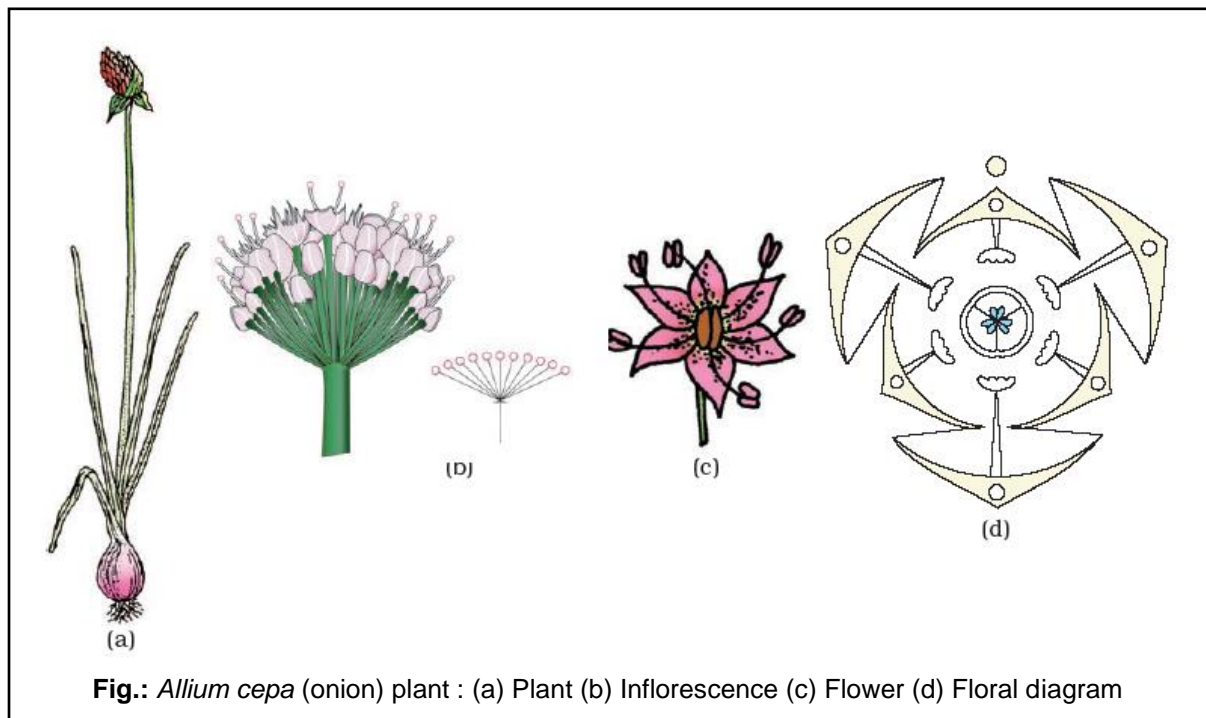


### 3. FAMILY - LILIACEAE

#### Classification

Kingdom	–	Plantae
Divison	–	Angiospermae
Class	–	Monocotyledonae
Family	–	Liliaceae



Commonly called the 'Lily family' is a characteristic representative of monocotyledonous plants.

**Vegetative characters:** Perennial herbs with underground bulbs/corms/rhizomes

**Distribution:** 250 genera and 4000 species, cosmopolitan distribution (world wide).

#### Habit :

Normal **Perennial herbs** e.g. *Asphodelus* some are **shrubs** e.g. *Dracaena*, some are **climbers** e.g. *Smilax*, *Gloriosa*, some are **trees** e.g. *Yucca*.

#### Root :

Usually adventitious roots. **Fasciculated or tuberous roots** are found in *Asparagus*.

#### Stem :

Aerial or under ground. Food stores in the underground stem like.

1. **Bulb** : e.g. Onion and Garlic
2. **Corm** : e.g. *Colchicum autumnale*
3. **Rhizome** : e.g. *Aloe*

**Modification of aerial stem**

(i) Cladode : e.g. *Asparagus*, *Ruscus*

Exception : Abnormal secondary growth occur in *Dracaena* and *Yucca*.

**Leaves :**

Mostly basal, alternate, linear, exstipulate with parallel venation

Cauline, Radical (leaves locate on under ground stem) e.g. *Asphodelus*, Stipulate sessile, various types of phyllotaxy (alternate, opposite or whorled), parallel venation.

**Exception :**

(i) Reticulate venation - e.g. *Smilax*.

(ii) In *Gloriosa* leaf tips are modified into tendrils while in *Smilax* stipules are converted into tendrils.

(iii) In *Ruscus*, leaves are modified into scales.

(iv) In *Asparagus* - leaves are converted into spines.

**Inflorescence:**

Solitary / cymose; often umbellate clusters.

Usually racemose or **solitary axillary or terminal**, **panicle in *Dracaena*, *Yucca*, Spadix in *Aloe*** While **scapigerous umbel in onion (*Allium cepa*)** in which Inflorescence come out from under ground stem and clusters of flowers develop on the tip as umbel but it is actually scorpioid cyme instead of umbel.

**Flower :**

Complete, bisexual, Bracteate, **Trimerous**, Actinomorphic, Hypogynous.

**Perianth :**

6 Tepals, in two whorls **3 + 3**, (**Polyphyllous or Gamophyllous**), often united into tube, valvate aestivation, odd tepal anterior.

**Androecium** : 6 Stamens arrange in two whorls **3 + 3**, Polyandrous, **Epiphyllous**, Anther Dithecous, Basifixed or Versatile, Introrse.

**Gynoecium :**

**Tricarpellary**, Syncarpous, **Axile placentation**, Trilocular, Stigma trifid. In onion gynobasic style is present.

**Fruit :**

capsule, rarely berry

Berry - e.g. Lily or Capsule e.g. Onion.

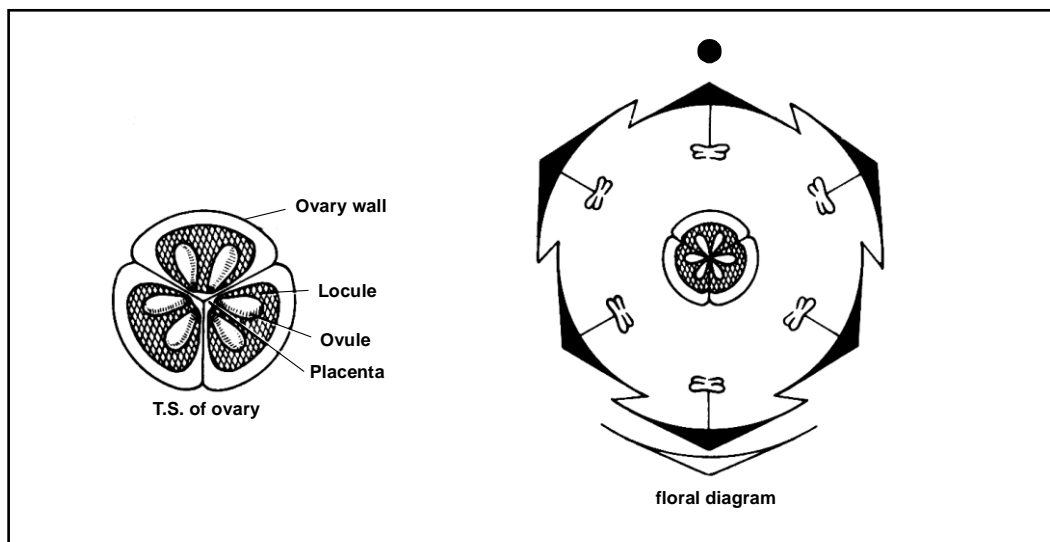
**Seed** : Endospermic.

**Pollination :**

Entomophilous, **Pollination through a specific insect e.g. By *Pronuba Yuccasela* in *Yucca*.**

**Floral - formula:** Br.  $\oplus \text{♀}$   $\overset{\curvearrowright}{P_{(3+3) \text{ or } 3+3} A_{3+3} \underline{G}_{(3)}}$

**Floral diagram:**



### Economic Importance:

Many plants belonging to this family are good ornamentals (**tulip**, **Gloriosa**), source of medicine (**Aloe**), vegetables (**Asparagus**), and colchicine (**Colchicum autumnale**).

### Resonate the Concept

#### (1) Food :

- (i) **Onion - (*Allium cepa*)** : Edible part is bulbs and fleshy leaves.
- (ii) **Garlic - (*Allium sativum*)** : Bulbs.
- (iii) ***Asparagus officinalis*** : Fasciculated roots.

#### (2) Medicines :

- (i) ***Smilax zeylanica*** : Roots yield sarsperilla like drug for purifying blood, piles, leprosy, gonorrhoea.
- (ii) ***Allium sativum*** : Useful in Heart disease and rheumatism.
- (iii) ***Asphodelus tenuifolius*** : Its seed are useful in the treatment of ulcer and swelling.
- (iv) ***Crinum asiaticum*** : Extract of leaves is used in rheumatism and ear pain
- (v) ***Fritillaria cirrhosa*** : Dried bulbs useful in Tuberculosis and Asthma
- (vi) ***Aloe*** : Used in skin disease and constipation.

#### (3) Other uses :

- (i) ***Colchicum luteum* and *C. autumnale*** : **Colchicine** obtain from corm which is used in experiment to induce polyploidy.
- (ii) **Indian bow string hemp (*Sansivieria roxburghiana*)** : Fibres obtain from leaves which are useful for making ropes, nets, etc.
- (iii) **Dragon's blood plant (*Dracaena draca*)** : Red coloured resin obtain from its stem. It is also called Dragon blood. Metals are polished by this resin.
- (iv) ***Phormium tenax*** : Its oil is used in making paints & Varnish.

**(4) Ornamental plants :**

(i) Mother in Law's tongue	–	<i>Sansivieria trifasciata</i>
(ii) Dragger plant	–	<i>Yucca alolifolia</i>
(iii) Glory lily	–	<i>Gloriosa superba</i>
(iv) Asparagus fern	–	<i>Asparagus plumosus</i>
(v) Tulips	–	<i>Tulipa gesneriana</i>
(iv) Lily	–	<i>Lilium bulbiferum</i>
(vii) Butcher's boom	–	<i>Ruscus aculeatus</i>
(viii) Satavar	–	<i>Asparagus officinale</i>