or drupaceous. Fruit elastically dehiscent, or passively dehiscent.

### **Common Plants**

*Cicer arietinum*, *Vicia faba*, *Pisum sativum*, *Phaseolus vulgaris*, *Sesbania sesban*

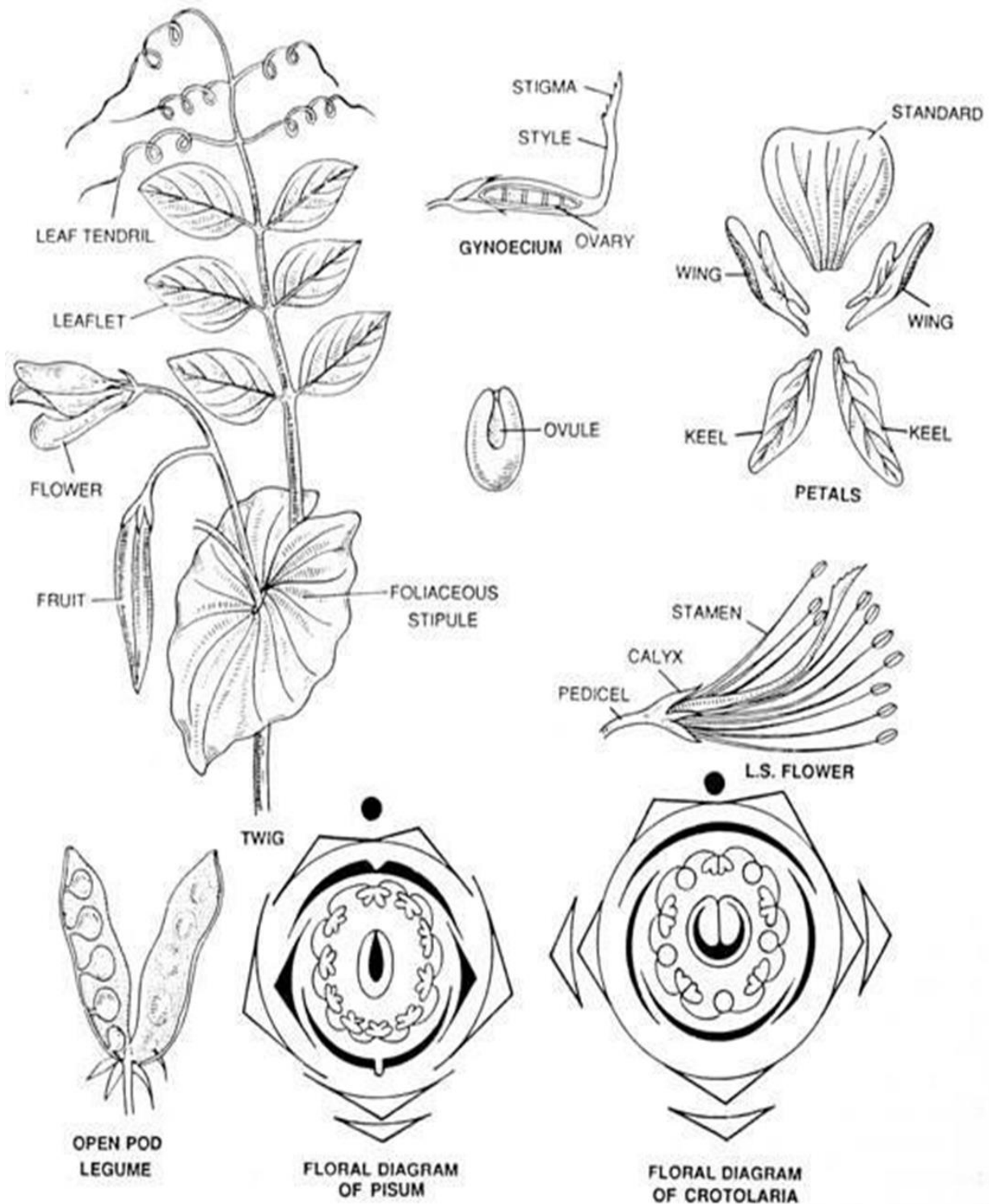


Fig. 15.7. Papilionaceae (Leguminosae)–*Pisum sativum* Linn.

**Order: Umbelliflorae****1. Family: Apiaceae (Umbelliferae) - The Carrot Family**

Inflorescence and flower. Flowers aggregated in 'inflorescences'; in umbels, or in heads. The terminal inflorescence unit cymose, or racemose. Inflorescences terminal; often cymose umbels or heads arranged in cymose inflorescences, sometimes reduced to single flowers.

**Perianth** with distinct calyx and corolla, 4–10; 2 whorled, or 1 whorled. Calyx when detectable, 5; 1 whorled; polysepalous, or gamosepalous. Corolla 5; 1 whorled; polypetalous; valvate.

**Androecium**

5. free of one another; 1 whorled. Stamens 5; isomerous with the perianth.

**Gynoecium**

2 carpelled. Gynoecium syncarpous; inferior. Ovary (1–) 2 locular. Gynoecium median. Styles 2; free to partially joined. Stigmas wet type.

**Placentation**

Axile, or apical.

**Fruit**

non-fleshy; a schizocarp. Mericarps 2; dry, united facially, 1-seeded, the integument sometimes united with the pericarp.

**Common Plants**

*Daucus carota*, *Daucus boissieri*, *Petroselinum sativum*, *Anethum graveolens*

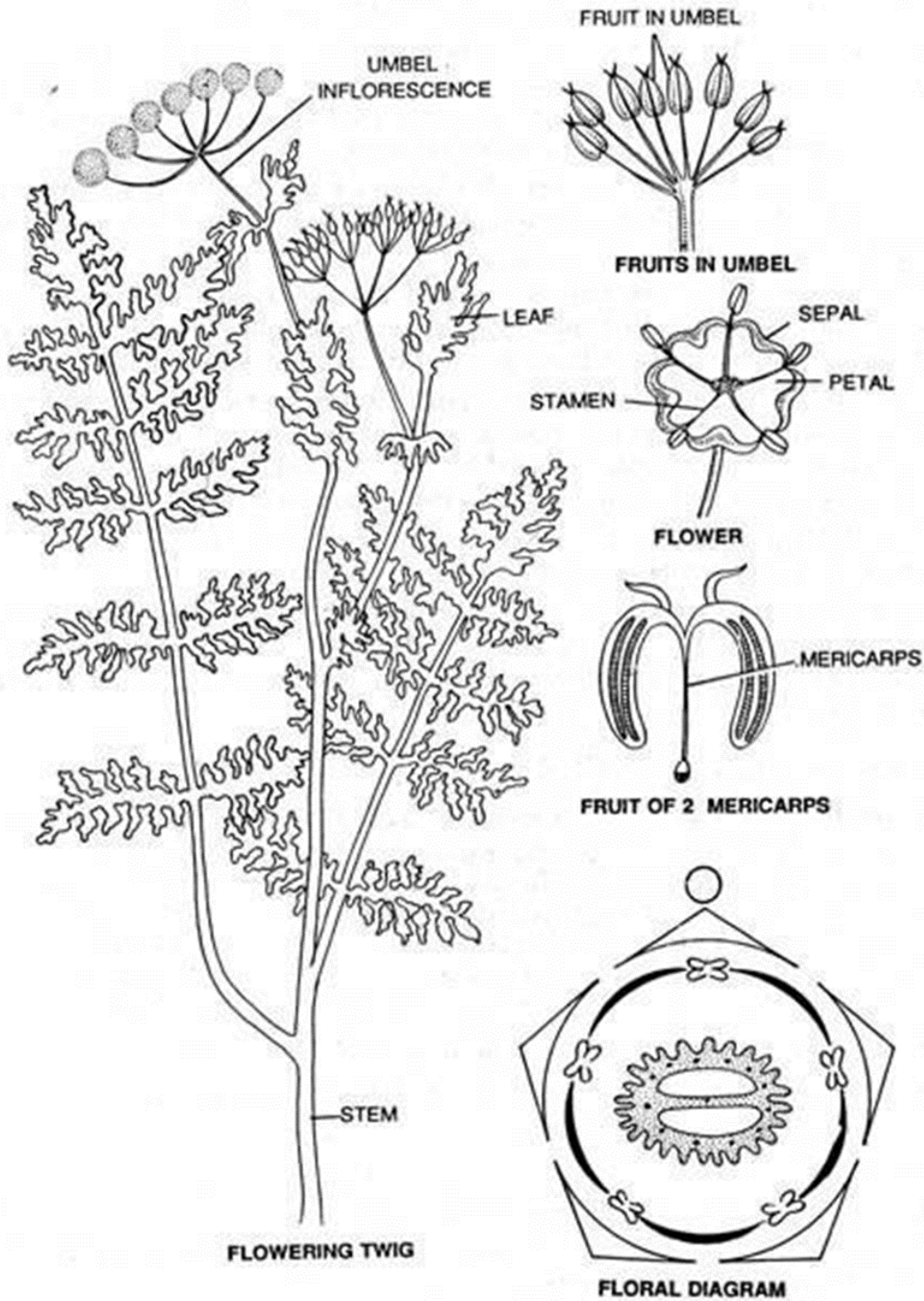


Fig. 25.1. Umbelliferae (Apiaceae). *Trachyspermum ammi* (Linn.) Sprague. (Syn. *Carum copticum*); Eng., lovage ammi, Verna, Ajwain.

## Subclass 2. Monochlamydeae

Perianth undifferentiated or absent

### Order: Centrospermae

#### 1. Family: Nyctaginaceae

#### Inflorescence and flower.

Flowers bisexual, actinomorphic, grouped in cymose inflorescence. Each flower is subtended highly colored bract.

#### Perianth

Perianth uniseriate of about 5 petaloid tepals, contorted in the bud.

#### Androecium

(1–)5(–30), 1 whorled.

#### Gynoecium

Gynecium of 1 carpel. Ovary superior, 1-loculed with 1 basal ovule.

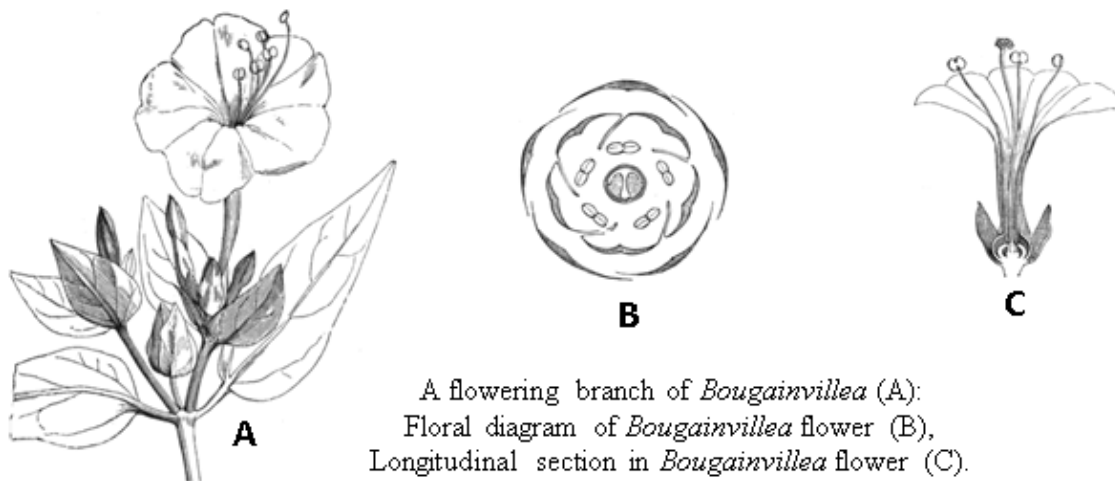
#### Placentation

basal.

#### Fruit

Fruit an anthocarp, which is an achene enveloped by the persistent calyx in various ways to facilitate dispersal..

**Common Plants:** *Bougainvillea glabra*, *Mirabilis galaba*



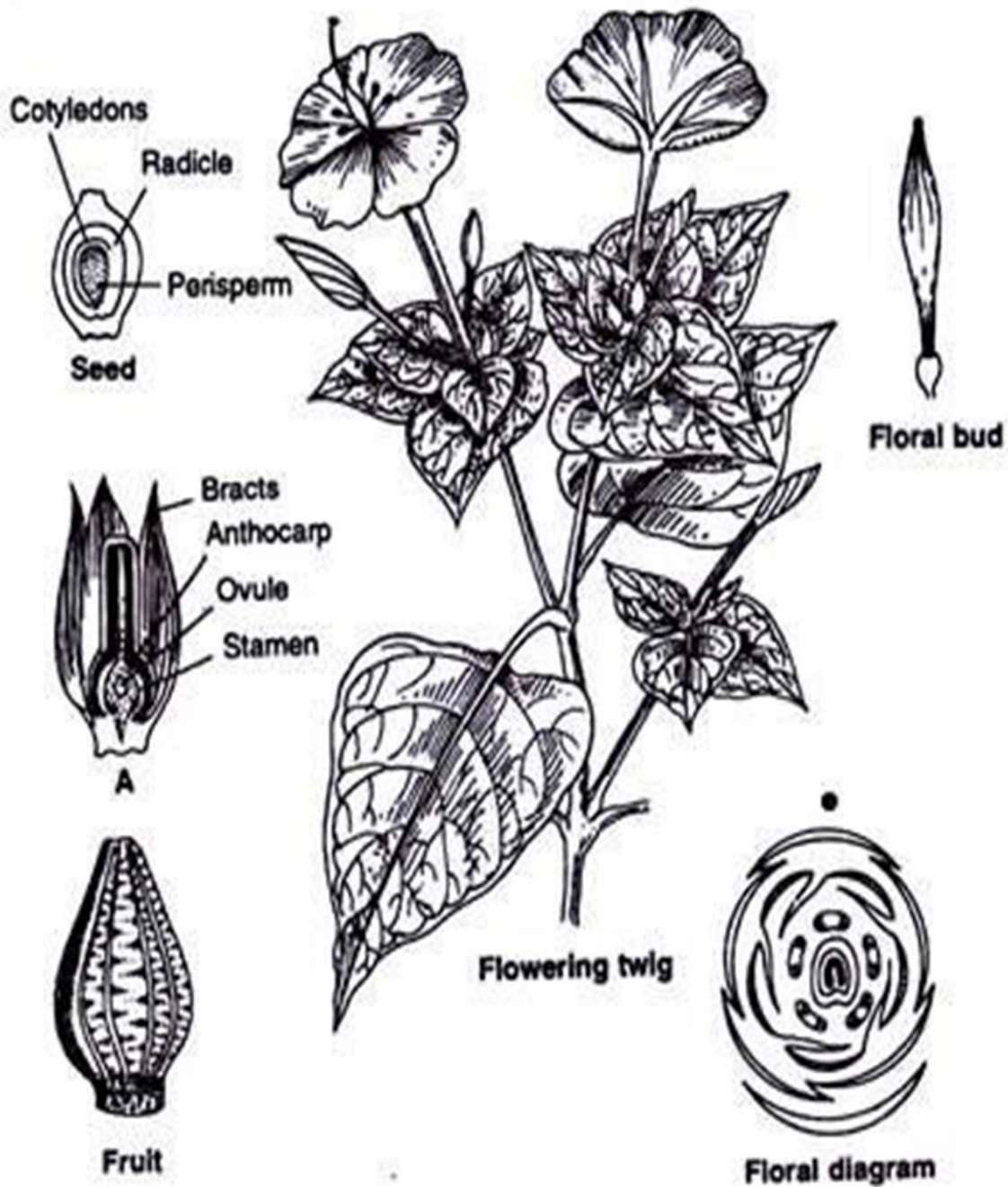


Fig. 89.1. *Mirabilis jalapa* L. A. Lower portion of flower in vertical section showing br. bracts; ant., anthocarp; ov, ovule; st, lower part of filament of stamen.

### Subclass 3. Sympetalae

Perianth of united parts, at least the corolla

#### Order: Tubiflorae

##### 1. Family: Solanaceae - The Nightshade Family

Inflorescence and flower. Flowers solitary or aggregated in 'inflorescences'. The terminal inflorescence unit apparently cymose. Inflorescences terminal, or axillary, or leaf-opposed.

**Calyx** composed of 5 united persistent sepals.

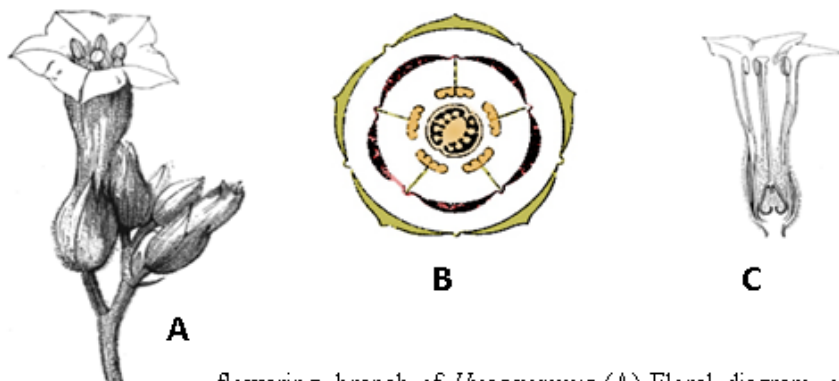
**Corolla** composed of 5 united petals, convolute in the bud and in the mature stage rotate to tubular.

**Androecium** composed of 5 epipetalous stamens.

**Gynoecium** is inserted in a hypogenous disc and composed of two united carpels of two locules obliquely placed and 2 locules. Gynoecium oblique. Styles 1. Placentation axile. Ovules 1–50 per locule .

**Fruit** may be a berry or a capsule.

**Examples of economic plants of this family** include *Solanum lycopersicum* (tomato), *Lycopersicum esculentus* (tomato), *Solanum melangogena* (egg plant), *Capsicum annum* (pepper), *Nicotiana tobacum* (tobacco), *Solanum nigrum*. Solanaceae also contains several medicinal plants such as *Datura*, *Hyoscyamus* and *Atropa*



A flowering branch of *Hyoscyamus* (A) Floral diagram of *Solanum nigrum* (B), Longitudinal section in *Hyoscyamus* flower (C)

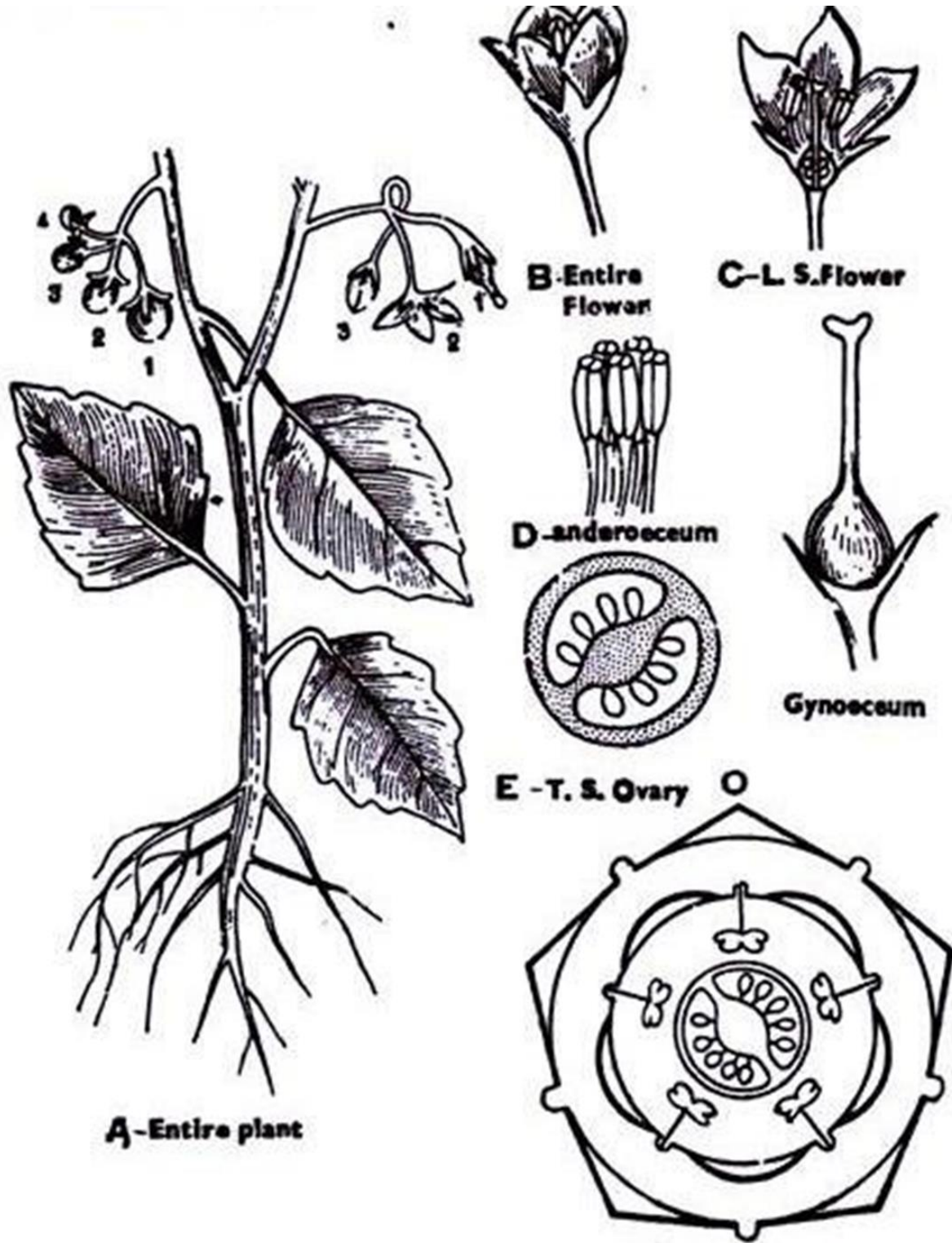


Fig. 78.1. *Solanum nigrum*

F - Floral diagram



## Class 2: Monocotyledoneae

### 1. Order: Liliflorae

#### 1. Family: Liliaceae - The Lily Family

##### **Inflorescence and flower.**

Flowers solitary, or aggregated in 'inflorescences'; in racemes, or in umbels, or in panicles. Flowers bracteate, or ebracteate.

Perianth of 'tepals'; 6; free; 2 whorled; isomerous; petaloid, or sepaloid; similar in the two whorls, or different in the two whorls; colour variable.

##### **Androecium**

6 Androecial members free of the perianth; all equal; free of one another; 2 whorled (3+3). Androecium exclusively of fertile stamens. Stamens 6; diplostemonous; alterniperianthial. Anthers basifixed or dorsifixed.

**Gynoecium** 3 carpelled. Carpels isomerous with the perianth. Gynoecium syncarpous. Ovary 3 locular. Styles 1; attenuate from the ovary, or from a depression at the top of the ovary; apical. Stigmas 1, or 3; dorsal to the carpels; wet type, or dry type; papillate.

**Placentation** Axile. Ovules 5–50 per locule.

**Fruit** usually a capsule; ; dehiscent; a capsule. Capsules loculicidal. sometimes a berry.

##### **Common Plants**

include several species of *Lilium*, *Tulipa*, *Ornithogalum*, *Fritillaria*, and *Gloriosa*. *Allium cepa*, *Allium sativum*, *Allium porrum*, *Allium kurrat* are cultivated as food crops and medical uses while *Colchicum autumnale*. is a medicinal plant.

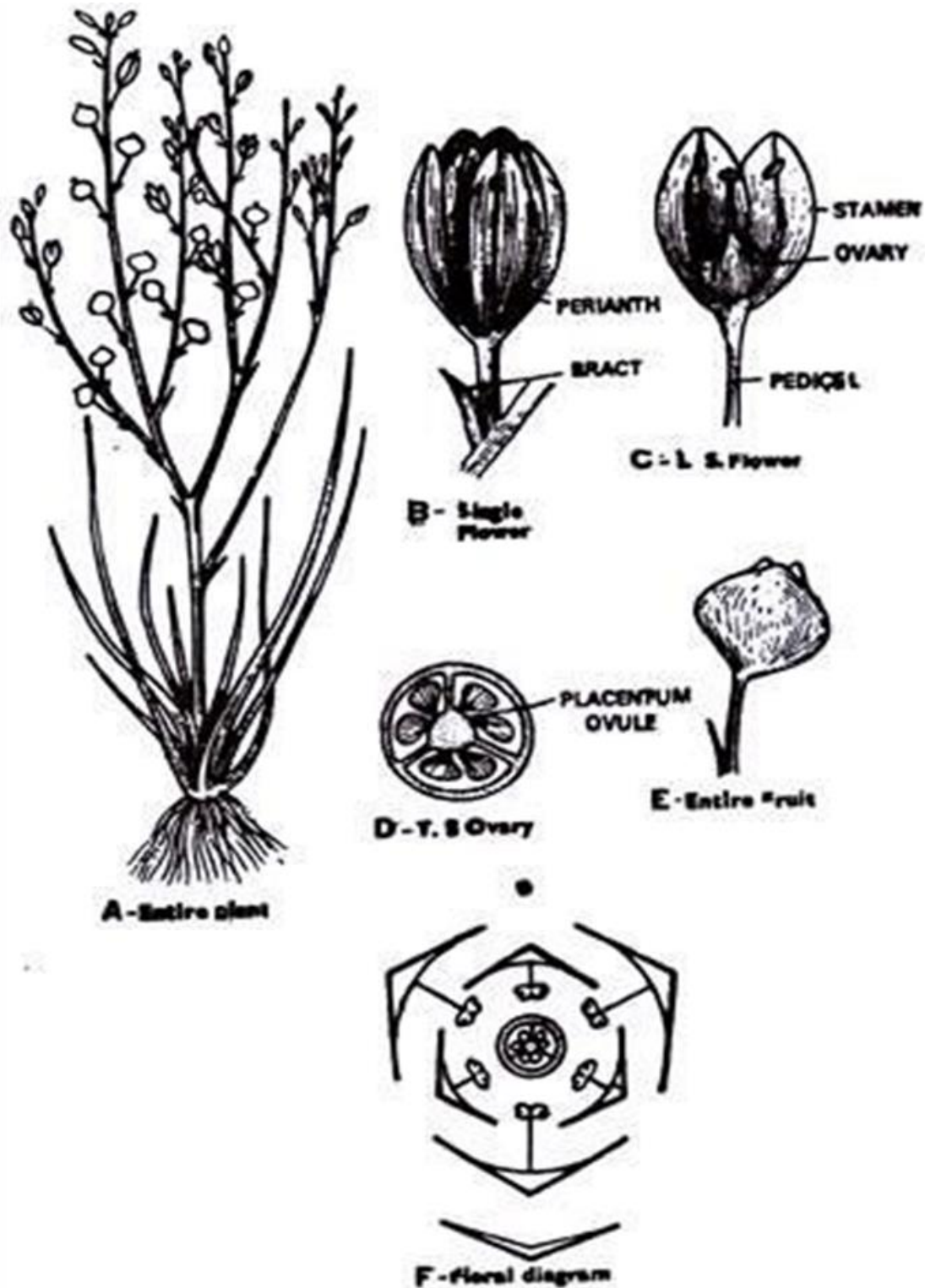


Fig. 107.1. *Asphodelus tenuifolius*.

## 2. Order: Cyperales

**Family: Cyperaceae** (Order Glumiflorae in Engler System)

Flowers unisexual or hermaphrodite.

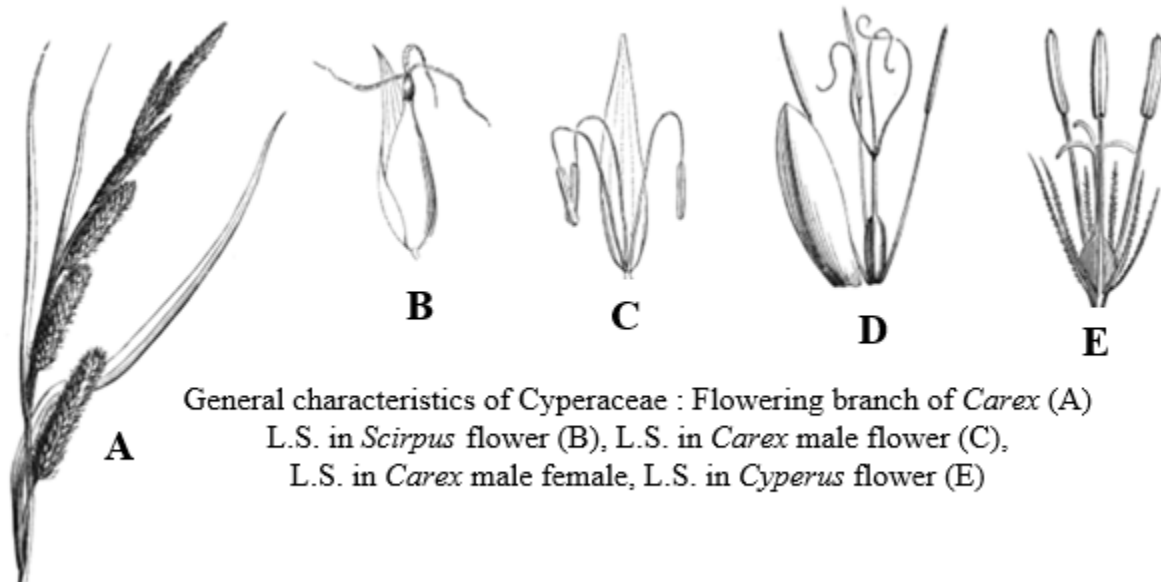
Inflorescence composed from compound spikes, each flower is subtended by one glume.

**Perianth** may be represented by small scales or six bristles (e.g. *Scirpus*), long white hairs as in the cotton grass (*Eriophorum*), or entirely absent (e.g. *Cyperus*).

**Stamens** three with base-fixed two- celled anthers.

**Ovary** unilocular with one basal erect ovule and carries a terminal style with 2 or 3 filiform stigmas.

**Fruit achene**; pericarp is not adhering to the testa. Examples of common plants of *Cyprus* include are *Cyperus papyrus*, *C. rotundus* and *C. esculentus*.



General characteristics of Cyperaceae : Flowering branch of *Carex* (A)  
 L.S. in *Scirpus* flower (B), L.S. in *Carex* male flower (C),  
 L.S. in *Carex* male female, L.S. in *Cyperus* flower (E)